NIPPON CHEMI-CON

# ALUMINUM ELECTROLYTIC CAPACITORS

CAT. No. E1001M

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# CAPACITOR SERIES TABLE, CONTENTS

| Series | | | Features | Endurance (+R=With ripple) | Standard Type | Low impedance | Solvent resistant | Terminal type | Rated voltage range (Vdc) | Capacitance range (μF) |
|---|---|---|---|---|---|---|---|---|---|---|
| Conductive Polymer Electrolyte Type | Surface Mount Type | PXG (NEW!) | Super low ESR, high ripple current, downsized | 105℃ 1,000 to 2,000 hours | | ● | ● | SMD | 16 to 25 | 10 to 180 |
| | | PXK | Super low ESR, high ripple current, downsized | 105℃ 1,000 to 2,000 hours | | ● | ● | SMD | 2.5 to 16 | 100 to 560 |
| | | PXS | Long life, super low ESR, high ripple current | 105℃ 5,000 hours | | ● | ● | SMD | 4 to 16 | 22 to 560 |
| | | PXF (Upgrade!) | Super low ESR, high ripple current | 105℃ 1,000 to 2,000 hours | | ● | ● | SMD | 2 to 10 | 120 to 1,000 |
| | | PXE | Super low ESR, high ripple current | 105℃ 2,000 hours | | ● | ● | SMD | 2.5 to 16 | 33 to 2,700 |
| | | PXA | Super low ESR, high ripple current | 105℃ 1,000 to 2,000 hours | ● | ● | ● | SMD | 2.5 to 25 | 3.3 to 1,500 |
| | | PXD (NEW!) | 125℃, super low ESR, high ripple current | 125℃ 2,000 hours | | ● | ● | SMD | 2.5 to 10 | 47 to 470 |
| | | PXH | 125℃, super low ESR, high ripple current | 125℃ 1,000 hours | | ● | ● | SMD | 2.5 to 20 | 22 to 1,000 |
| | Radial Lead Type | PSG (Upgrade!) | Long life, super low ESR, high ripple current | 105℃ 2,000 to 5,000 hours | | ● | ● | Radial | 16 to 25 | 56 to 1,000 |
| | | PSK (Upgrade!) | Long life, super low ESR, high ripple current | 105℃ 5,000 hours | | ● | ● | Radial | 2.5 to 6.3 | 220 to 560 |
| | | PSF (Upgrade!) | Long life, super low ESR, high ripple current | 105℃ 5,000 hours | | ● | ● | Radial | 2 to 16 | 100 to 1,600 |
| | | PSE | Long life, super low ESR, high ripple current | 105℃ 5,000 hours | | ● | ● | Radial | 2.5 to 6.3 | 470 to 820 |
| | | PSC | Super low ESR, high ripple current | 105℃ 2,000 hours | | ● | ● | Radial | 2.5 to 16 | 270 to 2,700 |
| | | PSA | Super low ESR, high ripple current | 105℃ 2,000 hours | ● | ● | ● | Radial | 2.5 to 16 | 47 to 1,500 |
| | | PS | Super low ESR, high ripple current | 105℃ 2,000 hours | ● | ● | ● | Radial | 2.5 to 35 | 18 to 1,500 |
| Surface Mount Type | General Purpose | MVA | 85℃,standard | 85℃ 2,000 hours | ● | | ▲ | SMD | 4 to 450 | 1.0 to 10,000 |
| | | MVE | 105℃, standard | 105℃ 1,000 to 2,000 hours | ● | | ▲ | SMD | 6.3 to 450 | 1.0 to 6,800 |
| | Low Impedance | MZJ | Super low ESR | 105℃ 2,000 hours | | ● | ● | SMD | 6.3 to 35 | 10 to 1,800 |
| | | MZA | Super low impedance | 105℃ 2,000 hours | | ● | ● | SMD | 6.3 to 80 | 3.3 to 1,500 |
| | | MVY | Low impedance, standard, Case size φ4 to 18mm | 105℃ 1,000 to 5,000 hours | ● | ● | ▲ | SMD | 6.3 to 100 | 1.0 to 8,200 |
| | | MZF | 10,000 hours, Long life, low impedance | 105℃ 10,000 hours | | ● | ● | SMD | 6.3 to 50 | 10 to 470 |
| | | MZE | 7,000/8,000 hours, Long life, low impedance | 105℃ 7,000 to 8,000 hours | | ● | ● | SMD | 6.3 to 50 | 10 to 470 |
| | | MZK | 5,000 hours, Long life, low impedance | 105℃ 5,000 hours | | ● | ● | SMD | 6.3 to 35 | 10 to 150 |
| | | MLA | 3,000 hours, Long life, low impedance | 105℃ 3,000 hours | | ● | ● | SMD | 6.3 to 50 | 10 to 1,000 |
| | Long Life | MLF | 10,000 hours, Long life | 105℃ 10,000 hours | | | ● | SMD | 6.3 to 50 | 1.0 to 1,000 |
| | | MLE | 7,000/8,000 hours, Long life | 105℃ 7,000 to 8,000 hours | | | ● | SMD | 6.3 to 50 | 1.0 to 1,000 |
| | | MLK | 5,000 hours, Long life | 105℃ 5,000 hours | | | ● | SMD | 6.3 to 35 | 4.7 to 100 |
| | | MVL | 3,000/5,000 hours, Long life | 105℃ 3,000 to 5,000 hours | | | ● | SMD | 6.3 to 50 | 1.0 to 1,000 |
| | | MVJ | 2,000 hours, Long life | 105℃ 2,000 hours | | | ● | SMD | 6.3 to 50 | 1.0 to 100 |
| | Special Application | MVH | 125℃, Case size φ6.3 to 18mm | 125℃ 1,000 to 5,000 hours | ● | | ▲ | SMD | 10 to 450 | 3.3 to 4,700 |
| | | MHB | 125℃, Specified ESR after endurance | 125℃ 2,000 hours | | | ● | SMD | 10 to 35 | 47 to 470 |
| | | MHJ | 125℃, Specified ESR after endurance | 125℃ 2,000 hours | | | ● | SMD | 10 to 35 | 47 to 470 |
| | | MKB | Specified ESR at low temperature | 105℃ 3,000 hours | | | | SMD | 400 | 2.2 to 4.7 |
| | | MV-BP | Bi-polar | 85℃ 2,000 hours | | | ● | SMD | 6.3 to 50 | 1.0 to 47 |
| | | MVK-BP | Bi-polar | 105℃ 1,000 hours | | | ● | SMD | 6.3 to 50 | 1.0 to 47 |
| Radial Lead Type | Low Profile | SRM | 5mm height, downsized | 85℃ 1,000 hours | | | ● | Radial | 4 to 50 | 1.0 to 330 |
| | | SRE | 85℃, 5mm height, standard | 85℃ 1,000 hours | ● | | | Radial | 4 to 50 | 1.0 to 100 |
| | | KRE | 105℃, 5mm height, standard | 105℃ 1,000 hours | ● | | ● | Radial | 6.3 to 50 | 1.0 to 100 |
| | | SRA | 85℃, 7mm height, standard | 85℃ 1,000 hours | ● | | | Radial | 4 to 63 | 1.0 to 470 |
| | | KMA | 105℃, 7mm height, standard | 105℃ 1,000 hours | ● | | ● | Radial | 4 to 63 | 1.0 to 220 |
| | | SRG | φ4×7 to φ18×25mm, low profile | 85℃ 1,000 to 2,000 hours | | | ● | Radial | 4 to 50 | 1.0 to 10,000 |
| | | KRG | φ4×7 to φ18×25mm, low profile | 105℃ 1,000 hours | | | ● | Radial | 6.3 to 50 | 1.0 to 10,000 |
| | General Purpose | SMQ | 85℃, Downsized | 85℃ 2,000 hours | | | | Radial | 6.3 to 450 | 1.0 to 47,000 |
| | | KMQ | 105℃, Downsized | 105℃ 1,000 to 2,000 hours +R | | | ▲ | Radial | 6.3 to 450 | 1.0 to 47,000 |
| | | SMG | 85℃, standard | 85℃ 2,000 hours | ● | | ▲ | Radial | 6.3 to 450 | 1.0 to 39,000 |
| | | KMG | 105℃, standard | 105℃ 1,000 to 2,000 hours +R | ● | | ▲ | Radial | 6.3 to 450 | 1.0 to 22,000 |
| | | SME-BP | Bi-polar, downsized | 85℃ 2,000 hours | | | ● | Radial | 6.3 to 100 | 1.0 to 6,800 |
| | | KME-BP | Bi-polar, downsized | 105℃ 1,000 hours | | | ● | Radial | 6.3 to 100 | 1.0 to 6,800 |
| | High Frequency Use | KZM | Long life, super low impedance | 105℃ 6,000 to 10,000 hours +R | | ● | | Radial | 6.3 to 50 | 27 to 10,000 |
| | | KZH | Super low impedance, downsized | 105℃ 5,000 to 6,000 hours +R | | ● | | Radial | 6.3 to 35 | 47 to 8,200 |
| | | KZE | Low impedance, downsized | 105℃ 1,000 to 5,000 hours +R | | ● | | Radial | 6.3 to 100 | 6.8 to 6,800 |
| | | KYA (Upgrade!) | Low impedance, downsized | 105℃ 4,000 to 10,000 hours +R | | ● | | Radial | 6.3 to 100 | 1.0 to 15,000 |
| | | KY | Low impedance, standard | 105℃ 4,000 to 10,000 hours +R | ● | ● | | Radial | 6.3 to 100 | 1.0 to 18,000 |
| | | LZA (NEW!) | Low impedance, downsized | 105℃ 4,000 to 5,000 hours +R | | ● | ● | Radial | 6.3 to 35 | 330 to 6,800 |
| | | LXZ | Low impedance, downsized | 105℃ 2,000 to 8,000 hours +R | ● | ● | ● | Radial | 6.3 to 63 | 12 to 18,000 |
| | | LXY | Low impedance | 105℃ 2,000 to 8,000 hours +R | | ● | ● | Radial | 10 to 63 | 10 to 8,200 |
| | | LXV | Low impedance | 105℃ 2,000 to 5,000 hours +R | | ● | ● | Radial | 6.3 to 100 | 5.6 to 15,000 |

: Recommendation products

▲ : Some of range are solvent resistant.

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|---|---|---|---|---|---|---|---|---|---|---|
| Radial Lead Type | High Reliability | KXJ | Long life, downsized, for input filtering | 105℃ 10,000 to 12,000 hours +R | | | | Radial | 160 to 450 | 6.8 to 680 |
| | | KXG | Long life, downsized, for input filtering | 105℃ 8,000 to 10,000 hours +R | ● | | | Radial | 160 to 450 | 6.8 to 330 |
| | | SMH | For input filtering, φ20×20 to φ22×50mm (Ask Engineering Bulletin No808 in detail) | 85℃ 2,000 hours +R | | | | Radial | 160 to 450 | 33 to 470 |
| | | KMH | For input filtering, φ20×20 to φ22×50mm (Ask Engineering Bulletin No810 in detail) | 105℃ 2,000 hours +R | | | | Radial | 160 to 450 | 33 to 470 |
| | | KHE (NEW!) | Low profile, for input filtering | 105℃ 2,000 hours +R | | | | Radial | 400 to 450 | 27 to 120 |
| | | PAG | Low profile, for input filtering | 105℃ 2,000 hours +R | | | | Radial | 200 to 450 | 18 to 560 |
| | | KLJ | No sparks with DC overvoltage, downsized | 105℃ 2,000 hours +R | | | | Radial | 200 & 400 | 4.7 to 330 |
| | | KLG | No sparks with DC overvoltage | 105℃ 2,000 hours +R | | | | Radial | 200 & 400 | 22 to 330 |
| | | LE (NEW!) | Long life, downsized | 105℃ 10,000 hours +R | | | ● | Radial | 10 to 100 | 1.0 to 330 |
| | | FL | Long life, downsized | 105℃ 3,000 hours +R | | | ● | Radial | 6.3 to 50 | 1.0 to 270 |
| | | GPA (Upgrade!) | 125℃, low impedance, downsized | 125℃ 3,000 to 5,000 hours +R | | ● | ● | Radial | 25 to 100 | 200 to 6,800 |
| | | GXE | 125℃, low impedance, downsized | 125℃ 2,000 to 5,000 hours +R | | ● | ▲ | Radial | 10 to 450 | 4.7 to 4,700 |
| | | GXL | 125℃ | 125℃ 5,000 hours +R | | | ● | Radial | 10 to 50 | 100 to 1,000 |
| | | GXH | 135℃ | 135℃ 1,500 / 2,000 hours +R | | | ● | Radial | 10 to 50 | 100 to 4,700 |
| | Special Application | LBG | For airbag | 105℃ 5,000 hours +R | | ● | ● | Radial | 25 & 35 | 1,000 to 11,000 |
| | | KZA | For PC motherboard (Ask Engineering Bulletin No809 in detail) | 105℃ 2,000 hours +R | | ● | | Radial | 6.3 to 16 | 470 to 3,300 |
| | | LLA | Low DC leakage, general (Ask Engineering Bulletin No575 in detail) | 85℃ 1,000 hours | | | ● | Radial | 6.3 to 50 | 1.0 to 15,000 |
| | | PH | For photo flash | 55℃ 5,000 times charging | | | | Radial | 300 & 330 | - |
| Snap-in Type | General Purpose | SMQ | 85℃, standard | 85℃ 2,000 hours +R | ● | | | Pin | 160 to 450 | 82 to 3,900 |
| | | KMW (NEW!) | 105℃, super downsized | 105℃ 2,000 hours +R | | | | Pin | 400 to 450 | 120 to 1,000 |
| | | KMR | 105℃, downsized | 105℃ 2,000 hours +R | | | | Pin | 160 to 450 | 100 to 3,300 |
| | | KMQ | 105℃, standard | 105℃ 2,000 hours +R | ● | | | Pin | 35, 50, 160 to 450 | 68 to 33,000 |
| | | SMM | 85℃, 3,000 hours | 85℃ 3,000 hours +R | ● | | | Pin | 160 to 450 | 47 to 3,300 |
| | | KMT (NEW!) | 105℃, high ripple | 105℃ 3,000 hours +R | | | | Pin | 420 & 450 | 82 to 680 |
| | | KMS | 105℃, downsized | 105℃ 3,000 hours +R | ● | | | Pin | 160 to 500 | 47 to 3,300 |
| | | KMM | 105℃, 2,000/3,000 hours | 105℃ 2,000 to 3,000 hours +R | ● | | | Pin | 160 to 450 | 39 to 3,300 |
| | | SMH | 85℃, standard (Ask Engineering Bulletin No585 for 160 to 450V) | 85℃ 2,000 hours +R | | | | Pin | 6.3 to 100 | 820 to 100,000 |
| | | KMH | 105℃, standard (Ask Engineering Bulletin No584 for 160 to 450V) | 105℃ 2,000 hours +R | | | | Pin | 6.3 to 100 | 560 to 82,000 |
| | Low Profile | SLM | 15mm height, low profile | 85℃ 2,000 hours +R | | | | Pin | 160 to 400 | 47 to 560 |
| | | KLM | 15mm height, low profile | 105℃ 2,000 hours +R | | | | Pin | 160 to 400 | 39 to 390 |
| | High Reliability | TXH (NEW!) | Long life | 105℃ 10,000 hours +R | | | | Pin | 200 to 450 | 220 to 1,800 |
| | | LXM | Long life, downsized | 105℃ 7,000 hours +R | | | | Pin | 160 to 450 | 47 to 2,200 |
| | | LXS (Upgrade!) | Long life, downsized | 105℃ 5,000 hours +R | ● | | | Pin | 160 to 500 | 82 to 3,300 |
| | | LXQ | Long life, downsized | 105℃ 5,000 hours +R | | | | Pin | 160 to 450 | 82 to 2,700 |
| | | LXG | Long life | 105℃ 5,000 hours +R | | | | Pin | 10 to 100 | 390 to 47,000 |
| | | CHA | No sparks with DC overvoltage, downsized | 105℃ 2,000 hours +R | | | | Pin | 200 to 450 | 56 to 1,200 |
| | | LXH | No sparks with DC overvoltage | 105℃ 3,000/5,000 hours +R | | | | Pin | 200 & 400 | 68 to 1,500 |
| | | KMV | For charge and discharge application | 105℃ 3,000 hours +R | | | | Pin | 350 to 450 | 82 to 1,200 |
| Screw-Mount Type | General Purpose | SME | 85℃, standard (Ask Engineering Bulletin No548 for 160 to 250V) | 85℃ 2,000 hours +R | ● | | | Screw | 10 to 100 | 2,200 to 680,000 |
| | | KMQ (NEW!) | 105℃, downsized | 105℃ 2,000 hours +R | | | | Screw | 315 to 450 | 330 to 10,000 |
| | | KMH | 105℃, standard | 105℃ 2,000 hours +R | ● | | | Screw | 10 to 400 | 180 to 680,000 |
| | For Inverter | RWG | Long life, high ripple, downsized | 85℃ 5,000 hours +R | | | | Screw | 350 to 450 | 1,500 to 18,000 |
| | | RWF | Long life, high ripple | 85℃ 5,000 hours +R | | | | Screw | 350 to 450 | 820 to 22,000 |
| | | RWQ | High ripple, downsized | 85℃ 2,000 hours +R | ● | | | Screw | 350 to 550 | 390 to 15,000 |
| | | RWE | High ripple | 85℃ 2,000 hours +R | ● | | | Screw | 350 to 550 | 100 to 12,000 |
| | | RWY | Long life, high ripple, low cost | 85℃ 5,000 hours +R | | | | Screw | 350 to 450 | 500 to 14,000 |
| | | RWL | Long life, high ripple | 85℃ 20,000 hours +R | | | | Screw | 350 to 450 | 2,200 to 12,000 |
| | | FTP | Ellips can shape, high ripple | 85℃ 5,000 hours +R | | | | Screw | 63 to 450 | 270 to 21,000 |
| | | LXA | 105℃, long life | 105℃ 2,000/5,000 hours +R | | | | Screw | 10 to 525 | 330 to 390,000 |
| | | LXR | 105℃, long life, high ripple | 105℃ 5,000 hours +R | | | | Screw | 350 to 450 | 2,200 to 15,000 |
| | | RWV | For charge and discharge application | 85℃ 5,000 hours +R | | | | Screw | 350 to 450 | 820 to 18,000 |

: Recommendation products

▲ : Some of range are solvent resistant.

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# GROUP CHART

☆ : : Recommendation products

## CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

### ■SURFACE MOUNT

**Surface Mount**

- PXA → (Lower ESR) PXE → (Lower ESR) PXF (Upgrade!)
- PXE → (Longer Life) PXS 5,000H
- PXE → PXK
- PXF → PXG (New!)

**High Temp.** 125℃

- PXH
- PXD (New!)

Digitalization Super Low ESR

### ■RADIAL LEAD

**Radial Lead**

- PS → (Lower ESR) PSA → (Lower ESR) ★PSC → PSE 5,000H (Upgrade!) → PSF 5,000H (Upgrade!)
- PSE 5,000H → PSK 5,000H (Upgrade!)
- PSF 5,000H → PSG (Upgrade!)

## ALUMINUM ELECTROLYTIC CAPACITORS

### ■SURFACE MOUNT

**Surface Mount Standard**

- ★MVA 85℃
- ★MVE 105℃

**105℃ Low Impedance** (Digitalization)

- ★MVY 1,000H → (Lower Z) ★MZA 2,000H → (Lower Z) MZJ 2,000H
- MZK 5,000H Low Profile
- MLA 3,000H → (Longer Life) MZE 7,000/8,000H → (Longer Life) MZF 10,000H

**High Temp.** (Automotive Application) 125℃

- ★MVH 125℃
- MHB 低ESR化
- MHJ 小形化

**105℃ Long Life**

- MVJ 2,000H → (Longer Life) MVL 3,000/5,000H → (Longer Life) MLE 7,000/8,000H → (Longer Life) MLF 10,000H
- MKB 3,000H
- MLK 5,000H Low Profile

### ■RADIAL LEAD

**Low Profile (5mm)**

- SRM 85℃ → (Downsized) SRE 85℃
- KRE 105℃

**Low Profile (from 7mm)**

- SRG 85℃ → (Downsized) SRA 85℃
- KRG 105℃
- KMA 105℃

**105℃ Low Impedance** (Low Profile Power Supply Output Filter)

- LXY High Reliability → (Lower Z) ★LXZ High Reliability → (Lower Z) LZA High Reliability (New!)
- LXV Low Z
- KYA Low Z (Upgrade!)
- ★KY Long Life, Low Z → (Downsized) KZE Low Z → KZH Low Z → ★KZM Long Life, Low Z

**Radial Lead Standard**

- ★SMQ 85℃ → (Downsized) SMG 85℃
- ★KMQ 105℃
- KMG 105℃

**105℃ High Ripple Current / Long Life** (Power Supply Input Filter)

- PAG 2,000H → KHE 2,000H (New!) → KXG 8,000/10,000H → ★KXJ 10,000/12,000H

Downsized

**High Temp.**

125℃

- GXE 2,000 to 5,000H
- GXL 5,000H
- GPA 3,000/5,000H (Upgrade!)

135℃

- GXH 1,500/2,000H

(Automotive Application)

**For Airbag**

- LBG 105℃5,000H

**Long Life**

- LE 105℃10,000H (New!)
- FL 105℃3,000H

**No Sparks against Over-Voltage**

- KLJ 105℃ → (Downsized) KLG 105℃

**For Photo Flash**

- PH



CAT. No. E1001M

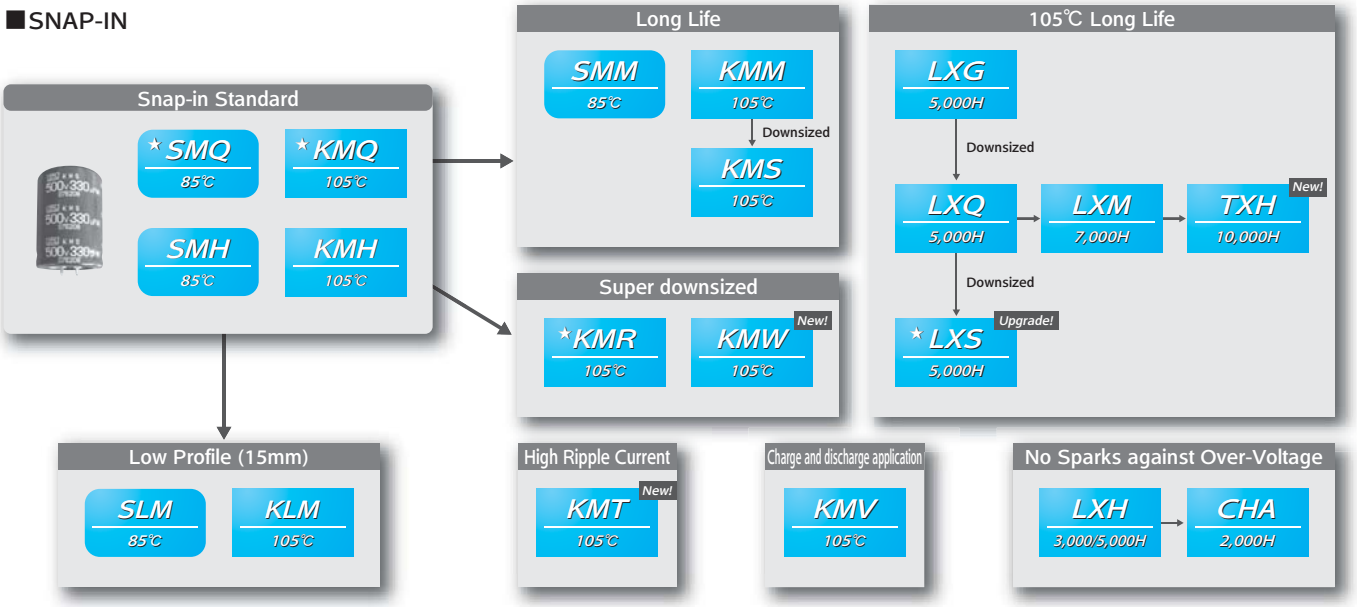
# GROUP CHART

NIPPON CHEMI-CON

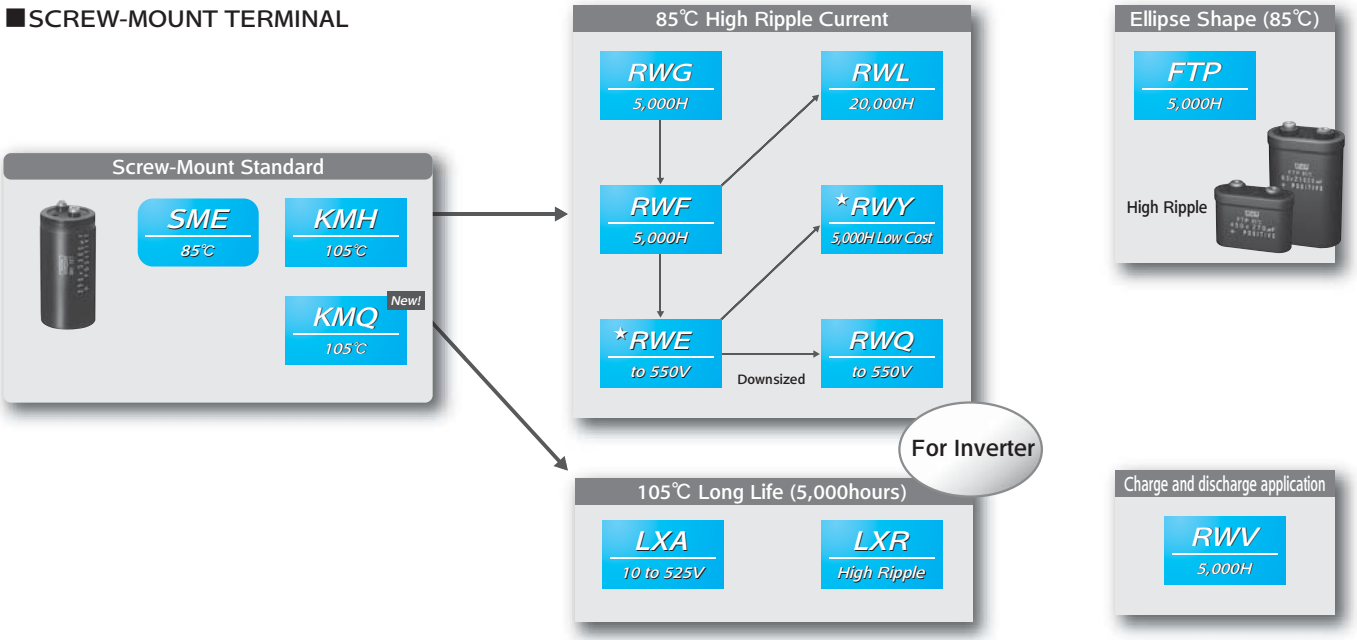
☆ : Recommendation products

## ALUMINUM ELECTROLYTIC CAPACITORS

### ■SNAP-IN




### ■SCREW-MOUNT TERMINAL

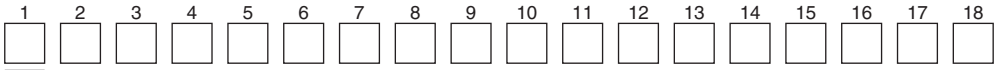


# PART NUMBERING SYSTEM

## Part numbering system

**Our part numbering system is common to all of Nippon Chemi-Con's subsidiaries worldwide, and has been switching the conventional part numbering system. The part number uses 18-digit codes to express information of principal product specifications such as product category, series name, rated voltage, capacitance, case size and RoHS compliance.**

### ●Categories




| Code | Details |
|---|---|
| A | Conductive Polymer Aluminum Solid Capacitors (Polar) |
| E | Aluminum Electrolytic Capacitors (Polar) |
| B | Aluminum Electrolytic Capacitors (Bi-polar) |
| K | Multilayer Ceramic Capacitors |
| F,W | Film Capacitors |
| D | Electric Double Layer Capacitors |
| T | Metal Oxide Varistors |
| L | Amorphous Choke Coils |

* For digits 2 to 18, please see "Product code guide".

### ●Example

| Product type | Part number (Example) | Conventional part number (Ref.) |
|---|---|---|
| Surface mount type | EMVE160ADA100MD55G | MVE16VC10MD55E0 |
| Radial lead type | EKMQ6R3ETC102MHB5D | TC04RKMQ6. 3VB1000MF50E0 |
| Snap-in type | EKMQ201VSN471MP30S | KMQ200VSSN470M22BE0 |
| Screw mount terminal type | ERWE551LGC821MCD0M | RWE550LGSN820MCC13EA |

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CAT. No. E1001M

# ENVIRONMENTAL CONSIDERATION

## Environment friendly capacitors

Nippon Chemi-Con always considers the environment in product materials, designs and manufacturing. In fact, our factories already have received ISO 14000 certificate. Cadmium, Mercury, Hexavalent Chromium, PBB and PBDE have never been used in our products. Furthermore, lead-containing materials have been eliminated from all our aluminum electrolytic capacitors including Conductive Polymer Aluminum Solid Capacitors to comply with RoHS. If you need "Halogen-Free" products, please consult with us.

### ◆Lead free and Non-PVC Products

**1. Lead wire (Plating)**

| Category | | Plating material on lead wires |
|---|---|---|
| **Chip** | **case code : D46 to JA0** | Sn-Bi |
| | **case code : KE0 to MN0** | Sn |
| **Radial** | **case dia : ～φ8** | Sn-Bi |
| | **case dia : φ10～** | Sn |
| **Snap-in** | | Sn |
| **Screw-Mount** | | Originally lead-free |

*Please consult with us when you need "Lead-free parts" other than the above mentioned terminal plating materials.
(Note) **Sn** : Tin, **Bi** : Bismuth

**2. Sleeve**

| Category | | Sleeve material |
|---|---|---|
| **Chip** | | Sleeveless(Coating case) |
| **Radial** | **φ8×5L** | Sleeveless(Coating case) |
| | **except φ8×5L** | PET |
| **Snap-in** | | PET |
| **Screw-Mount** | | PVC(Lead-free) |

* Please consult with us when you need "Non-PVC parts" other than the above mentioned outer sleeve materials.

The colors of a PET sleeve are "Black", "Brown", and "Dark blue".
Standard designs of "lead-free" Snap-in type are not equipped with a plastic disc.
Please consult with us when you need nonflammable grade for outer sleeve material.

Identification of friendly parts is given by a supplement code (18th digit) of the part number.
For details, please refer to "Product code guide" for each type.

### ◆Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

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# PACKAGING

## TAPING SPECIFICATIONS

### SURFACE MOUNT TYPE (TAPING)

#### ◆CARRIER TAPE [mm]

**Fig.1**

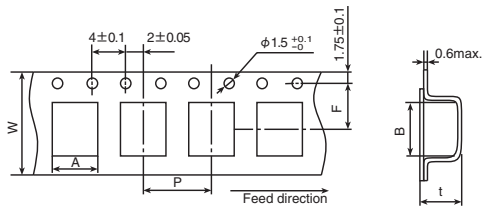



**Fig.2**

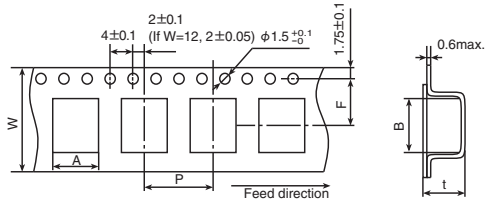



**Fig.3**

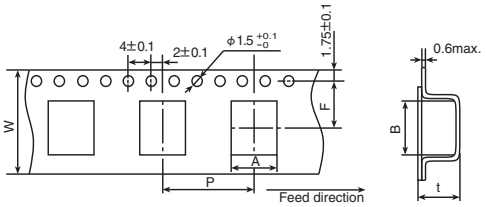
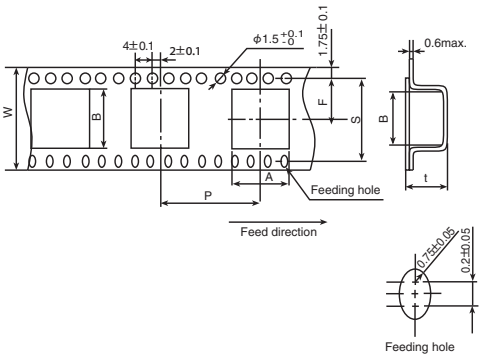



**Fig.4**




[mm]

| Series \ Items | | W ±0.3 | A ±0.2 | B ±0.2 | F ±0.1 | P ±0.1 | t ±0.2 | S ±0.1 | Fig. |
|---|---|---|---|---|---|---|---|---|---|
| AlChip™ MVA/MVE MZJ/MZA MVY/MZF MZE/MZK MLA/MLF MLE/MLK MVL/MVJ MVH/MHB MHJ/MKB MV-BP MVK-BP NPCAP™ PXG/PXK PXS/PXF PXE/PXA PXD/PXH | D55 | 12.0 | 4.7 | 4.7 | 5.5 | 8.0 | 5.7 | — | 1 |
| | D60,D61 | 12.0 | 4.7 | 4.7 | 5.5 | 8.0 | 6.3 | — | 1 |
| | D73 | 12.0 | 4.6 | 4.6 | 5.5 | 8.0 | 7.5 | — | 1 |
| | E46 | 12.0 | 5.7 | 5.7 | 5.5 | 12.0 | 4.9 | — | 2 |
| | E55 | 12.0 | 5.7 | 5.7 | 5.5 | 12.0 | 5.7 | — | 2 |
| | E60,E61 | 12.0 | 5.7 | 5.7 | 5.5 | 12.0 | 6.3 | — | 2 |
| | E73 | 16.0 | 5.7 | 5.7 | 7.5 | 12.0 | 7.5 | — | 2 |
| | F46 | 16.0 | 7.0 | 7.0 | 7.5 | 12.0 | 4.9 | — | 2 |
| | F55 | 16.0 | 7.0 | 7.0 | 7.5 | 12.0 | 5.7 | — | 2 |
| | F60,F61 | 16.0 | 7.0 | 7.0 | 7.5 | 12.0 | 6.3 | — | 2 |
| | F73 | 16.0 | 7.0 | 7.0 | 7.5 | 12.0 | 7.5 | — | 2 |
| | F80 | 16.0 | 7.0 | 7.0 | 7.5 | 12.0 | 8.2 | — | 2 |
| | F90 | 16.0 | 7.0 | 7.0 | 7.5 | 12.0 | 9.2 | — | 2 |
| | H63 | 16.0 | 8.7 | 8.7 | 7.5 | 12.0 | 6.8 | — | 2 |
| | H70 | 24.0 | 8.7 | 8.7 | 11.5 | 12.0 | 7.3 | — | 2 |
| | H80 | 24.0 | 8.7 | 8.7 | 11.5 | 12.0 | 8.3 | — | 2 |
| | HA0 | 24.0 | 8.7 | 8.7 | 11.5 | 16.0 | 11.0 | — | 3 |
| | HC0 | 24.0 | 8.7 | 8.7 | 11.5 | 16.0 | 12.7 | — | 3 |
| | J80 | 24.0 | 10.7 | 10.7 | 11.5 | 16.0 | 8.3 | — | 3 |
| | JA0 | 24.0 | 10.7 | 10.7 | 11.5 | 16.0 | 11.0 | — | 3 |
| | JC0 | 24.0 | 10.7 | 10.7 | 11.5 | 16.0 | 12.8 | — | 3 |
| | KE0 | 32.0 | 13.4 | 13.4 | 14.2 | 24.0 | 14.0 | 28.4 | 4 |
| | KG5 | 32.0 | 13.4 | 13.4 | 14.2 | 24.0 | 16.5 | 28.4 | 4 |
| | LH0 | 44.0 | 17.5 | 17.5 | 20.2 | 28.0 | 16.8 | 40.4 | 4 |
| | LN0 | 44.0 | 17.5 | 17.5 | 20.2 | 28.0 | 22.1 | 40.4 | 4 |
| | MH0 | 44.0 | 19.5 | 19.5 | 20.2 | 32.0 | 17.1 | 40.4 | 4 |
| | MN0 | 44.0 | 19.5 | 19.5 | 20.2 | 32.0 | 22.1 | 40.4 | 4 |

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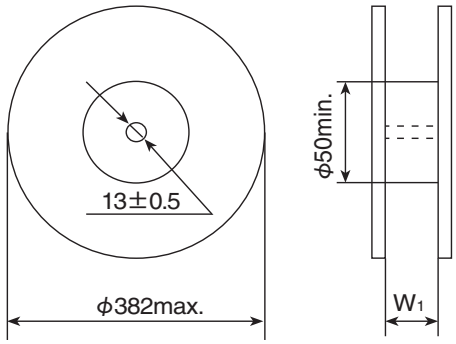
NIPPON CHEMI-CON

# PACKAGING

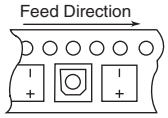
## ◆REEL DIMENSIONS [mm]




## ◆POLARITY

Alchip™ -MVA/MVE/MZJ
MZA/MVY/MZF
MZE/MZK/MLA
MLF/MLE/MLK
MVL/MVJ/MVH
MHB/MHJ/MKB
MV-BP/MVK-BP

NP CAP™ -PXG/PXK/PXS
PXF/PXE/PXA
PXD/PXH

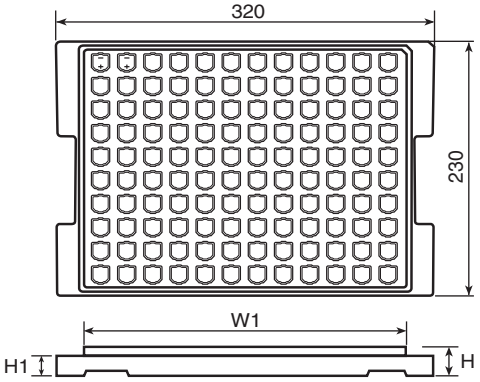



## ◆QUANTITY PER REEL/BOX

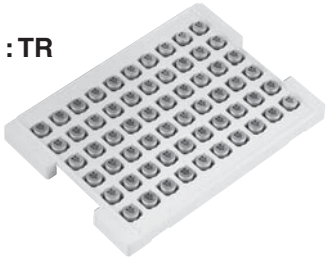
| Series | Size code | Quantity (pcs/reel) | Quantity (pcs/box) | W1 (mm) |
|---|---|---|---|---|
| Alchip™ MVA/MVE MZJ/MZA MVY/MZF MZE/MZK MLA/MLF MLE/MLK MVL/MVJ MVH/MHB MHJ/MKB MV-BP MVK-BP | D55,D60,D61 | 2,000 | 10,000 | 14 |
| | D73 | 1,500 | 7,500 | 14 |
| | E55,E60,E61 | 1,000 | 5,000 | 14 |
| | E73 | 1,000 | 5,000 | 18 |
| | F55,F60,F61,F73 | 1,000 | 5,000 | 18 |
| | F80 | 900 | 4,500 | 18 |
| | F90 | 800 | 4,000 | 18 |
| | H63 | 1,000 | 5,000 | 18 |
| | HA0 | 500 | 1,500 | 26 |
| | JA0 | 500 | 1,500 | 26 |
| | KE0 | 200 | 600 | 34 |
| | KG5 | 150 | 450 | 34 |
| | LH0 | 125 | 250 | 46 |
| | LN0 | 75 | 150 | 46 |
| | MH0 | 125 | 250 | 46 |
| | MN0 | 75 | 150 | 46 |
| NPCAP™ PXG/PXK PXS/PXF PXE/PXA PXD/PXH | D55 | 2,000 | 20,000 | 14 |
| | E46,E60,E61 | 1,000 | 10,000 | 14 |
| | F46,F55,F60,F61 | 1,000 | 7,000 | 18 |
| | F80 | 900 | 6,300 | 18 |
| | H70 | 1,000 | 6,000 | 26 |
| | H80 | 900 | 5,400 | 26 |
| | HA0 | 500 | 3,000 | 26 |
| | HC0 | 400 | 1,200 | 26 |
| | J80 | 500 | 3,000 | 26 |
| | JA0 | 500 | 3,000 | 26 |
| | JC0 | 400 | 1,200 | 26 |

# SURFACE MOUNT TYPE (TRAY)

## ◆DIMENSIONS [mm]




## ●TRAY CODE : TR



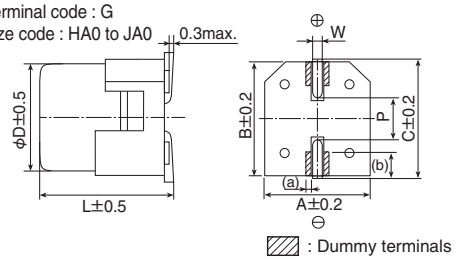
| Size code | H [mm] | W1 [mm] | H1 [mm] | Quantity [pcs/tray] | Quantity [pcs/box] |
|---|---|---|---|---|---|
| KE0 & KG5 | 21.0 | 284 | 18.5 | 120 | 600 |
| LH0 & LN0 | 28.0 | 284 | 24.0 | 80 | 400 |
| MH0 & MN0 | 28.0 | 284 | 24.0 | 60 | 300 |

# VIBRATION RESISTANT STRUCTURE (Terminal code : G)

## ◆DIMENSIONS [mm]

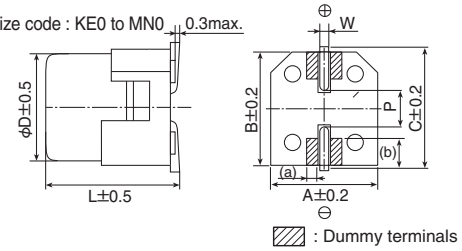
●Terminal code : G

●Size code : HA0 to JA0



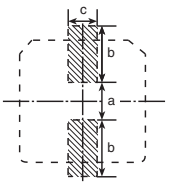

: Dummy terminals

●Size code : KE0 to MN0




: Dummy terminals

## ◆RECOMMENDED SOLDER LAND




Solder land on PC board

| Size code | Dimensions of products (mm) | | | | | | | | | Solder land (mm) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D | L | A | B | C | W | P | (a) | (b) | a | b | c |
| HA0 | 8.0 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 | (0.5) | (1.8) | 3.1 | 4.2 | 3.5 |
| JA0 | 10.0 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 | (0.5) | (2.1) | 4.5 | 4.4 | 3.5 |
| KE0 | 12.5 | 13.5 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 | (1.3) | (3.0) | 3.4 | 6.3 | 9.3 |
| KG5 | 12.5 | 16.0 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 | (1.3) | (3.0) | 3.4 | 6.3 | 9.3 |
| LH0 | 16.0 | 16.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 | (2.0) | (3.0) | 4.7 | 7.8 | 9.6 |
| LN0 | 16.0 | 21.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 | (2.0) | (3.0) | 4.7 | 7.8 | 9.6 |
| MH0 | 18.0 | 16.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 | (2.0) | (4.0) | 4.7 | 8.8 | 9.6 |
| MN0 | 18.0 | 21.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 | (2.0) | (4.0) | 4.7 | 8.8 | 9.6 |

( ); Ref.

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NIPPON CHEMI-CON

# PACKAGING

## TAPING SPECIFICATIONS

### RADIAL LEAD TYPE (TAPING)

### ◆DIMENSION [mm]

**Fig.1**
Taping Code : TA, TC
ϕD=ϕ4 to 8

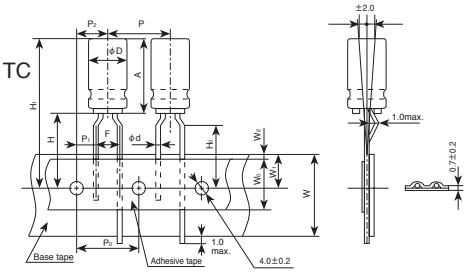



**Fig.2**
Taping Code : TD
ϕD=ϕ5
ϕD×L=ϕ4×7

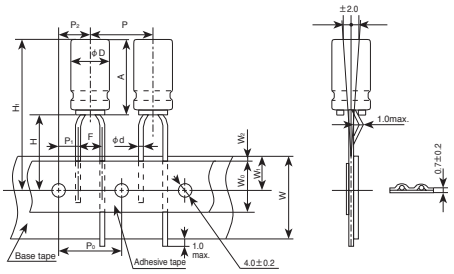



**Fig.3**
Taping Code : TD
ϕD=ϕ6.3 to 12.5

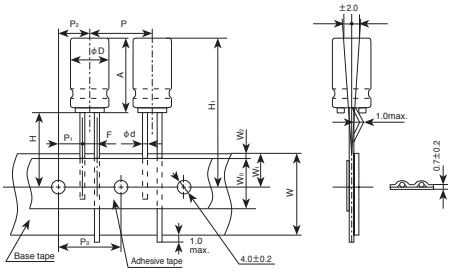
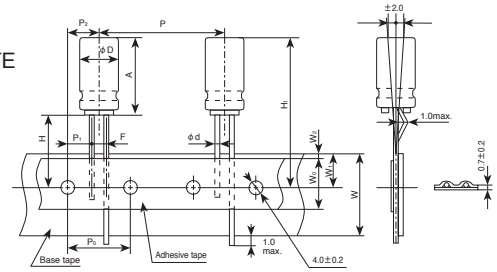



**Fig.4**
Taping Code : TE
ϕD=ϕ12.5




| Code | Taping Code | Case size ϕD | Case size A | ϕd | P | P₀ | P₁ | P₂ | F | W | W₀ | W₁ | W₂ | H | H₀ | H₁ | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tol. | | — | — | ±0.05 | ±1.0 | ±0.2 | ±0.7 | ±1.0 | +0.8 −0.2 | ±0.5 | min. | ±0.5 | max. | ±0.75 | ±0.5 | | |
| Nominal | TA | 4 | 5 | 0.45 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 6.0 | 9.0 | 1.5 | 17.5 | 16.0 | Check insertion machine specs. H1=H+A | 1 |
| | TC | | | | | | | | | | | | | | | | |
| | TD | | 7 | 0.45 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 6.0 | 9.0 | 1.5 | 18.5 *1 / 17.5 | 16.0 | | 2 |
| | TC | | | | | | | | | | | | | | | | 1 |
| | TD | | 11.5 | 0.45 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 10.0 | 9.0 | 1.5 | 17.5 | 16.0 | | 1 |
| | TC | | | | | | | | | | | | | | | | |
| | TD | 5 | 5 to 7 | 0.45 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 6.0 | 9.0 | 1.5 | 18.5 / 17.5 | — / 16.0 | | 2 |
| | TC | | | | | | | | | | | | | | | | 1 |
| | TD | | 9 to 15 | 0.5 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 10.0 | 9.0 | 1.5 | 18.5 | — / 16.0 | | 2 |
| | TC | | | | | | | | | | | | | | | | 1 |
| | TD | 6.3 | 5 to 7 | 0.45 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 6.0 | 9.0 | 1.5 | 18.5 / 17.5 | — / 16.0 | | 3 |
| | TC | | | | | | | | | | | | | | | | 1 |
| | TD | | 9 to 15 | 0.5 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 10.0 | 9.0 | 1.5 | 18.5 | — / 16.0 | | 3 |
| | TC | | | | | | | | | | | | | | | | 1 |
| | TD | 8 | 5 | 0.45 | 12.7 | 12.7 | 5.1 / 3.85 | 6.35 | 2.5 / 5 | 18.0 | 6.0 | 9.0 | 1.5 | 18.5 / 17.5 | — / 16.0 | | 3 |
| | TC | | | | | | | | | | | | | | | | 1 |
| | TC | | 7 | 0.45 | 12.7 | 12.7 | 3.85 | 6.35 | 5 | 18.0 | 6.0 | 9.0 | 1.5 | 17.5 | 16.0 | | 1 |
| | TD | | 9 to 20 | 0.6 | 12.7 | 12.7 | 4.6 / 3.85 | 6.35 | 3.5 / 5 | 18.0 | 10.0 | 9.0 | 1.5 | 20.0 | — / 16.0 | | 3 |
| | TC | | | | | | | | | | | | | | | | 1 |
| tol. | | ±0.5 | max. | ±0.05 | ±1.0 | ±0.3 | ±0.7 | ±1.3 | +0.8 −0.2 | ±0.5 | min. | ±0.5 | max. | +2.0 −0 | — | | |
| Nominal | TD | 10 | 21 | 0.6 | 12.7 | 12.7 | 3.85 | 6.35 | 5 | 18.0 | 12.5 | 9.0 | 1.5 | 18.0 | — | | 3 |
| | TD | 12.5 | 26 | 0.6 | *2 15 | 15 | 5.0 | 7.5 | 5 | 18.0 | 12.5 | 9.0 | 1.5 | 18.0 | — | | 3 |
| | TE | | | 0.6 | 25.4 | 12.7 | 3.85 | 6.35 | 5 | 18.0 | 12.5 | 9.0 | 1.5 | 18.0 | — | | 4 |

* 1 : For ϕ4×7 (A=7, F=25), shall be $18.5^{-0.5/+0.75}$ (Taping code : TD) at Fig.2.

* 2 : P=15 taping is not standard. Use P=25.4 taping.

## TAPING CODE

**Example**

| 1 | 2 3 4 | 5 6 7 | 8 | 9 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| E | KMQ | 500 | E | TC | 100 | M | E11 | D |

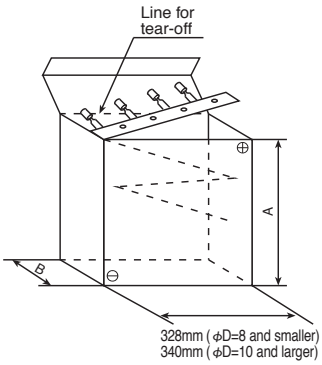
Supplement code
Size code
Capacitance tolerance code
Nominal capacitance code
Lead forming code (Radial lead type)

| Type | Contents | Code 9th | Code 10th |
|---|---|---|---|
| Taping (Radial lead) | Straight | T | D |
| | Gradual forming | | |
| | Straight(Skip a hole) | T | E |
| | Forming(F=2.5mm) | T | A |
| | Forming(F=5.0mm) | T | C |

Terminal code
Rated voltage code
Series code
Category

## QUANTITY PER AMMO PACK

**Ammo pack box**




**Typical example**

| Case size ϕD×L(mm) | | A (mm) | B (mm) | Quantity (pcs.) |
|---|---|---|---|---|
| ϕ4 | L=5 & 7mm | 183 | 42 | 2,000 |
| | L=11.5mm | 183 | 51 | |
| ϕ5 | L=5 & 7mm | 232 | 42 | 2,000 |
| | L=9 to 15mm | 232 | 51 | |
| | L=17mm | 235 | 60 | |
| ϕ6.3 | L=5 & 7mm | 282 | 42 | 2,000 |
| | L=9 to 15mm | 284 | 51 | |
| | L=17mm | 284 | 55 | |
| ϕ8 | L=5 & 7mm | 232 | 42 | 1,000 |
| | L=9 to 15mm | 232 | 51 | |
| | L=17 & 20mm | 235 | 60 | |
| ϕ10 | L=≦16mm | 308 | 56 | 800(500)* |
| | L=17 to 20mm | 308 | 62 | 800 |
| | L=21 to 25mm | 308 | 67 | 800 |
| | L=26 to 30mm | 308 | 71 | 500 |
| ϕ12.5 | L=≦16mm | 308 | 62 | 500 |
| | L=17 to 25mm | 308 | 67 | 500 |

*Minimum order quantity for PSG/ PSK/PSF/PSE/PSC/PSA/PS series

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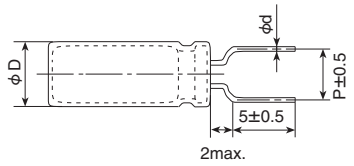
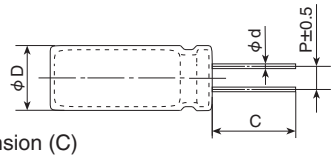
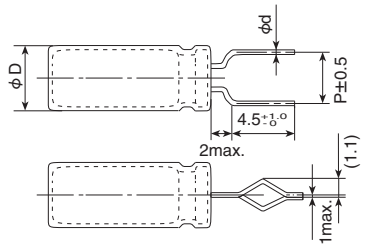
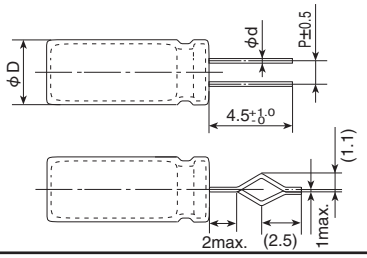
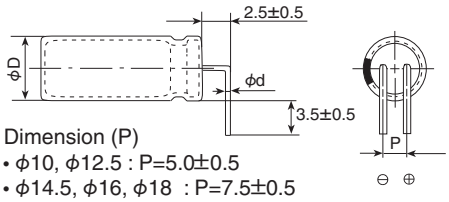
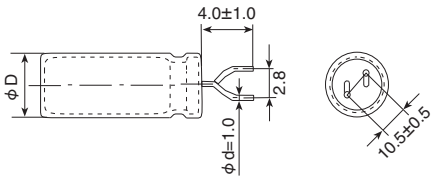
NIPPON CHEMI-CON

# PACKAGING

## RADIAL LEAD TYPE (CUT/FORMED LEAD)

**The following lead configurations are available. When ordering, please indicate the type of lead configurations by using the appropriate supplement code, such as C5, FC, MC or RC in the product part number.**

| Terminal type | Size | Terminal type | Size |
|---|---|---|---|
| ●Lead code : FC (Forming Cut type)<br>  | φD=5 to 8 | ●Lead code : C5 (Cutting type)<br>  <br>Dimension (C)<br>• φD= 4 to 8: C=5.0±0.5(Second standard C=3.5±0.5)<br>• φD=10 to 18: C=5.0$^{+1.0}_{-0}$ (Second standard C=3.5±0.5) | φD=4 to 18 |
| ●Lead code : FM (Snap-in type)<br>  | φD=5 to 8 | ●Lead code : MC (Snap-in type)<br>  | φD=10 to 18 |
| ●Lead code : BC (Horizontal type)<br>  <br>Dimension (P)<br>• φ10, φ12.5 : P=5.0±0.5<br>• φ14.5, φ16, φ18 : P=7.5±0.5 | φD=10 to 18 | ●Lead code : RC (Snap-in type)<br>  | φD=20 to 22 |

* Please consult with us the other terminal forming.

### ◆DIMENSION (P)

[mm]

| Lead forming / Size | | Cutting type | | Snap-in type | |
|---|---|---|---|---|---|
| | | FC | C5 | FM | MC |
| φ4 | | — | 1.5 | — | — |
| φ5 | | 5.0 | 2.0 | 5.0 | — |
| φ6.3 | | 5.0 | 2.5 | 5.0 | — |
| φ8 | 5L | 5.0 | 2.5 | 5.0 | — |
| | 7L min. | 5.0 | 3.5 | 5.0 | — |
| φ10 | | — | 5.0 | — | 5.0 |
| φ12.5 | | — | 5.0 | — | 5.0 |
| φ14.5 | | — | 7.5 | — | 7.5 |
| φ16 | | — | 7.5 | — | 7.5 |
| φ18 | | — | 7.5 | — | 7.5 |

* Please refer to dimensions of each series for lead-wire diameter (φd).

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# PACKAGING

## MINIMUM ORDER QUANTITY

**Please order by minimum order quantity.**

### ◆SURFACE MOUNT

#### ●Vertical

| Series | Size code | Quantity (pcs) | |
|---|---|---|---|
| | | Taping | Tray (pcs/box) |
| Alchip™ MVA/MVE/MZJ MZA/MVY/MZF MZE/MZK/MLA MLF/MLE/MLK MVL/MVJ/MVH MHB/MHJ/MKB MV-BP/MVK-BP | D55, D60, D61 | 2,000 | — |
| | D73 | 1,500 | — |
| | E46, E55, E60, E61, E73 | 1,000 | — |
| | F46, F55, F60, F61, F73 | 1,000 | — |
| | F80, H80 | 900 | — |
| | F90 | 800 | — |
| | H63, H70 | 1,000 | — |
| | HA0 | 500 | — |
| | HC0 | 400 | — |
| | J80, JA0 | 500 | — |
| | JC0 | 400 | — |
| NPCAP™ PXG/PXK/PXS PXF/PXE/PXA PXD/PXH | KE0 | 200 | 600 |
| | KG5 | 150 | 600 |
| | LH0 | 125 | 400 |
| | LN0 | 75 | 400 |
| | MH0 | 125 | 300 |
| | MN0 | 75 | 300 |

### ◆RADIAL

| Size | | Quantity (pcs) | |
|---|---|---|---|
| | | Bagged*1 | Taping |
| φ4 | | 200 | 2,000 |
| φ5 | | 200 | 2,000 |
| φ6.3 | | 200 (200)*2 | 2,000 (2,000)*2 |
| φ8 | | 200 (100)*2 | 1,000 (1,000)*2 |
| φ10 | Height≦25mm | 200 (100)*2 | 800 (500)*2 |
| | Height≧30mm | 200 | 500 |
| φ12.5 | | 100 | 500 |
| φ14.5 | | 50 | 250 |
| φ16 | | 50 | 250 |
| φ18 | | 50 | 250 |

*1 Standard bagged quantity.
*2 Minimum order quantity for PSG/PSK/PSF/PSE/PSC/PSA/ PS series.

### ◆SNAP-IN

200 pieces

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NIPPON CHEMI-CON

# PACKAGING

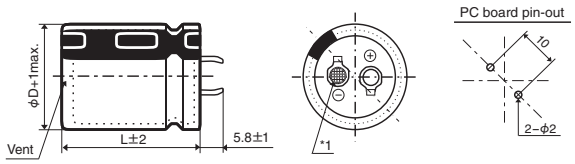
## AVAILABLE TERMINALS FOR SNAP-IN AND SCREW-MOUNT TYPE

- ●We can make the following terminal type on custom design.
- ●There is a restriction for specification of product, please consult with us when the product is required.
- ●Please consult with us about terminal type other than those following listed.

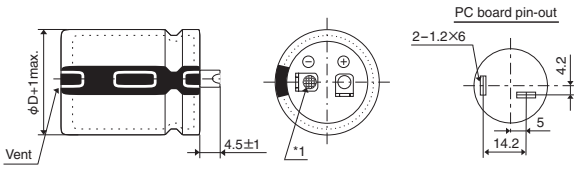
### Snap-in type

[mm]

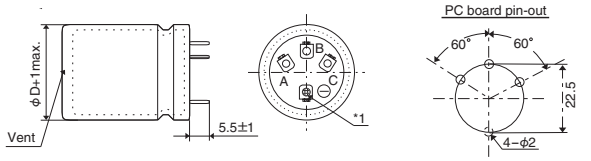
Terminal, Dummy code : VNN — D=φ22 toφ35




Terminal, Dummy code : LIN — D=φ30 toφ40

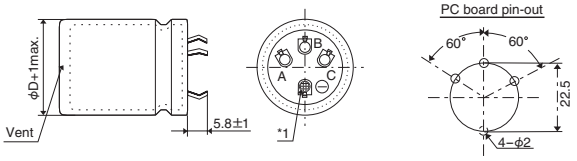



Terminal, Dummy code : VRD — D=φ35, φ40



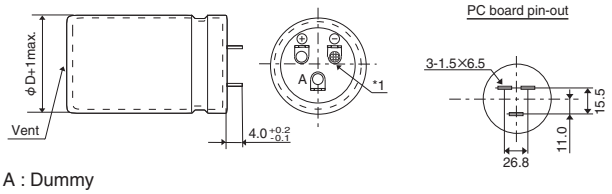

B : Positive, A, C : Dummy

Terminal, Dummy code : VND — D=φ35, φ40



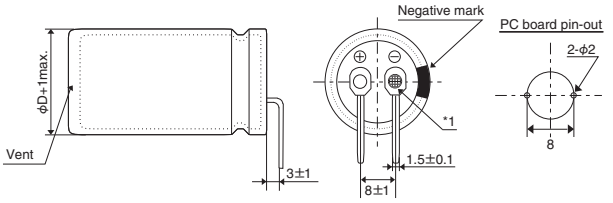

B : Positive, A, C : Dummy

Terminal, Dummy code : LIS — D=φ50




A : Dummy

Horizontal mounting
Terminal, Dummy code : LCN — D=φ20×30 to 50L, φ22×30 to 50L



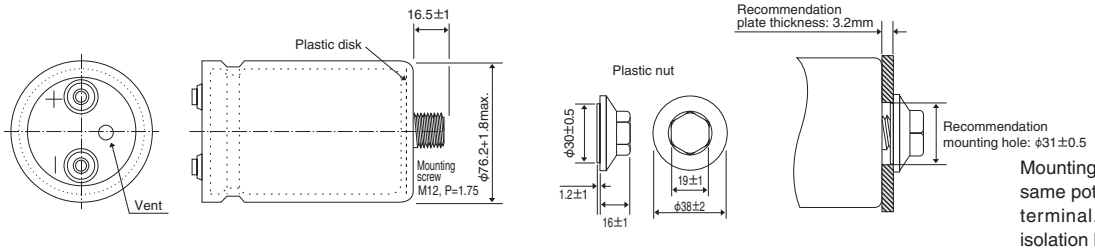

*1 Negative terminal : Mesh marking

*2 Use the dummy terminals for mechanical support only.
The dummy terminals must not be connected to any circuit trace on PC board, be sure to electrically isolate from the negative and the positive terminals.

### Screw-mount type

[mm]

Stud mounting type — D=φ76.2




Mounting screw and case are same potential as the cathode terminal. Please careful of isolation between chassis.

Please consult with us about other size.

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CAT. No. E1001M

# STANDARDIZATION

**The following series are discontinued. Please use the replacements in the table.**

## ◆CHIP TYPE REPLACEMENTS

| Discontinued series | Characteristics | Replacements |
|---|---|---|
| MV | 85℃ standard | MVA |
| MVK | 105℃ standard | MVE |
| MKA | | |
| MVZ | Low impedance | MZA |
| MLD | Long life | MLE |
| MZD | Low impedance,Long life | MZE |

## ◆LEAD TYPE REPLACEMENTS

| Discontinued series | Characteristics | Replacements |
|---|---|---|
| SM | 85℃ standard | SMG |
| SME | | |
| KM | 105℃ standard | KMG |
| KMC | | |
| KME | | |
| USM | | LXY |
| BSM | | |
| SHA | 95℃ L=7mm | LXY/LXZ |
| SM-BP | 85℃ bi-polar | SME-BP |
| KM-BP | 105℃ bi-polar | KME-BP |
| SRC | 85℃ low profile | SRG |
| SXC | Low impedance | KY/LXV |
| LXE | | |
| LXJ | | |
| SXE | | |
| KMF(6.3 to 100$V_{dc}$) | | |
| LXF | Low impedance | LXY |
| KMY | Long life | KY |
| LXA | Long life | KY/LXY |
| GXD | High heat resistance | GXE |
| GHA | 150℃ high heat resistance | * |
| KMF(160 to 450$V_{dc}$) | High ripple current | KXG |
| KMX | Long life | |
| KRL | 105℃ low leakage current | * |

## ◆SCREW-MOUNT TERMINAL REPLACEMENTS

| Discontinued series | Characteristics | Replacements |
|---|---|---|
| LWY | 105℃ long life | LXA/LXR |

* Please contact us.

Already been discontinued products are not listed in this catalog.

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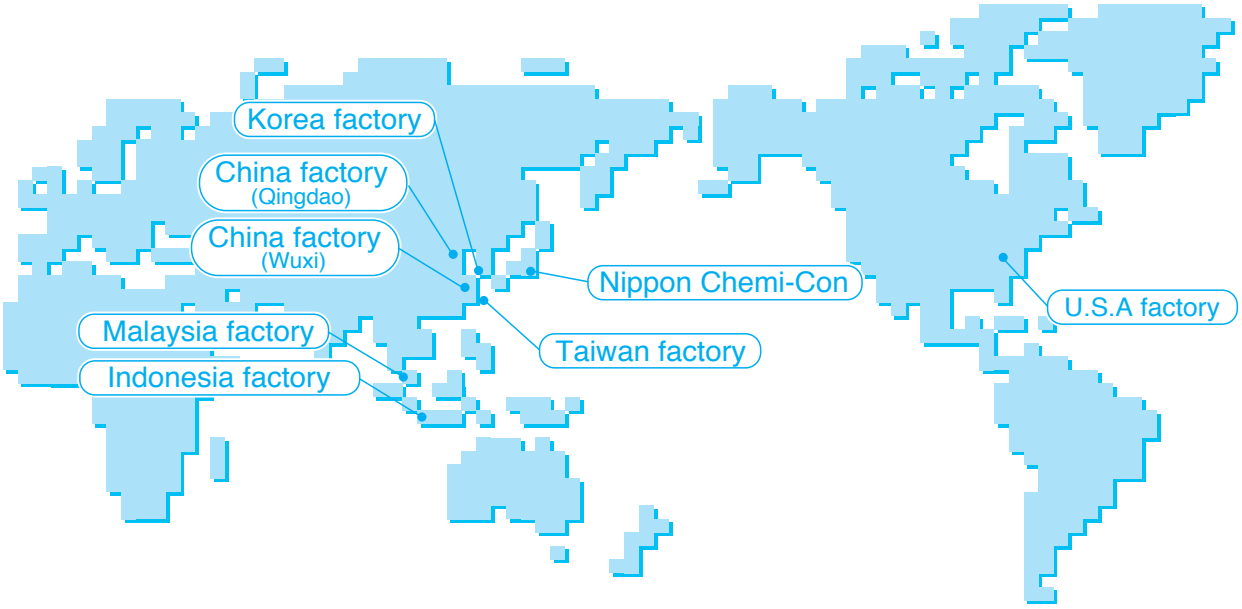
# WORLD-WIDE MANUFACTURING LOCATIONS




## ●AVAILABLE ITEMS BY MANUFACTURING LOCATIONS

| Classification | | Series | Korea factory | China factory (Qingdao) | China factory (Wuxi) | Indonesia factory | Taiwan factory | Malaysia factory | U.S.A. factory |
|---|---|---|---|---|---|---|---|---|---|
| Conductive Polymer Electrolyte Type | SMD | PXE | | | | | ● | | |
| | | PXF | | | | | ● | | |
| | Radial lead | PSA | | | | | ● | | |
| | | PSC | | | | | ● | | |
| | | PSE | | | | | ● | | |
| | | PSF | | | | | ● | | |
| SMD | | MVA | ● | | ● | ● | | | |
| | | MVE | ● | | ● | ● | | | |
| | | MVY | ● | | ● | ● | | | |
| | | MZA | | | | ● | | | |
| Radial lead Low Profile | | SRE | | | | ● | | | |
| | | SRA | | | | ● | | | |
| | | KMA | | | | ● | | | |
| | | SRG | | | | ● | | | |
| Radial lead General purpose | | SMG | ● | ● | ● | ● | ● | | |
| | | KMG | ● | ● | ● | ● | ● | | |
| | | SMQ | | | ● | ● | ● | | |
| | | KMQ | | ● | ● | ● | ● | | |
| Radial lead Bi-polar | | SME-BP | ● | ● | | ● | | | |
| | | KME-BP | ● | ● | | ● | | | |
| Radial lead Low impedance, High ripple | | LXZ | | | ● | ● | | | |
| | | LXV | | | ● | ● | ● | | |
| | | KY | ● | ● | ● | ● | ● | | |
| | | KZE | ● | ● | ● | ● | ● | | |
| | | KZH | | | ● | ● | ● | | |
| | | KZM | | | ● | ● | ● | | |
| | | KXG | | | ● | ● | ● | | |
| | | KXJ | | | ● | ● | ● | | |
| | | PAG | | | ● | | ● | | |
| Snap-in | | SMQ | | | | | | ● | ● |
| | | KMQ | | | | | | ● | ● |
| | | SMM | | | | | | ● | ● |
| | | KMM | | | | | | ● | ● |
| | | KMS | | | | | | ● | ● |
| Screw-mount Terminal | | KMH | | | | | | | ● |
| | | RWE | | | ● | | | | ● |
| | | RWF | | | | | | | ● |
| | | RWL | | | | | | | ● |
| | | LXA | | | | | | | ● |

Please be sure to contact us before ordering as our product range is continuously improved and the product you require may have been superseded.

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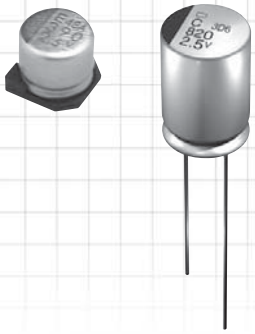
# Conductive Polymer Aluminum Solid Capacitors



# PRECAUTIONS AND GUIDELINES (Conductive Polymer)

The NPCAP™ is a Conductive Polymer Solid Aluminum Capacitor that uses highly conductive polymer electrolytic material.
Please read the following in order to get the most out of your NPCAP™ capacitor.
For aluminum electrolytic capacitors, please refer to PRECAUTIONS AND GUIDELINES.

## 1 Designing Device Circuits

### 1 ) Types of Circuits Where NPCAP™ Capacitors are Not to be Used

The leakage current in conductive polymer solid aluminum capacitors (hereafter called capacitors) may vary depending on thermal stresses during soldering. Avoid the use of capacitors in the following types of circuits:

① High-impedance circuits that are to sustain voltages.
② Coupling circuits
③ Time constant circuits
Because the capacitance varies depending on the environment the capacitors are used in, there is a possibility that the capacitor can affect a time constant circuit where sensitivity to variation in capacitance is required.
④ Other circuits that are significantly affected by leakage current

### 2 ) Circuit Design

Verify the following before designing the circuit:

① The electrical characteristics of the capacitor will vary depending on differences in temperature and frequency. You had better design after verifying the scope of these factors.
② When connecting two or more capacitors in parallel, ensure that the design takes current balancing into account.
③ When two or more capacitors are connected in series, variability in applied voltage may cause over-voltage conditions. Contact Nippon Chemi-Con before using capacitors connected in series.
④ Avoid putting heat generating parts either around the capacitor or on the reverse of the circuit board.

### 3 ) Use in High Reliable and Critical Applications

Consult with Nippon Chemi-Con before using these capacitors in applications involving human life: Aviation/space equipment, Nuclear power equipment, Medical equipment and Automotive equipment, or in applications where capacitor failure could have a major impact.

### 4 ) Polarity

The NPCAP™ is a polarized solid aluminum electrolytic capacitor. Do not apply either reverse voltages or AC voltages to the polarized capacitors, using reversed polarity may cause a short circuit. Refer to the catalog, product specifications or capacitor body to confirm the polarity prior to use.

### 5 ) Operating Voltage

Do not apply a greater than rated voltage, if a voltage greater than the rated voltage is suddenly applied the leakage current increases causing shorting. The peak voltage of superimposed AC voltages (ripple voltages) on DC voltages must not exceed the full rated voltage. While there are specifications for surge voltages exceeding the rated voltage, usage conditions apply, and continued operation for extended periods of time under such conditions cannot be guaranteed.

### 6 ) Ripple Current

Do not apply currents in excess of the rated ripple current. The superimposition of a large ripple current increases the rate of heating within the capacitor. When excessive ripple current is imposed the internal temperature increases which can shorten life and shorting may occur.

### 7 ) Operating Temperature

Use within the stated category temperature range, if used outside this range, characteristics can deteriorate potentially leading to problems.

### 8 ) Charging and Discharging the Capacitor

Do not use the NPCAP™ capacitor in circuits where the capacitor is repetitively charged and discharged rapidly. Repetitively charging and discharging the capacitor rapidly may reduce the capacitance or may cause damage due to internal heating. Use of a protective circuit to ensure reliability is recommended when rush currents exceed 20A.

### 9 ) Leakage current

The leakage current may increase when the capacitors are subjected to the conditions below. After that, however, the leakage current will gradually decrease by self-healing action of the dielectric oxide layer when the capacitors are applied with a voltage less than the rated voltage within the Category Temperature range. As the voltage is closer to the rated voltage and the temperature is closer to the upper limit of Category Temperature range, the leakage current decreases faster.
The leakage current will increase by the following factors,

① Soldering
② Testing of high temperature exposure with no voltage applied, high temperature/humidity storage, temperature cycles, etc.

### 10 ) Failures and Service Life

Based on the JIS C 5003 Standard, the failure rate for NPCAP™ capacitors (with a 60% reliability standard) is as follows:

0.5%/1,000 hours (applied the rate voltage at the upper limit of Category Temperature range)

(1) Failure Modes

① The principal failure mode is wear-out failure, that is, capacitance decreases and ESR increases, and eventually the capacitors become open circuit failure. In addition, short circuit failure may happen with over-voltage and excessive current applied to the capacitors.
② The failure rate would be reduced by reducing ambient temperatures, ripple current and applying voltage.
③ If the short-circuited capacitor, which may be caused by over-voltages higher than the rated voltage or other conditions, has a large amount of current passed through, the aluminum can of the capacitor bulges and might be expelled with odor gas emitted.
④ The product contains flammable materials. If the short causes a spark it may ignite.
Please be careful when installing the product, its position and the layout design.

- Increase safety by using in conjunction with a protective circuit or protective equipment.
- Install measures such as redundant circuits so that the failure of a part of the equipment will not cause unstable operation.

(2) Service Life

NPCAP™ uses rubber as the sealing material, so the service life depends on the thermal integrity of this rubber. Consequently, it is recommended to use the capacitor at a lower temperature than the maximum temperature for the capacitor category.

### 11 ) Capacitor Insulation

Insulation of the capacitor's case is not guaranteed. Ensure electrical insulation between the capacitor case, negative electrode, positive electrode and circuit pattern.

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# PRECAUTIONS AND GUIDELINES (Conductive Polymer)

### 12 ) Capacitor Usage Environment

Do not use/expose capacitors to the following conditions.

① Oil, water, salty water, take care to avoid storage in damp locations.
② Direct sunlight
③ Toxic gases such as hydrogen, sulfide, sulfurous acids, nitrous acids, chlorine and chlorine compounds, bromine and bromine compounds, ammonia, etc.
④ Ozone, ultraviolet rays and radiation.
⑤ Severe vibration or mechanical shock conditions beyond the limits advised in the product specification section of the catalog.

### 13 ) Capacitor mounting

① For the surface mount capacitor, design the solder land on the PC board in accordance with the catalog or the product specification.
② For radial capacitors, design the terminal holes on the PC board to fit the terminal dimension of the capacitor.
③ Do not pass any circuit traces beneath the seal side of a capacitor. The trace must pass 1 to 2mm to the side of the capacitor.
④ Do not pass any via holes underneath a capacitor on double sided PC board
⑤ In designing double-sided PC boards,do not locate any copper trace under the seal side of a capacitor

## 2 Installing Capacitors

### 1 ) Installing

① Do not reuse capacitors already assembled in equipment that have been exposed to power.
② The capacitor may have self charge. If this happens, discharge the capacitor through a resistor of approximately 1kΩ before use.
③ If capacitors are stored at a temperature of 35℃ or more and more than 75%RH, the leakage current may increase. This may also occur if the capacitors are stored for a longer period than the period which is specified in the catalog or the product specification. In this case, they can be reformed by the voltage treatment through a resistor of approximately 1kΩ.
④ Verify the rated capacitance and voltage of the capacitors when installing.
⑤ Verify the polarity of the capacitors.
⑥ Do not use the capacitors if they have been dropped on the floor.
⑦ Do not deform the case of the capacitors.
⑧ Verify that the lead spacing of the capacitor fits the hole spacing in the PC board before installing the capacitors.
⑨ Do not apply any mechanical force in excess of the limits prescribed in the catalog or the product specification of the capacitors. Avoid subjecting the capacitor to strong forces, as this may break the electrode terminals, bend or deform the capacitor, or damage the packaging, and may also cause short/open circuits, increased leakage current, or damage the appearance. Also, note the capacitors may be damaged by mechanical shocks caused by cut the lead wire, the vacuum/insertion head, component checker or centering operation of an automatic mounting or insertion machine.

### 2 ) Heat Resistance during Soldering

Ensure that the soldering conditions meet the specifications recommended by Nippon Chemi-Con. Note that the leakage current may increase or capacitance may decrease due to thermal stresses that occur during soldering, etc. Furthermore, the leakage current which rose gradually decreases, when voltage is applied at below the category upper limit temperature. Additionally the self repairing action is faster when voltage near the rated voltage rather than at a higher voltage is applied at below the category's upper temperature limit.

① Verify the following before using a soldering iron:
- That the soldering conditions (temperature and time) are within the ranges specified in the catalog or product specifications.
- That the tip of the soldering iron does not come into contact with the capacitor itself.

② Verify the following when flow soldering:
- Do not dip the body of a capacitor into the solder bath only dip the terminals in. The soldering must be done on the reverse side of PC board.
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalog or the product specifications.
- Do not apply flux to any part of capacitors other than their terminals.
- Make sure the capacitors do not come into contact with any other components while soldering.

③ Verify the following when reflow soldering:
- Soldering conditions (preheat, solder temperature and soldering time) should be within the limits prescribed in the catalogs or the product specification.
- The heat level should be appropriate. (Note that the thermal stress on the capacitor varies depending on the type and position of the heater in the reflow oven, and the color and material of the capacitor.)
- Vapor phase soldering (VPS) is not used.
- Except for the surface mount type, reflow soldering must not be used for the capacitors.

④ Do not reuse a capacitor that has already been soldered to PC board and then removed. When using a new capacitor in the same location, remove the flux, etc. first, and then use a soldering iron to solder on the new capacitor in accordance with the specifications.
⑤ Confirm before running into soldering that the capacitors are SMD for reflow soldering.

### 3 ) Handling After Soldering

Do not apply any mechanical stress to the capacitor after soldering onto the PC board.

① Do not lean or twist the body of the capacitor after soldering the capacitors onto the PC board.
② Do not use the capacitors for lifting or carrying the assembly board.
③ Do not hit or poke the capacitor after soldering to PC board. When stacking the assembly board, be careful that other components do not touch the aluminum electrolytic capacitors.
④ Do not drop the assembled board.

### 4 ) Cleaning PC boards

① Do not wash capacitors by using the following cleaning agents. Solvent resistant capacitors are only suitable for washing using the cleaning conditions prescribed in the catalog or the product specification. In particular, ultrasonic cleaning will accelerate damage to capacitors.
- Halogenated solvents; cause capacitors to fail due to corrosion.
- Alkali system solvents; corrode (dissolve) an aluminum case.
- Petroleum system solvents; cause the rubber seal material to deteriorate.
- Xylene; causes the rubber seal material to deteriorate.
- Acetone; erases the markings.

CFC alternatives or the other cleaners above; please consult with us

② Verify the following points when washing capacitors.
- Monitor conductivity, pH, specific gravity and the water content of cleaning agents. Contamination adversely affects these characteristics.
- Be sure not to expose the capacitors under solvent rich conditions or keep capacitors inside a closed container. In addition, please dry the solvent sufficiently on the PC board and the capacitor with an air knife (temperature

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# PRECAUTIONS AND GUIDELINES (Conductive Polymer)

should be less than the maximum rated category temperature of the capacitor) for 10 minutes. Aluminum electrolytic capacitors can be characteristically and catastrophically damaged by halogen ions, particularly by chlorine ions, though the degree of the damage mainly depends upon the characteristics of the electrolyte and rubber seal material. When halogen ions come into contact with the capacitors, the foil corrodes when a voltage is applied. This corrosion causes an extremely high leakage current which results venting and an open circuit.

If the new types of cleaning agents mentioned below are used, the following are recommended as cleaning conditions for some of new cleaning agents.

**-Higher alcohol cleaning agents**

Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750 H, 750K, 750L, and 710M (Kao)
Technocare FRW-14 through 17 (Momentive performance material)
Cleaning Conditions:
Using these cleaning agents, capacitors are capable of withstanding immersion or ultrasonic cleaning for 10 minutes at a maximum liquid temperature of 60℃. Find optimum condition for washing, rinsing, and drying. Be sure not to rub the marking off the capacitor which can be caused by contact with other components or the PC board. Note that shower cleaning adversely affects the markings on the sleeve.

**-Non-Halogenated Solvent Cleaning**

AK225AES (Asahi Glass)
Cleaning Conditions:
Immersion, ultrasonic or vapor cleaning for 5 minutes. However, from an environmental point of view, these types of solvent will be banned in near future. We would recommend not using them if at all possible.

**-Isopropyl Alcohol (IPA)**

IPA (Isopropyl Alcohol) is one of the most acceptable cleaning agents; it is necessary to maintain a flux content in the cleaning liquid at a maximum limit of 2 Wt.%.

**5 ) Precautions for using adhesives and coating materials**

① Do not use any adhesive and coating materials containing halogenated solvent.
② Verify the following before using adhesive and coating material.
- Remove flux and dust left over between the rubber seal and the PC board before applying adhesive or coating materials to the capacitor.
- Dry and remove any residual cleaning agents before applying adhesive and coating materials to the capacitors. Do not cover over the whole surface of the rubber seal with the adhesive or coating materials.
- For permissible heat conditions for curing adhesives or coating materials, please consult with us.
- Covering over the whole surface of the capacitor rubber seal with resin may result in a hazardous condition because the inside pressure cannot be completely released. Also, a large amount of halogen ions in resins will cause the capacitors to fail because the halogen ions penetrate into the rubber seal and the inside of the capacitor.
- Some coating materials, it cannot be implemented to the capacitor.
  Please note change on the surface might be caused according to the kind of solvents used for mounting adhesives and coating agents.

**6 ) Fumigation**

In many cases when exporting or importing electronic devices, such as capacitors, wooden packaging is used. In order to control insects it may become necessary to fumigate the shipment. Precautions during “Fumigation” using halogenated chemical such as Methyl Bromide must be taken. Halogen gas can penetrate packaging materials such as cardboard boxes and vinyl bags. Penetration of the halogenated gas can cause corrosion of Electrolytic capacitors. Nippon Chemi-Con gives consideration to the packaging materials not to require the Fumigation. Verify whether the assembled PC board, products and capacitors themselves are subjected to Fumigation during their transportation or not.

## 3 The Operation of Devices

**1 )** Do not touch the capacitor terminals directly.
**2 )** Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object. Also, do not spill electric-conductive liquid such as acid or alkaline solution over the capacitor.
**3 )** Do not use capacitors in circumstances where they would be subject to exposure to the following materials
- Oil, water, salty water or damp location.
- Direct sunlight.
- Ozone, ultraviolet rays or radiation.
- Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium.
- Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalog or product specification.

## 4 Maintenance Inspection

**1 )** Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Do not apply any mechanical stress to the terminals of the capacitors.
**2 )** The following items should be checked during the periodic inspections.
① Significant damage in appearance
② Electrical characteristics: leakage current, capacitance, tan $\delta$ and other characteristics prescribed in the catalog or product specification.
We recommend replacing the capacitors if the parts are out of specification.

## 5 Contingencies

**1 )** If gas has vented from the capacitor during use, there is a short circuit and burning, or the capacitor discharges an odor or smoke, turn off the main power supply to the equipment or unplug the power cord.
**2 )** If there is a problem with the capacitor or a fire breaks out, the capacitor may produce a burning gas or reactive gas from the outer resin, etc. If this happens, keep your hands and face away from the gas. If vented gas is inhaled or comes into contact with your eyes, flush your eyes immediately with water and/or gargle. If vented gas comes into contact with the skin, wash the affected area thoroughly with soap and water.

## 6 Storage

We recommend the following conditions for storage.
**1 )** Store capacitors in a cool, dry place. Store at a temperature between 5 and 35℃, with a humidity of 75% or less.
(table-1)

| | Before the bag is opened | After the bag is opened |
|---|---|---|
| SMD | Within 3 years after manufacturing | Within 6 months after the bag is opened |
| Radial | Within 3 years after manufacturing | — |

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# PRECAUTIONS AND GUIDELINES (Conductive Polymer)

SMD products are sealed in a special laminated aluminum bag. Use all capacitors once the bag is opened. Return unused capacitors to the bag, and seal it with a zipper. Please refer to (Table -1) for storage conditions. Be sure to follow our recommendations for reflow soldering.

2) Store the capacitors in a location free from direct contact with water, salt water, and oil.
3) Store in a location where the capacitor is not exposed to toxic gas, such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or chlorine compounds, bromine or other halogen gases, methyl bromide or other halogen compounds, ammonia, or similar.
4) Store in a location where the capacitor is not exposed to ozone, ultraviolet radiation, or other radiation.
5) It is recommended to store capacitors in their original packaging wherever possible.
6) The JEDEC J-STD-020 (Rev. C) standard does not apply.

## 7 Disposal

Please consult with a local industrial waste disposal specialist when disposing of aluminum electrolytic capacitors.

## 8 Catalogs

Specifications in the catalogs may be subject to change without notice. For more details of precautions and guidelines for aluminum electrolytic capacitors, please refer to Engineering Bulletin No. 634A.
Catalog data are typical. This value does not guarantee the performance.

## 9 Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

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NIPPON CHEMI-CON

# PART NUMBERING SYSTEM

## Product code guide (Conductive polymer Surface mount type)

**(Example : PXA series, 4V-150μF, φ6.3×5.7L)**

**Please refer to the following table**

| Contents | Code |
|---|---|
| Conductive Polymer | A |

| Series | Code |
|---|---|
| PXA | PXA |

| Type | Code |
|---|---|
| SMD | A |

| Tol.(%) | Code |
|---|---|
| ±20 | M |

| Terminal plating material | Code |
|---|---|
| Sn-Bi | G |

| 1 | 2 3 4 | 5 6 7 | 8 | 9 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| A | P X A | 4 R 0 | A | R A | 1 5 1 | M | F 6 0 | G |
| Category | Series code | Voltage code | Terminal code | Taping・Tray code | Capacitance code | Capacitance tolerance | Size code | Supplement code |

| Voltage(V) | Code |
|---|---|
| 2.5 | 2R5 |
| 4 | 4R0 |
| 6.3 | 6R3 |
| 10 | 100 |
| 16 | 160 |
| 20 | 200 |
| 25 | 250 |
| 35 | 350 |

| Type | Reel dia. φ (mm) | Application size φD(mm) | Code |
|---|---|---|---|
| Reel for reuse | 380 | φD=4～10 | RA |
| | 330 | φD=8～10 | RB |

Refer to product guide for taping specifications.

| Cap.(μF) | Code |
|---|---|
| 3.3 | 3R3 |
| 4.7 | 4R7 |
| 10 | 100 |
| 47 | 470 |
| 100 | 101 |
| 470 | 471 |
| 1,000 | 102 |
| ⋮ | ⋮ |

| φD(mm) | Code |
|---|---|
| 4 | D |
| 5 | E |
| 6.3 | F |
| 8 | H |
| 10 | J |

| L(mm) | Code |
|---|---|
| 4.5 | 46 |
| 5.2 | 55 |
| 5.7 | 60 |
| 5.8 | 61 |
| 6.7 | 70 |
| 7.7 | 80 |
| 10 | A0 |
| 12 | C0 |
| 12.2 | C0 |

*Refer to the appendix (Part number) for codes not listed here.

## Product code guide (Conductive polymer Radial lead type)

**(Example : PSC series, 6.3V-470μF, φ8×8L,Long Lead with bulk)**

**Please refer to the following table**

| Contents | Code |
|---|---|
| Conductive Polymer | A |

| Series | Code |
|---|---|
| PSC | PSC |
| PS | PS- |

| Type | Code |
|---|---|
| Radial lead | E |

| Tol.(%) | Code |
|---|---|
| ± 20 | M |

| Terminal plating material | Code |
|---|---|
| Sn | S |

| 1 | 2 3 4 | 5 6 7 | 8 | 9 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| A | P S C | 6 R 3 | E | L L | 4 7 1 | M | H 0 8 | S |
| Category | Series code | Voltage code | Terminal code | Taping・Tray code | Capacitance code | Capacitance tolerance | Size code | Supplement code |

| Voltage(V) | Code |
|---|---|
| 2.5 | 2R5 |
| 4 | 4R0 |
| 6.3 | 6R3 |
| 10 | 100 |
| 16 | 160 |
| 20 | 200 |
| 25 | 250 |
| 35 | 350 |

| Type | Contents | Code |
|---|---|---|
| Lead forming (Bulk) | Long Lead | LL |
| | Cut(3.5mm) | C3 |
| | Cut(5.0mm) | C5 |
| Taping | Straight | TD |

Refer to product guide for taping specifications.

| Cap.(μF) | Code |
|---|---|
| 3.3 | 3R3 |
| 4.7 | 4R7 |
| 10 | 100 |
| 47 | 470 |
| 100 | 101 |
| 470 | 471 |
| 1,000 | 102 |
| ⋮ | ⋮ |

| φD(mm) | Code |
|---|---|
| 5 | E |
| 6.3 | F |
| 8 | H |
| 10 | J |

| L(mm) | Code |
|---|---|
| 5 | 05 |
| 6 | 06 |
| 8 | 08 |
| 10.5 | A5 |
| 11.5 | B5 |
| 12.5 | C5 |

*Refer to the appendix (Part number) for codes not listed here.

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

## CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
## Product List
### ◆SURFACE MOUNT TYPE (2.5 to 10$V_{dc}$)

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

| Cap (μF) | Rated voltage($V_{dc}$) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.5 | | | | 4 | | | | 6.3 | | | | 10 | | | |
| | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 |
| 4.7 | | | | | | | | | | | | | PXA | 4×5.2 | 240 | 670 |
| 6.8 | | | | | | | | | | | | | PXA | 4×5.2 | 240 | 670 |
| 10 | | | | | | | | | | | | | PXA | 4×5.2 | 220 | 700 |
| 15 | | | | | | | | | | | | | PXA | 4×5.2 | 200 | 740 |
| 22 | | | | | | | | | PXA | 4×5.2 | 200 | 740 | | | | |
| 33 | | | | | PXA | 4×5.2 | 200 | 740 | | | | | PXS | 5×5.8 | 70 | 1100 |
| | | | | | | | | | | | | | PXA | 5×5.7 | 40 | 1270 |
| 47 | | | | | | | | | PXS | 5×5.8 | 30 | 1970 | PXE | 5×5.8 | 28 | 2310 |
| | | | | | | | | | PXA | 5×5.7 | 35 | 1380 | PXA | 5×5.7 | 40 | 1270 |
| | | | | | | | | | | | | | PXA | 6.3×4.5 | 41 | 1560 |
| | | | | | | | | | | | | | PXA | 6.3×5.7 | 31 | 2250 |
| | | | | | | | | | | | | | PXD | 5×5.8 | 50 | 1270 |
| 56 | | | | | | | | | PXD | 5×5.8 | 45 | 1380 | PXE | 5×5.8 | 28 | 2310 |
| | | | | | | | | | | | | | PXA | 6.3×5.2 | 31 | 2250 |
| | | | | | | | | | | | | | PXA | 6.3×5.7 | 31 | 2250 |
| | | | | | | | | | | | | | PXD | 6.3×5.8 | 40 | 2250 |
| | | | | | | | | | | | | | PXH | 6.3×5.7 | 45 | 2250 |
| 68 | | | | | | | | | PXA | 6.3×5.7 | 27 | 2400 | PXS | 5×5.8 | 30 | 1970 |
| | | | | | | | | | | | | | PXE | 5×5.8 | 28 | 2310 |
| 82 | | | | | | | | | PXA | 6.3×4.5 | 40 | 1670 | | | | |
| | | | | | | | | | PXA | 6.3×5.2 | 27 | 2400 | | | | |
| | | | | | | | | | PXA | 6.3×5.7 | 27 | 2400 | | | | |
| | | | | | | | | | PXH | 6.3×5.7 | 40 | 2400 | | | | |
| 100 | | | | | PXE | 5×5.8 | 22 | 2610 | PXS | 5×5.8 | 25 | 2150 | | | | |
| | | | | | PXA | 6.3×5.2 | 26 | 2450 | PXE | 5×5.8 | 24 | 2500 | | | | |
| | | | | | PXA | 6.3×5.7 | 26 | 2450 | PXA | 5×5.7 | 35 | 1380 | | | | |
| | | | | | | | | | PXA | 6.3×4.5 | 40 | 1670 | | | | |
| | | | | | | | | | PXA | 6.3×5.2 | 27 | 2400 | | | | |
| | | | | | | | | | PXA | 6.3×5.7 | 27 | 2400 | | | | |
| | | | | | | | | | PXD | 6.3×5.8 | 35 | 2400 | | | | |
| | | | | | | | | | PXH | 6.3×5.7 | 40 | 2400 | | | | |
| 120 | PXD | 5×5.8 | 40 | 1450 | PXA | 6.3×4.5 | 38 | 1710 | PXS | 6.3×5.8 | 22 | 2570 | PXS | 6.3×5.8 | 27 | 2320 |
| | | | | | | | | | PXE | 5×5.8 | 24 | 2500 | PXF | 5×5.8 | 22 | 2600 |
| | | | | | | | | | PXA | 6.3×5.7 | 27 | 2400 | PXE | 6.3×5.8 | 25 | 2530 |
| | | | | | | | | | | | | | PXA | 8×6.7 | 27 | 2800 |
| | | | | | | | | | | | | | PXH | 8×6.7 | 35 | 2800 |
| 150 | | | | | PXS | 5×5.8 | 25 | 2150 | PXK | 6.3×4.5 | 19 | 2780 | PXS | 8×6.7 | 30 | 2760 |
| | | | | | PXE | 5×5.8 | 22 | 2610 | PXF | 5×4.5 | 25 | 2100 | PXE | 6.3×7.7 | 21 | 2880 |
| | | | | | PXA | 5×5.7 | 30 | 1490 | PXF | 5×5.8 | 12 | 3500 | PXA | 8×6.7 | 27 | 2800 |
| | | | | | PXA | 6.3×5.2 | 26 | 2450 | PXA | 8×6.7 | 25 | 3020 | PXD | 8×6.7 | 35 | 2800 |
| | | | | | PXA | 6.3×5.7 | 26 | 2450 | PXH | 8×6.7 | 30 | 3020 | PXH | 8×6.7 | 35 | 2800 |
| | | | | | PXH | 6.3×5.7 | 35 | 2450 | | | | | | | | |
| 180 | PXE | 5×5.8 | 21 | 2670 | PXK | 6.3×4.5 | 19 | 2780 | PXK | 5×5.8 | 17 | 3390 | | | | |
| 220 | PXK | 6.3×4.5 | 19 | 2780 | PXK | 5×5.8 | 17 | 3390 | PXK | 6.3×4.5 | 18 | 3200 | PXE | 8×6.7 | 21 | 3220 |
| | PXF | 5×4.5 | 25 | 2100 | PXA | 8×6.7 | 25 | 3020 | PXS | 6.3×5.8 | 22 | 2570 | | | | |
| | PXA | 6.3×5.2 | 25 | 2500 | PXH | 8×6.7 | 30 | 3020 | PXF | 5×5.8 | 12 | 3500 | | | | |
| | PXA | 6.3×5.7 | 25 | 2500 | | | | | PXF | 6.3×5.8 | 10 | 3900 | | | | |
| | PXD | 6.3×5.8 | 30 | 2500 | | | | | PXE | 6.3×5.8 | 15 | 3160 | | | | |
| | PXH | 6.3×5.7 | 35 | 2500 | | | | | PXA | 8×6.7 | 25 | 3020 | | | | |
| | | | | | | | | | PXD | 8×6.7 | 30 | 3020 | | | | |
| | | | | | | | | | PXH | 8×6.7 | 30 | 3020 | | | | |
| 270 | | | | | PXE | 6.3×5.8 | 15 | 3160 | PXF | 6.3×7.7 | 9 | 4200 | PXF | 6.3×5.8 | 20 | 2800 |
| | | | | | | | | | PXE | 6.3×7.7 | 14 | 3470 | PXE | 8×6.7 | 21 | 3220 |
| | | | | | | | | | | | | | PXA | 8×12 | 14 | 4420 |
| | | | | | | | | | | | | | PXA | 10×7.7 | 24 | 3770 |
| 330 | PXK | 5×5.8 | 16 | 3500 | PXF | 6.3×5.8 | 10 | 3900 | PXK | 6.3×5.8 | 17 | 3390 | PXE | 8×7.7 | 19 | 3390 |
| | PXK | 6.3×4.5 | 16 | 3500 | PXE | 6.3×5.8 | 15 | 3160 | PXF | 6.3×5.8 | 10 | 3900 | PXA | 8×12 | 14 | 4420 |
| | PXF | 5×5.8 | 10 | 3900 | PXA | 8×6.7 | 25 | 3020 | PXF | 6.3×7.7 | 9 | 4200 | PXA | 10×7.7 | 24 | 3770 |
| | | | | | | | | | PXF | 8×6.7 | 10 | 4500 | PXD | 10×7.7 | 25 | 3500 |
| | | | | | | | | | PXE | 6.3×7.7 | 14 | 3470 | PXH | 10×7.7 | 30 | 3700 |
| | | | | | | | | | PXE | 8×6.7 | 14 | 3950 | | | | |
| | | | | | | | | | PXA | 10×7.7 | 20 | 4130 | | | | |
| 390 | PXF | 5×5.8 | 10 | 3900 | PXK | 6.3×5.8 | 17 | 3390 | PXS | 8×6.7 | 22 | 3220 | PXE | 8×10 | 17 | 4000 |
| | PXF | 6.3×5.8 | 10 | 3900 | PXF | 6.3×7.7 | 9 | 4200 | PXF | 8×6.7 | 10 | 4500 | | | | |
| | PXE | 6.3×5.8 | 15 | 3160 | PXE | 6.3×7.7 | 14 | 3470 | PXE | 8×6.7 | 14 | 3950 | | | | |
| | | | | | | | | | PXA | 8×12 | 12 | 4770 | | | | |
| 470 | PXF | 6.3×7.7 | 9 | 4200 | PXF | 8×6.7 | 10 | 4500 | PXF | 8×7.7 | 9 | 4500 | PXE | 10×7.7 | 19 | 3800 |
| | PXE | 6.3×7.7 | 13 | 3600 | PXE | 8×6.7 | 14 | 3950 | PXE | 8×7.7 | 13 | 3950 | PXA | 10×12.2 | 12 | 5300 |
| | | | | | PXA | 10×7.7 | 20 | 4130 | PXA | 8×12 | 12 | 4770 | | | | |
| | | | | | | | | | PXA | 10×7.7 | 20 | 4130 | | | | |
| | | | | | | | | | PXD | 10×7.7 | 25 | 3500 | | | | |
| | | | | | | | | | PXH | 10×7.7 | 25 | 3700 | | | | |
| 560 | PXK | 6.3×5.8 | 16 | 3500 | PXS | 8×6.7 | 22 | 3220 | PXF | 8×7.7 | 9 | 4500 | PXA | 10×12.2 | 12 | 5300 |
| | PXF | 6.3×5.8 | 10 | 3900 | PXF | 8×6.7 | 10 | 4500 | | | | | | | | |
| | PXF | 6.3×7.7 | 9 | 4200 | PXE | 8×6.7 | 14 | 3950 | | | | | | | | |
| | PXF | 8×6.7 | 10 | 4500 | PXA | 8×12 | 12 | 4770 | | | | | | | | |
| | PXE | 6.3×7.7 | 13 | 3600 | | | | | | | | | | | | |
| | PXE | 8×6.7 | 13 | 4100 | | | | | | | | | | | | |
| | PXA | 8×6.7 | 23 | 3100 | | | | | | | | | | | | |
| | PXH | 8×6.7 | 30 | 3100 | | | | | | | | | | | | |

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

## CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
## Product List

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

### ◆SURFACE MOUNT TYPE (2 to 10Vdc)

| Cap (μF) | Rated voltage(Vdc) | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | | | | 2.5 | | | | 4 | | | | 6.3 | | | | 10 | | | |
| | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 |
| 680 | PXF | 6.3×5.8 | 12 | 3500 | PXF | 8×6.7 | 10 | 4500 | PXF | 8×7.7 | 9 | 4500 | PXA | 10×12.2 | 10 | 5500 | PXE | 10×10 | 13 | 4820 |
| | | | | | PXE | 8×6.7 | 13 | 4100 | PXE | 8×7.7 | 13 | 3950 | | | | | | | | |
| | | | | | PXA | 8×12 | 12 | 4770 | PXA | 10×7.7 | 20 | 4130 | | | | | | | | |
| | | | | | | | | | PXH | 10×7.7 | 25 | 3700 | | | | | | | | |
| 820 | | | | | PXE | 8×7.7 | 12 | 4260 | PXA | 10×12.2 | 10 | 5500 | PXE | 8×10 | 12 | 4770 | | | | |
| | | | | | PXE | 8×12 | 9 | 5400 | | | | | PXE | 8×12 | 10 | 5150 | | | | |
| | | | | | | | | | | | | | PXE | 10×7.7 | 14 | 4300 | | | | |
| | | | | | | | | | | | | | PXA | 10×12.2 | 10 | 5500 | | | | |
| 1000 | | | | | PXF | 8×7.7 | 9 | 4500 | PXE | 8×10 | 10 | 5220 | | | | | | | | |
| | | | | | PXE | 8×7.7 | 12 | 4260 | PXE | 10×7.7 | 14 | 4300 | | | | | | | | |
| | | | | | PXA | 10×7.7 | 19 | 4240 | | | | | | | | | | | | |
| | | | | | PXH | 10×7.7 | 25 | 3700 | | | | | | | | | | | | |
| 1200 | | | | | PXE | 10×7.7 | 13 | 4450 | PXE | 8×12 | 9 | 5400 | PXE | 10×10 | 12 | 5025 | | | | |
| | | | | | | | | | PXE | 10×10 | 10 | 5500 | | | | | | | | |
| | | | | | | | | | PXA | 10×12.2 | 10 | 5500 | | | | | | | | |
| 1500 | | | | | PXE | 8×10 | 10 | 5220 | PXE | 10×10 | 10 | 5500 | PXE | 10×10 | 12 | 5025 | | | | |
| | | | | | PXE | 8×12 | 9 | 5400 | | | | | PXE | 10×12.2 | 10 | 5500 | | | | |
| | | | | | PXA | 10×12.2 | 10 | 5500 | | | | | | | | | | | | |
| 1800 | | | | | | | | | PXE | 10×10 | 10 | 5500 | | | | | | | | |
| | | | | | | | | | PXE | 10×12.2 | 9 | 5600 | | | | | | | | |
| 2200 | | | | | PXE | 10×10 | 10 | 5500 | | | | | | | | | | | | |
| 2700 | | | | | PXE | 10×12.2 | 9 | 5600 | | | | | | | | | | | | |

### ◆SURFACE MOUNT TYPE (16 to 25Vdc)

| Cap (μF) | Rated voltage(Vdc) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16 | | | | 20 | | | | 23 | | | | 25 | | | |
| | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 |
| 3.3 | PXA | 4×5.2 | 260 | 660 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | PXG | 5×4.5 | 60 | 1700 |
| | | | | | | | | | | | | | PXA | 6.3×5.7 | 65 | 1500 |
| 15 | | | | | PXA | 6.3×4.5 | 57 | 1300 | PXA | 6.3×4.5 | 57 | 1300 | | | | |
| 22 | PXS | 5×5.8 | 90 | 1060 | PXA | 6.3×5.2 | 50 | 1650 | | | | | PXG | 5×5.8 | 40 | 2450 |
| | PXA | 5×5.7 | 45 | 1210 | PXA | 6.3×5.7 | 50 | 1650 | | | | | PXA | 8×6.7 | 50 | 1800 |
| | PXA | 6.3×4.5 | 45 | 1490 | PXH | 6.3×5.7 | 60 | 1650 | | | | | | | | |
| 27 | | | | | PXG | 5×4.5 | 55 | 1770 | | | | | PXG | 5×5.8 | 40 | 2450 |
| 33 | PXE | 5×5.8 | 35 | 2070 | | | | | | | | | | | | |
| | PXA | 6.3×5.7 | 37 | 2050 | | | | | | | | | | | | |
| 39 | PXG | 5×4.5 | 50 | 1860 | PXA | 8×6.7 | 45 | 2000 | | | | | PXG | 6.3×5.8 | 30 | 2800 |
| | PXS | 5×5.8 | 35 | 1820 | | | | | | | | | PXA | 10×7.7 | 45 | 2100 |
| | PXS | 6.3×5.8 | 37 | 2050 | | | | | | | | | | | | |
| | PXE | 5×5.8 | 35 | 2070 | | | | | | | | | | | | |
| | PXA | 6.3×5.2 | 37 | 2050 | | | | | | | | | | | | |
| | PXA | 6.3×5.7 | 37 | 2050 | | | | | | | | | | | | |
| | PXH | 6.3×5.7 | 50 | 2050 | | | | | | | | | | | | |
| 47 | | | | | PXG | 5×5.8 | 30 | 2800 | | | | | PXG | 6.3×5.8 | 30 | 2800 |
| | | | | | PXA | 8×6.7 | 45 | 2000 | | | | | | | | |
| | | | | | PXH | 8×6.7 | 45 | 2000 | | | | | | | | |
| 56 | | | | | PXG | 5×5.8 | 30 | 2800 | | | | | | | | |
| 68 | PXS | 6.3×5.8 | 30 | 2200 | | | | | | | | | | | | |
| | PXE | 6.3×5.8 | 28 | 2390 | | | | | | | | | | | | |
| 82 | PXS | 8×6.7 | 30 | 2760 | PXA | 10×7.7 | 40 | 2500 | | | | | | | | |
| | PXE | 6.3×7.7 | 24 | 2700 | PXH | 10×7.7 | 45 | 2400 | | | | | | | | |
| | PXA | 8×6.7 | 30 | 2700 | | | | | | | | | | | | |
| | PXH | 8×6.7 | 40 | 2700 | | | | | | | | | | | | |
| 100 | PXG | 5×5.8 | 27 | 3000 | | | | | | | | | | | | |
| | PXK | 6.3×5.8 | 24 | 2490 | | | | | | | | | | | | |
| | PXE | 6.3×7.7 | 24 | 2700 | | | | | | | | | | | | |
| | PXE | 8×6.7 | 24 | 3010 | | | | | | | | | | | | |
| 120 | PXS | 8×6.7 | 27 | 2900 | PXG | 6.3×5.8 | 25 | 3200 | | | | | | | | |
| | PXE | 8×6.7 | 24 | 3010 | | | | | | | | | | | | |
| 150 | PXE | 8×7.7 | 22 | 3150 | PXA | 10×12.2 | 20 | 4320 | | | | | | | | |
| | PXA | 10×7.7 | 26 | 3430 | | | | | | | | | | | | |
| | PXH | 10×7.7 | 35 | 3020 | | | | | | | | | | | | |
| 180 | PXG | 6.3×5.8 | 22 | 3300 | | | | | | | | | | | | |
| | PXE | 8×10 | 18 | 3890 | | | | | | | | | | | | |
| | PXA | 8×12 | 16 | 4360 | | | | | | | | | | | | |
| | PXA | 10×7.7 | 26 | 3430 | | | | | | | | | | | | |
| | PXH | 10×7.7 | 35 | 3020 | | | | | | | | | | | | |
| 220 | PXE | 8×10 | 18 | 3890 | | | | | | | | | | | | |
| | PXE | 10×7.7 | 22 | 3450 | | | | | | | | | | | | |
| | PXA | 10×12.2 | 14 | 5050 | | | | | | | | | | | | |
| 330 | PXE | 10×10 | 16 | 4350 | | | | | | | | | | | | |
| | PXA | 10×12.2 | 14 | 5050 | | | | | | | | | | | | |

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

## CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
## Product List

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

### ◆RADIAL LEAD TYPE (2 to 10Vdc)

| Cap (μF) | Rated voltage(Vdc) | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | | | | 2.5 | | | | 4 | | | | 6.3 | | | | 10 | | | |
| | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 |
| 47 | | | | | | | | | | | | | | | | | PSA | 6.3×10.5 | 25 | 2820 |
| 68 | | | | | | | | | | | | | | | | | PSA | 6.3×10.5 | 25 | 2820 |
| 100 | | | | | | | | | | | | | | | | | PSA | 6.3×10.5 | 25 | 2820 |
| 150 | | | | | | | | | | | | | | | | | PSA | 6.3×10.5 | 25 | 2820 |
| 220 | | | | | PSK | 5×8 | 7 | 4350 | | | | | PSA | 6.3×10.5 | 20 | 3160 | | | | |
| 270 | | | | | | | | | PSA | 6.3×10.5 | 20 | 3160 | PSK | 5×8 | 10 | 3700 | PSA | 8×11.5 | 9 | 4710 |
| | | | | | | | | | | | | | | | | | PS | 8×11.5 | 14 | 4420 |
| 330 | | | | | PSK | 5×8 | 7 | 4350 | | | | | PSK | 5×8 | 8 | 4050 | PS | 8×11.5 | 14 | 4420 |
| | | | | | PSF | 6.3×8 | 5 | 5900 | | | | | PSA | 6.3×10.5 | 28 | 3190 | | | | |
| 390 | | | | | PSA | 6.3×10.5 | 20 | 3160 | PSA | 6.3×10.5 | 24 | 3300 | PSA | 8×11.5 | 8 | 5080 | PSC | 8×11.5 | 9 | 5650 |
| | | | | | | | | | | | | | PS | 8×11.5 | 12 | 4770 | | | | |
| 470 | | | | | PSK | 5×8 | 7 | 4350 | PSF | 6.3×8 | 5 | 5900 | PSE | 6.3×8 | 8 | 4700 | PSA | 10×11.5 | 8 | 5650 |
| | | | | | PSF | 6.3×8 | 5 | 5900 | | | | | PSC | 8×8 | 8 | 5700 | PS | 10×12.5 | 12 | 5300 |
| | | | | | | | | | | | | | PSA | 8×11.5 | 7 | 5700 | | | | |
| | | | | | | | | | | | | | PS | 8×11.5 | 12 | 4770 | | | | |
| 560 | | | | | PSK | 5×8 | 7 | 4350 | PSF | 6.3×8 | 5 | 5900 | PSE | 6.3×8 | 8 | 4700 | PS | 10×12.5 | 12 | 5300 |
| | | | | | PSF | 6.3×8 | 5 | 5900 | PSE | 6.3×8 | 7 | 5000 | PSC | 8×8 | 8 | 5700 | | | | |
| | | | | | PSC | 8×8 | 7 | 6100 | PSC | 8×8 | 7 | 6100 | | | | | | | | |
| | | | | | | | | | PSA | 8×11.5 | 7 | 5580 | | | | | | | | |
| | | | | | | | | | PS | 8×11.5 | 10 | 5230 | | | | | | | | |
| 680 | | | | | PSE | 8×6 | 8 | 4900 | PSC | 8×11.5 | 7 | 6100 | PSA | 10×11.5 | 7 | 5860 | PSC | 10×11.5 | 7 | 6100 |
| | | | | | PSA | 8×11.5 | 7 | 5580 | | | | | PS | 10×12.5 | 10 | 5500 | | | | |
| | | | | | PS | 8×11.5 | 10 | 5230 | | | | | | | | | | | | |
| 820 | | | | | PSF | 6.3×8 | 5 | 5900 | PSA | 10×11.5 | 6 | 5860 | PSC | 10×11.5 | 7 | 6640 | | | | |
| | | | | | PSE | 6.3×8 | 7 | 5000 | PS | 10×12.5 | 8 | 5500 | PS | 10×12.5 | 10 | 5500 | | | | |
| | | | | | PSC | 8×8 | 5 | 6100 | | | | | | | | | | | | |
| | | | | | PSC | 8×8 | 7 | 6100 | | | | | | | | | | | | |
| | | | | | PSA | 8×11.5 | 7 | 5580 | | | | | | | | | | | | |
| | | | | | PS | 8×11.5 | 10 | 5230 | | | | | | | | | | | | |
| 1000 | PSF | 6.3×8 | 5 | 5900 | PSC | 8×8 | 7 | 6100 | PSC | 10×11.5 | 6 | 6640 | PS | 10×12.5 | 10 | 5500 | | | | |
| | | | | | PSC | 8×11.5 | 7 | 6100 | PS | 10×12.5 | 8 | 5500 | | | | | | | | |
| | | | | | PSA | 10×11.5 | 6 | 5860 | | | | | | | | | | | | |
| 1200 | | | | | PSF | 6.3×8 | 5 | 5900 | PS | 10×12.5 | 8 | 5500 | | | | | | | | |
| 1500 | | | | | PSC | 8×11.5 | 7 | 6100 | | | | | PSC | 10×11.5 | 10 | 5560 | | | | |
| | | | | | PSA | 10×11.5 | 7 | 5860 | | | | | | | | | | | | |
| | | | | | PS | 10×12.5 | 8 | 5500 | | | | | | | | | | | | |
| 1600 | | | | | PSF | 8×8 | 5 | 6100 | | | | | | | | | | | | |
| 2700 | | | | | PSC | 10×11.5 | 8 | 5560 | | | | | | | | | | | | |

### ◆RADIAL LEAD TYPE (16 to 35Vdc)

| Cap (μF) | Rated voltage(Vdc) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16 | | | | 20 | | | | 25 | | | | 35 | | | |
| | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 | Series | Nominal Case size (φD×L) | ESR *1 | Ripple current *2 |
| 18 | | | | | | | | | | | | | PS | 8×11.5 | 34 | 2830 |
| 33 | | | | | | | | | | | | | PS | 10×12.5 | 30 | 3270 |
| 56 | | | | | | | | | PSG | 6.3×5 | 30 | 2600 | | | | |
| 68 | | | | | | | | | PS | 8×11.5 | 24 | 3320 | | | | |
| 100 | PSF | 6.3×5 | 24 | 2490 | PS | 8×11.5 | 24 | 3320 | PS | 10×12.5 | 20 | 4320 | | | | |
| | PSF | 6.3×10.5 | 25 | 2820 | | | | | | | | | | | | |
| | PSA | 6.3×10.5 | 25 | 2820 | | | | | | | | | | | | |
| | PS | 8×11.5 | 16 | 4360 | | | | | | | | | | | | |
| 120 | | | | | PSG | 6.3×5 | 20 | 3200 | | | | | | | | |
| 150 | PSG | 6.3×5 | 20 | 3200 | PS | 10×12.5 | 20 | 4320 | | | | | | | | |
| 180 | PS | 8×11.5 | 16 | 4360 | | | | | PSG | 8×8 | 18 | 3770 | | | | |
| | | | | | | | | | PSG | 8×11.5 | 16 | 4650 | | | | |
| 220 | | | | | | | | | PSG | 8×11.5 | 16 | 4650 | | | | |
| 270 | PSG | 6.3×8 | 15 | 3800 | | | | | | | | | | | | |
| | PSG | 8×6 | 22 | 3300 | | | | | | | | | | | | |
| | PSF | 8×8 | 10 | 5000 | | | | | | | | | | | | |
| | PSF | 8×11.5 | 11 | 5080 | | | | | | | | | | | | |
| | PSC | 8×11.5 | 11 | 5080 | | | | | | | | | | | | |
| | PS | 10×12.5 | 14 | 5050 | | | | | | | | | | | | |
| 330 | PSF | 8×8 | 13 | 4700 | PSG | 8×8 | 17 | 3880 | PSG | 10×11.5 | 14 | 5000 | | | | |
| | PSC | 10×12.5 | 10 | 6100 | | | | | | | | | | | | |
| | PS | 10×12.5 | 14 | 5050 | | | | | | | | | | | | |
| 390 | | | | | PSG | 8×11.5 | 14 | 4970 | PSG | 10×11.5 | 14 | 5000 | | | | |
| 470 | PSG | 8×8 | 16 | 4000 | | | | | | | | | | | | |
| | PSF | 8×11.5 | 11 | 5400 | | | | | | | | | | | | |
| | PSF | 10×11.5 | 10 | 6100 | | | | | | | | | | | | |
| | PSC | 10×11.5 | 10 | 6100 | | | | | | | | | | | | |
| 560 | PSG | 8×11.5 | 14 | 4970 | | | | | | | | | | | | |
| 680 | | | | | PSG | 10×11.5 | 12 | 5400 | | | | | | | | |
| 820 | PSG | 10×11.5 | 12 | 5400 | | | | | | | | | | | | |
| 1000 | PSG | 10×11.5 | 12 | 5400 | | | | | | | | | | | | |

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

## NPCAP™-PXG Series

- Super low ESR, high ripple current capability
- Rated voltage range : 16 to 25Vdc, Capacitance : 15 to 180μF
- Case size : φ5×4.5L to φ6.3×5.8L
- **RoHS Compliant**
- Halogen Free

PXG
↑ Downsized
PXE

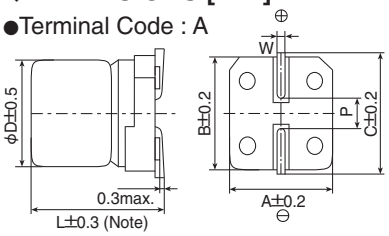
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 16 to 25Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 105℃) |
| **Leakage Current** | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (E46 : 1,000 hours) at 105℃.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (E46 : 500 hours).<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ)and discharge for 5 minutes 30 seconds.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : A

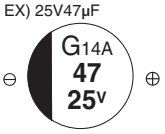



| Size Code | φD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E46 | 5 | 4.5 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |

Note : L+0.1/-0.2 for E46

## ◆MARKING

EX) 25V47μF




## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | X | G | | | | A | R | A | | | | M | | | | G |

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 47μF:470, 100μF:101)
- 9–10 : Taping code
- 8 : Terminal code
- 5–7 : Voltage code (ex. 16V:160, 20V:200)
- 3–4 : Series code
- 1 : Category

Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

## NPCAP™-PXG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Leakage current (μAmax/after 2min.) | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 16 | 39 | E46 | 312 | 50 | 1,860 | APXG160ARA390ME46G |
| | 100 | E61 | 320 | 27 | 3,000 | APXG160ARA101ME61G |
| | 180 | F61 | 576 | 22 | 3,300 | APXG160ARA181MF61G |
| 20 | 27 | E46 | 270 | 55 | 1,770 | APXG200ARA270ME46G |
| | 47 | E61 | 188 | 30 | 2,800 | APXG200ARA470ME61G |
| | 56 | E61 | 224 | 30 | 2,800 | APXG200ARA560ME61G |
| | 120 | F61 | 480 | 25 | 3,200 | APXG200ARA121MF61G |
| 25 | 10 | E46 | 125 | 60 | 1,700 | APXG250ARA100ME46G |
| | 22 | E61 | 110 | 40 | 2,450 | APXG250ARA220ME61G |
| | 27 | E61 | 135 | 40 | 2,450 | APXG250ARA270ME61G |
| | 39 | F61 | 195 | 30 | 2,800 | APXG250ARA390MF61G |
| | 47 | F61 | 235 | 30 | 2,800 | APXG250ARA470MF61G |

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXK Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2.5 to 16Vdc, Capacitance range : 100 to 560µF
- Suitable for DC-DC converters, voltage regulators and decoupling applications used to computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXK
↑ Downsized
PXE

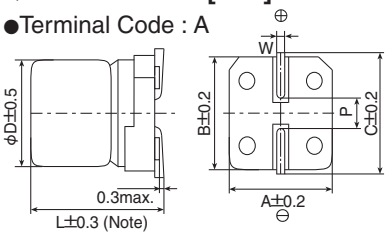
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 16Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15V (at 105℃) |
| **Leakage Current** | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (F46 : 1,000 hours) at 105℃.<br>Appearance : No significant damage<br>Capacitance change : ≦±20% of the initial value<br>DF (tanδ) : ≦150% of the initial specified value<br>ESR : ≦150% of the initial specified value<br>Leakage current : ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (F46 : 500hours).<br>Appearance : No significant damage<br>Capacitance change : ≦±20% of the initial value<br>DF (tanδ) : ≦150% of the initial specified value<br>ESR : ≦150% of the initial specified value<br>Leakage current : ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.<br>Appearance : No significant damage<br>Capacitance change : ≦±20% of the initial value<br>DF (tanδ) : ≦150% of the initial specified value<br>ESR : ≦150% of the initial specified value<br>Leakage current : ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after following voltage treatment.
Voltage treatment : DC rated voltage are applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : A

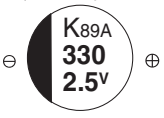



Note : L+0.1/-0.2 for F46

| Size Code | ϕD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F46 | 6.3 | 4.5 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |

## ◆MARKING

EX) 2.5V330µF




## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | X | K | | | | A | R | A | | | | M | | | | G |

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 330µF:331, 560µF:561)
- 9–10 : Taping code
- 8 : Terminal code
- 5–7 : Voltage code (ex. 2.5V:2R5, 6.3V:6R3)
- 4 : Series code
- 1 : Category

Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXK Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Leakage current (μAmax/after 2min.) | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 2.5 | 220 | F46 | 300 | 19 | 2,780 | APXK2R5ARA221MF46G |
| | 330 | E61 | 412 | 16 | 3,500 | APXK2R5ARA331ME61G |
| | 330 | F46 | 700 | 16 | 3,500 | APXK2R5ARA331MF46G |
| | 560 | F61 | 700 | 16 | 3,500 | APXK2R5ARA561MF61G |
| 4 | 180 | F46 | 360 | 19 | 2,780 | APXK4R0ARA181MF46G |
| | 220 | E61 | 440 | 17 | 3,390 | APXK4R0ARA221ME61G |
| | 390 | F61 | 780 | 17 | 3,390 | APXK4R0ARA391MF61G |
| 6.3 | 150 | F46 | 472 | 19 | 2,780 | APXK6R3ARA151MF46G |
| | 180 | E61 | 567 | 17 | 3,390 | APXK6R3ARA181ME61G |
| | 220 | F46 | 700 | 18 | 3,200 | APXK6R3ARA221MF46G |
| | 330 | F61 | 1,040 | 17 | 3,390 | APXK6R3ARA331MF61G |
| 16 | 100 | F61 | 320 | 24 | 2,490 | APXK160ARA101MF61G |

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXS Series

- Super low ESR, high ripple current capability
- Longer life (5,000 hours at 105℃)
- Rated voltage range : 4 to 16Vdc, Capacitance : 22 to 560μF
- Case size : φ5×5.8L to φ8×6.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXS
↑ Longer life
PXE/PXA

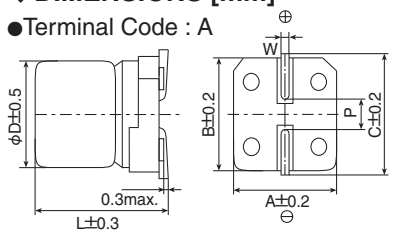
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 4 to 16Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 105℃) |
| **Leakage Current** | I=0.2CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20%of the initial value |
| | DF (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | DF (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ)and discharge for 5 minutes 30 seconds. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | DF (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size Code | φD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E61 | 5.0 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H70 | 8.0 | 6.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |

## ◆MARKING

EX) 6.3V390μF

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | X | S | | | | A | R | A | | | | M | | | | G |

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 47μF:470, 150μF:151)
Taping code
Terminal code
Voltage code (ex. 6.3V:6R3, 10V:100)
Series code
Category

Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXS Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 4 | 150 | E61 | 25 | 2,150 | APXS4R0ARA151ME61G |
| | 560 | H70 | 22 | 3,220 | APXS4R0ARA561MH70G |
| 6.3 | 47 | E61 | 30 | 1,970 | APXS6R3ARA470ME61G |
| | 100 | E61 | 25 | 2,150 | APXS6R3ARA101ME61G |
| | 120 | F61 | 22 | 2,570 | APXS6R3ARA121MF61G |
| | 220 | F61 | 22 | 2,570 | APXS6R3ARA221MF61G |
| | 390 | H70 | 22 | 3,220 | APXS6R3ARA391MH70G |
| 10 | 33 | E61 | 70 | 1,100 | APXS100ARA330ME61G |
| | 68 | E61 | 30 | 1,970 | APXS100ARA680ME61G |
| | 120 | F61 | 27 | 2,320 | APXS100ARA121MF61G |
| | 150 | H70 | 30 | 2,760 | APXS100ARA151MH70G |
| 16 | 22 | E61 | 90 | 1,060 | APXS160ARA220ME61G |
| | 39 | E61 | 35 | 1,820 | APXS160ARA390ME61G |
| | 39 | F61 | 37 | 2,050 | APXS160ARA390MF61G |
| | 68 | F61 | 30 | 2,200 | APXS160ARA680MF61G |
| | 82 | H70 | 30 | 2,760 | APXS160ARA820MH70G |
| | 120 | H70 | 27 | 2,900 | APXS160ARA121MH70G |

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!

## NPCAP™-PXF Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2 to 10Vdc, Capacitance range : 120 to 1,000μF
- Case size range : φ5×4.5L to φ8×7.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXF
↑ Lower ESR
PXE

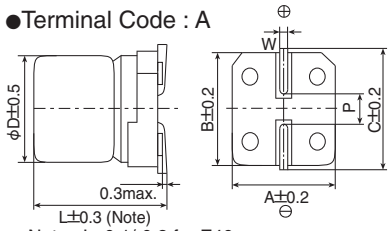
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2 to 10Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 105℃) |
| **Leakage Current** | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.15 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (E46 : 1,000 hours ) at 105℃. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | DF (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (E46 : 500 hours ) . |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | DF (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | DF (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : A




Note : L+0.1/-0.2 for E46

| Size Code | φD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E46 | 5 | 4.5 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H70 | 8 | 6.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| H80 | 8 | 7.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |

## ◆MARKING

EX) 2.5V390μF

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | X | F | □ | □ | □ | A | R | A | □ | □ | □ | M | □ | □ | □ | G |

- 18 Supplement code
- 15–17 Size code
- 14 Capacitance tolerance code
- 11–13 Capacitance code (ex. 330μF:331, 1,000μF:102)
- 9–10 Taping code
- 8 Terminal code
- 5–7 Voltage code (ex. 2.5V:2R5, 10V:100)
- 4 Series code
- 1 Category

Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!
NPCAP™-PXF Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Leakage current (μAmax/after 2min.) | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 2 | 680 | F61 | 700 | 12 | 3,500 | APXF2R0ARA681MF61G |
| 2.5 | 220 | E46 | 700 | 25 | 2,100 | APXF2R5ARA221ME46G |
| | 330 | E61 | 700 | 10 | 3,900 | APXF2R5ARA331ME61G |
| | 390 | E61 | 700 | 10 | 3,900 | APXF2R5ARA391ME61G |
| | 390 | F61 | 292 | 10 | 3,900 | APXF2R5ARA391MF61G |
| | 470 | F80 | 352 | 9 | 4,200 | APXF2R5ARA471MF80G |
| | 560 | F61 | 700 | 10 | 3,900 | APXF2R5ARA561MF61G |
| | 560 | F80 | 420 | 9 | 4,200 | APXF2R5ARA561MF80G |
| | 560 | H70 | 420 | 10 | 4,500 | APXF2R5ARA561MH70G |
| | 680 | H70 | 510 | 10 | 4,500 | APXF2R5ARA681MH70G |
| | 1,000 | H80 | 750 | 9 | 4,500 | APXF2R5ARA102MH80G |
| 4 | 330 | F61 | 396 | 10 | 3,900 | APXF4R0ARA331MF61G |
| | 390 | F80 | 468 | 9 | 4,200 | APXF4R0ARA391MF80G |
| | 470 | H70 | 564 | 10 | 4,500 | APXF4R0ARA471MH70G |
| | 560 | H70 | 672 | 10 | 4,500 | APXF4R0ARA561MH70G |
| | 680 | H80 | 816 | 9 | 4,500 | APXF4R0ARA681MH80G |
| 6.3 | 150 | E46 | 700 | 25 | 2,100 | APXF6R3ARA151ME46G |
| | 150 | E61 | 700 | 12 | 3,500 | APXF6R3ARA151ME61G |
| | 220 | E61 | 700 | 12 | 3,500 | APXF6R3ARA221ME61G |
| | 220 | F61 | 415 | 10 | 3,900 | APXF6R3ARA221MF61G |
| | 270 | F80 | 510 | 9 | 4,200 | APXF6R3ARA271MF80G |
| | 330 | F61 | 700 | 10 | 3,900 | APXF6R3ARA331MF61G |
| | 330 | F80 | 623 | 9 | 4,200 | APXF6R3ARA331MF80G |
| | 330 | H70 | 623 | 10 | 4,500 | APXF6R3ARA331MH70G |
| | 390 | H70 | 737 | 10 | 4,500 | APXF6R3ARA391MH70G |
| | 470 | H80 | 888 | 9 | 4,500 | APXF6R3ARA471MH80G |
| | 560 | H80 | 1,050 | 9 | 4,500 | APXF6R3ARA561MH80G |
| 10 | 120 | E61 | 240 | 22 | 2,600 | APXF100ARA121ME61G |
| | 270 | F61 | 540 | 20 | 2,800 | APXF100ARA271MF61G |

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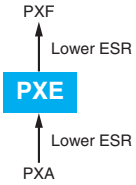
NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXE Series



- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
  (ESR and rated ripple current values are improved from PXA series.)
- Rated voltage range : 2.5 to 16Vdc, Capacitance range : 33 to 2,700µF
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

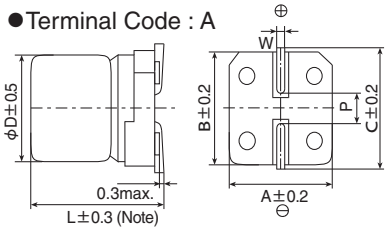
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 16Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 105℃) |
| **Leakage Current** | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | DF (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | DF (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | DF (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : A

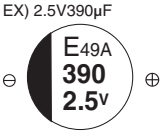



(Note) L±0.5 for HA0, HC0, JA0, JC0

| Size Code | φD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H70 | 8 | 6.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| H80 | 8 | 7.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| HC0 | 8 | 12.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| J80 | 10 | 7.7 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| JC0 | 10 | 12.2 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆MARKING

EX) 2.5V390µF




## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | X | E | □ | □ | □ | A | R | A | □ | □ | □ | M | □ | □ | □ | G |

- 18: Supplement code
- 15–17: Size code
- 14: Capacitance tolerance code
- 11–13: Capacitance code (ex. 47µF:470,100µF:101)
- 9–10: Taping code
- 8: Terminal code
- 5–7: Voltage code (ex. 6.3V:6R3,10V:100)
- 2–4: Series code
- 1: Category

Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXE Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Leakage current (μAmax/after 2min.) | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 2.5 | 180 | E61 | 90.0 | 21 | 2,670 | APXE2R5ARA181ME61G |
| | 390 | F61 | 195 | 15 | 3,160 | APXE2R5ARA391MF61G |
| | 470 | F80 | 235 | 13 | 3,600 | APXE2R5ARA471MF80G |
| | 560 | F80 | 280 | 13 | 3,600 | APXE2R5ARA561MF80G |
| | 560 | H70 | 280 | 13 | 4,100 | APXE2R5ARA561MH70G |
| | 680 | H70 | 340 | 13 | 4,100 | APXE2R5ARA681MH70G |
| | 820 | H80 | 410 | 12 | 4,260 | APXE2R5ARA821MH80G |
| | 820 | HC0 | 410 | 9 | 5,400 | APXE2R5ARA821MHC0G |
| | 1,000 | H80 | 500 | 12 | 4,260 | APXE2R5ARA102MH80G |
| | 1,200 | J80 | 600 | 13 | 4,450 | APXE2R5ARA122MJ80G |
| | 1,500 | HA0 | 750 | 10 | 5,220 | APXE2R5ARA152MHA0G |
| | 1,500 | HC0 | 750 | 9 | 5,400 | APXE2R5ARA152MHC0G |
| | 2,200 | JA0 | 1,100 | 10 | 5,500 | APXE2R5ARA222MJA0G |
| | 2,700 | JC0 | 1,350 | 9 | 5,600 | APXE2R5ARA272MJC0G |
| 4 | 100 | E61 | 80.0 | 22 | 2,610 | APXE4R0ARA101ME61G |
| | 150 | E61 | 120 | 22 | 2,610 | APXE4R0ARA151ME61G |
| | 270 | F61 | 216 | 15 | 3,160 | APXE4R0ARA271MF61G |
| | 330 | F61 | 264 | 15 | 3,160 | APXE4R0ARA331MF61G |
| | 390 | F80 | 312 | 14 | 3,470 | APXE4R0ARA391MF80G |
| | 470 | H70 | 376 | 14 | 3,950 | APXE4R0ARA471MH70G |
| | 560 | H70 | 448 | 14 | 3,950 | APXE4R0ARA561MH70G |
| | 680 | H80 | 544 | 13 | 3,950 | APXE4R0ARA681MH80G |
| | 1,000 | HA0 | 800 | 10 | 5,220 | APXE4R0ARA102MHA0G |
| | 1,000 | J80 | 800 | 14 | 4,300 | APXE4R0ARA102MJ80G |
| | 1,200 | HC0 | 960 | 9 | 5,400 | APXE4R0ARA122MHC0G |
| | 1,200 | JA0 | 960 | 10 | 5,500 | APXE4R0ARA122MJA0G |
| | 1,500 | JA0 | 1,200 | 10 | 5,500 | APXE4R0ARA152MJA0G |
| | 1,800 | JA0 | 1,440 | 10 | 5,500 | APXE4R0ARA182MJA0G |
| | 1,800 | JC0 | 1,440 | 9 | 5,600 | APXE4R0ARA182MJC0G |
| 6.3 | 100 | E61 | 126 | 24 | 2,500 | APXE6R3ARA101ME61G |
| | 120 | E61 | 151 | 24 | 2,500 | APXE6R3ARA121ME61G |
| | 220 | F61 | 277 | 15 | 3,160 | APXE6R3ARA221MF61G |
| | 270 | F80 | 340 | 14 | 3,470 | APXE6R3ARA271MF80G |
| | 330 | F80 | 415 | 14 | 3,470 | APXE6R3ARA331MF80G |
| | 330 | H70 | 415 | 14 | 3,950 | APXE6R3ARA331MH70G |
| | 390 | H70 | 491 | 14 | 3,950 | APXE6R3ARA391MH70G |
| | 470 | H80 | 592 | 13 | 3,950 | APXE6R3ARA471MH80G |
| | 820 | HA0 | 1,030 | 12 | 4,770 | APXE6R3ARA821MHA0G |
| | 820 | HC0 | 1,030 | 10 | 5,150 | APXE6R3ARA821MHC0G |
| | 820 | J80 | 1,030 | 14 | 4,300 | APXE6R3ARA821MJ80G |
| | 1,200 | JA0 | 1,510 | 12 | 5,025 | APXE6R3ARA122MJA0G |
| | 1,500 | JA0 | 1,890 | 12 | 5,025 | APXE6R3ARA152MJA0G |
| | 1,500 | JC0 | 1,890 | 10 | 5,500 | APXE6R3ARA152MJC0G |
| 10 | 47 | E61 | 94.0 | 28 | 2,310 | APXE100ARA470ME61G |
| | 56 | E61 | 112 | 28 | 2,310 | APXE100ARA560ME61G |
| | 68 | E61 | 136 | 28 | 2,310 | APXE100ARA680ME61G |
| | 120 | F61 | 240 | 25 | 2,530 | APXE100ARA121MF61G |
| | 150 | F80 | 300 | 21 | 2,880 | APXE100ARA151MF80G |
| | 220 | H70 | 440 | 21 | 3,220 | APXE100ARA221MH70G |
| | 270 | H70 | 540 | 21 | 3,220 | APXE100ARA271MH70G |
| | 330 | H80 | 660 | 19 | 3,390 | APXE100ARA331MH80G |
| | 390 | HA0 | 780 | 17 | 4,000 | APXE100ARA391MHA0G |
| | 470 | J80 | 940 | 19 | 3,800 | APXE100ARA471MJ80G |
| | 680 | JA0 | 1,360 | 13 | 4,820 | APXE100ARA681MJA0G |
| 16 | 33 | E61 | 105 | 35 | 2,070 | APXE160ARA330ME61G |
| | 39 | E61 | 124 | 35 | 2,070 | APXE160ARA390ME61G |
| | 68 | F61 | 217 | 28 | 2,390 | APXE160ARA680MF61G |
| | 82 | F80 | 262 | 24 | 2,700 | APXE160ARA820MF80G |
| | 100 | F80 | 320 | 24 | 2,700 | APXE160ARA101MF80G |
| | 100 | H70 | 320 | 24 | 3,010 | APXE160ARA101MH70G |
| | 120 | H70 | 384 | 24 | 3,010 | APXE160ARA121MH70G |
| | 150 | H80 | 480 | 22 | 3,150 | APXE160ARA151MH80G |
| | 180 | HA0 | 576 | 18 | 3,890 | APXE160ARA181MHA0G |
| | 220 | HA0 | 704 | 18 | 3,890 | APXE160ARA221MHA0G |
| | 220 | J80 | 704 | 22 | 3,450 | APXE160ARA221MJ80G |
| | 330 | JA0 | 1,050 | 16 | 4,350 | APXE160ARA331MJA0G |

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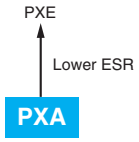
NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXA Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte
- Rated voltage range : 2.5 to 25Vdc, case size range : φ4×5.2L to φ10×12.2L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free



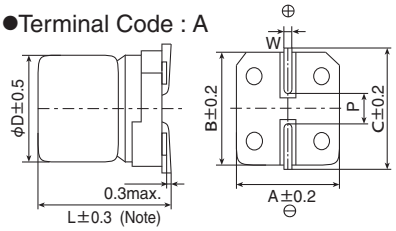
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 25Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (Rated voltage 2.5 to 20Vdc, 25Vdc) / Rated voltage×1.00 (Rated voltage 23Vdc) (at 105℃) |
| **Leakage Current** | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (F46 : 1,000 hours) at 105℃.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours(F46 : 500 hours).<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : A




Note : L+0.1/-0.2 for F46
L±0.5 for HC0 and JC0

| Size code | φD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D55 | 4 | 5.2 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E60 | 5 | 5.7 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F46 | 6.3 | 4.5 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F55 | 6.3 | 5.2 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F60 | 6.3 | 5.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H70 | 8 | 6.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| HC0 | 8 | 12.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| J80 | 10 | 7.7 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| JC0 | 10 | 12.2 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆MARKING

EX) 16V39μF

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | X | A | | | | A | R | A | | | | M | | | | G |

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 10μF:100,100μF:101)
Taping code
Terminal code
Voltage code (ex. 6.3V:6R3,10V:100)
Series code
Category

Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXA Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Leakage current (μAmax/ after 2 min.) | ESR (mΩmax/ 20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 2.5 | 220 | F55 | 110 | 25 | 2,500 | APXA2R5ARA221MF55G |
| | 220 | F60 | 110 | 25 | 2,500 | APXA2R5ARA221MF60G |
| | 560 | H70 | 280 | 23 | 3,100 | APXA2R5ARA561MH70G |
| | 680 | HC0 | 340 | 12 | 4,770 | APXA2R5ARA681MHC0G |
| | 1,000 | J80 | 500 | 19 | 4,240 | APXA2R5ARA102MJ80G |
| | 1,500 | JC0 | 750 | 10 | 5,500 | APXA2R5ARA152MJC0G |
| 4 | 33 | D55 | 66.0 | 200 | 740 | APXA4R0ARA330MD55G |
| | 100 | F55 | 80.0 | 26 | 2,450 | APXA4R0ARA101MF55G |
| | 100 | F60 | 80.0 | 26 | 2,450 | APXA4R0ARA101MF60G |
| | 120 | F46 | 240 | 38 | 1,710 | APXA4R0ARA121MF46G |
| | 150 | E60 | 120 | 30 | 1,490 | APXA4R0ARA151ME60G |
| | 150 | F55 | 120 | 26 | 2,450 | APXA4R0ARA151MF55G |
| | 150 | F60 | 120 | 26 | 2,450 | APXA4R0ARA151MF60G |
| | 220 | H70 | 176 | 25 | 3,020 | APXA4R0ARA221MH70G |
| | 330 | H70 | 264 | 25 | 3,020 | APXA4R0ARA331MH70G |
| | 470 | J80 | 376 | 20 | 4,130 | APXA4R0ARA471MJ80G |
| | 560 | HC0 | 448 | 12 | 4,770 | APXA4R0ARA561MHC0G |
| | 680 | J80 | 544 | 20 | 4,130 | APXA4R0ARA681MJ80G |
| | 820 | JC0 | 656 | 10 | 5,500 | APXA4R0ARA821MJC0G |
| | 1,200 | JC0 | 960 | 10 | 5,500 | APXA4R0ARA122MJC0G |
| 6.3 | 22 | D55 | 69.0 | 200 | 740 | APXA6R3ARA220MD55G |
| | 47 | E60 | 59.2 | 35 | 1,380 | APXA6R3ARA470ME60G |
| | 68 | F60 | 85.6 | 27 | 2,400 | APXA6R3ARA680MF60G |
| | 82 | F46 | 267 | 40 | 1,670 | APXA6R3ARA820MF46G |
| | 82 | F55 | 103 | 27 | 2,400 | APXA6R3ARA820MF55G |
| | 82 | F60 | 103 | 27 | 2,400 | APXA6R3ARA820MF60G |
| | 100 | E60 | 126 | 35 | 1,380 | APXA6R3ARA101ME60G |
| | 100 | F46 | 315 | 40 | 1,670 | APXA6R3ARA101MF46G |
| | 100 | F55 | 126 | 27 | 2,400 | APXA6R3ARA101MF55G |
| | 100 | F60 | 126 | 27 | 2,400 | APXA6R3ARA101MF60G |
| | 120 | F60 | 151 | 27 | 2,400 | APXA6R3ARA121MF60G |
| | 150 | H70 | 189 | 25 | 3,020 | APXA6R3ARA151MH70G |
| | 220 | H70 | 277 | 25 | 3,020 | APXA6R3ARA221MH70G |
| | 330 | J80 | 416 | 20 | 4,130 | APXA6R3ARA331MJ80G |
| | 390 | HC0 | 491 | 12 | 4,770 | APXA6R3ARA391MHC0G |
| | 470 | HC0 | 592 | 12 | 4,770 | APXA6R3ARA471MHC0G |
| | 470 | J80 | 592 | 20 | 4,130 | APXA6R3ARA471MJ80G |
| | 680 | JC0 | 857 | 10 | 5,500 | APXA6R3ARA681MJC0G |
| | 820 | JC0 | 1,030 | 10 | 5,500 | APXA6R3ARA821MJC0G |

| WV (Vdc) | Cap (μF) | Size code | Leakage current (μAmax/ after 2 min.) | ESR (mΩmax/ 20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 10 | 4.7 | D55 | 24.0 | 240 | 670 | APXA100ARA4R7MD55G |
| | 6.8 | D55 | 34.0 | 240 | 670 | APXA100ARA6R8MD55G |
| | 10 | D55 | 50.0 | 220 | 700 | APXA100ARA100MD55G |
| | 15 | D55 | 75.0 | 200 | 740 | APXA100ARA150MD55G |
| | 33 | E60 | 66.0 | 40 | 1,270 | APXA100ARA330ME60G |
| | 47 | E60 | 94.0 | 40 | 1,270 | APXA100ARA470ME60G |
| | 47 | F46 | 235 | 41 | 1,560 | APXA100ARA470MF46G |
| | 47 | F60 | 94.0 | 31 | 2,250 | APXA100ARA470MF60G |
| | 56 | F55 | 112 | 31 | 2,250 | APXA100ARA560MF55G |
| | 56 | F60 | 112 | 31 | 2,250 | APXA100ARA560MF60G |
| | 120 | H70 | 240 | 27 | 2,800 | APXA100ARA121MH70G |
| | 150 | H70 | 300 | 27 | 2,800 | APXA100ARA151MH70G |
| | 270 | HC0 | 540 | 14 | 4,420 | APXA100ARA271MHC0G |
| | 270 | J80 | 540 | 24 | 3,770 | APXA100ARA271MJ80G |
| | 330 | HC0 | 660 | 14 | 4,420 | APXA100ARA331MHC0G |
| | 330 | J80 | 660 | 24 | 3,770 | APXA100ARA331MJ80G |
| | 470 | JC0 | 940 | 12 | 5,300 | APXA100ARA471MJC0G |
| | 560 | JC0 | 1,120 | 12 | 5,300 | APXA100ARA561MJC0G |
| 16 | 3.3 | D55 | 26.0 | 260 | 660 | APXA160ARA3R3MD55G |
| | 22 | E60 | 70.4 | 45 | 1,210 | APXA160ARA220ME60G |
| | 22 | F46 | 176 | 45 | 1,490 | APXA160ARA220MF46G |
| | 33 | F60 | 106 | 37 | 2,050 | APXA160ARA330MF60G |
| | 39 | F55 | 125 | 37 | 2,050 | APXA160ARA390MF55G |
| | 39 | F60 | 125 | 37 | 2,050 | APXA160ARA390MF60G |
| | 82 | H70 | 262 | 30 | 2,700 | APXA160ARA820MH70G |
| | 150 | J80 | 480 | 26 | 3,430 | APXA160ARA151MJ80G |
| | 180 | HC0 | 576 | 16 | 4,360 | APXA160ARA181MHC0G |
| | 180 | J80 | 576 | 26 | 3,430 | APXA160ARA181MJ80G |
| | 220 | JC0 | 704 | 14 | 5,050 | APXA160ARA221MJC0G |
| | 330 | JC0 | 1,050 | 14 | 5,050 | APXA160ARA331MJC0G |
| 20 | 15 | F46 | 150 | 57 | 1,300 | APXA200ARA150MF46G |
| | 22 | F55 | 88.0 | 50 | 1,650 | APXA200ARA220MF55G |
| | 22 | F60 | 88.0 | 50 | 1,650 | APXA200ARA220MF60G |
| | 39 | H70 | 156 | 45 | 2,000 | APXA200ARA390MH70G |
| | 47 | H70 | 188 | 45 | 2,000 | APXA200ARA470MH70G |
| | 82 | J80 | 328 | 40 | 2,500 | APXA200ARA820MJ80G |
| | 150 | JC0 | 600 | 20 | 4,320 | APXA200ARA151MJC0G |
| 23 | 15 | F46 | 172 | 57 | 1,300 | APXA230ARA150MF46G |
| 25 | 10 | F60 | 125 | 65 | 1,500 | APXA250ARA100MF60G |
| | 22 | H70 | 275 | 50 | 1,800 | APXA250ARA220MH70G |
| | 39 | J80 | 488 | 45 | 2,100 | APXA250ARA390MJ80G |

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

## NPCAP™-PXD Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- For automobile modules and other high temperature applications
- Endurance : 125℃ 2,000 hours
- Rated voltage range : 2.5 to 10Vdc, Capacitance range : 47 to 470µF
- **RoHS Compliant**
- Halogen Free

PXD

Longer life

PXH

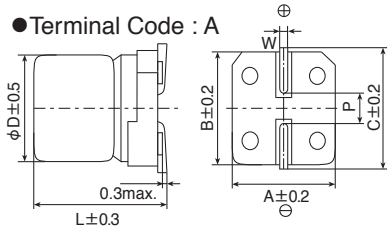
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +125℃ |
| **Rated Voltage Range** | 2.5 to 10Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 125℃) |
| **Leakage Current** | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 125℃.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦200% of the initial specified value<br>ESR: ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 125℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 125℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 125℃.

## ◆DIMENSIONS [mm]

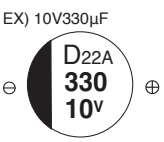
●Terminal Code : A




| Size code | φD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H70 | 8 | 6.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| J80 | 10 | 7.7 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆MARKING

EX) 10V330µF




## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | X | D | | | | A | R | A | | | | M | | | | G |

- 18 Supplement code
- 15–17 Size code
- 14 Capacitance tolerance code
- 11–13 Capacitance code (ex. 47µF:470,100µF:101)
- 9–10 Taping code
- 8 Terminal code
- 5–7 Voltage code (ex. 6.3V:6R3,10V:100)
- 4 Series code
- 1 Category

Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

## NPCAP™-PXD Series

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Size code | Leakage current (μAmax/after 2min.) | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/100kHz) | | Part No. |
|---|---|---|---|---|---|---|---|
| | | | | | -55℃ to +105℃ | +105℃ to +125℃ | |
| 2.5 | 120 | E61 | 60.0 | 40 | 1,450 | 650 | APXD2R5ARA121ME61G |
| | 220 | F61 | 110 | 30 | 2,500 | 770 | APXD2R5ARA221MF61G |
| 6.3 | 56 | E61 | 70.5 | 45 | 1,380 | 600 | APXD6R3ARA560ME61G |
| | 100 | F61 | 126 | 35 | 2,400 | 720 | APXD6R3ARA101MF61G |
| | 220 | H70 | 277 | 30 | 3,020 | 960 | APXD6R3ARA221MH70G |
| | 470 | J80 | 592 | 25 | 3,500 | 1,100 | APXD6R3ARA471MJ80G |
| 10 | 47 | E61 | 94.0 | 50 | 1,270 | 550 | APXD100ARA470ME61G |
| | 56 | F61 | 112 | 40 | 2,250 | 680 | APXD100ARA560MF61G |
| | 150 | H70 | 300 | 35 | 2,800 | 880 | APXD100ARA151MH70G |
| | 330 | J80 | 660 | 25 | 3,500 | 1,100 | APXD100ARA331MJ80G |

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXH Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Suitable for DC-DC converters, voltage regulators and decoupling applications.
- Endurance : 125℃ 1,000 hours
- Rated voltage range : 2.5 to 20Vdc, Capacitance range : 22 to 1,000µF
- Case size range : φ6.3×5.7L to φ10×7.7L
- **RoHS Compliant**
- Halogen Free

PXH

Higher temperature

PXA

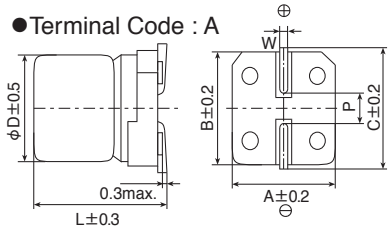
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +125℃ |
| **Rated Voltage Range** | 2.5 to 20Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 125℃) |
| **Leakage Current** | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 125℃.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦200% of the initial specified value<br>ESR: ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Bias Humidity** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Surge Voltage** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 125℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>DF (tanδ): ≦150% of the initial specified value<br>ESR: ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 125℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 125℃.

## ◆DIMENSIONS [mm]

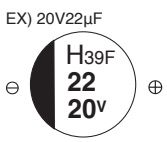
●Terminal Code : A



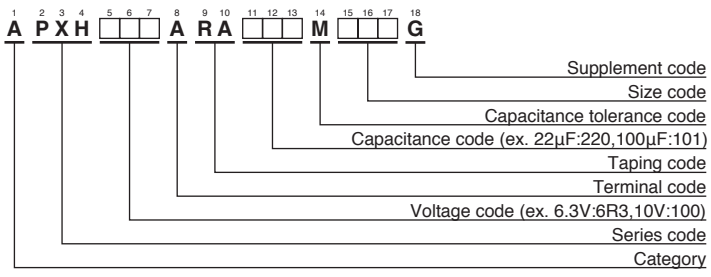

| Size code | φD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| F60 | 6.3 | 5.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H70 | 8 | 6.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| J80 | 10 | 7.7 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆MARKING

EX) 20V22µF




## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (conductive polymer type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

## NPCAP™-PXH Series

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Size code | Leakage current (μAmax/after 2min.) | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/100kHz) | | Part No. |
|---|---|---|---|---|---|---|---|
| | | | | | -55℃ to +105℃ | +105℃ to +125℃ | |
| 2.5 | 220 | F60 | 110 | 35 | 2,500 | 770 | APXH2R5ARA221MF60G |
| | 560 | H70 | 280 | 30 | 3,100 | 960 | APXH2R5ARA561MH70G |
| | 1,000 | J80 | 500 | 25 | 3,700 | 1,100 | APXH2R5ARA102MJ80G |
| 4 | 150 | F60 | 120 | 35 | 2,450 | 770 | APXH4R0ARA151MF60G |
| | 220 | H70 | 176 | 30 | 3,020 | 960 | APXH4R0ARA221MH70G |
| | 680 | J80 | 544 | 25 | 3,700 | 1,100 | APXH4R0ARA681MJ80G |
| 6.3 | 82 | F60 | 103 | 40 | 2,400 | 720 | APXH6R3ARA820MF60G |
| | 100 | F60 | 126 | 40 | 2,400 | 720 | APXH6R3ARA101MF60G |
| | 150 | H70 | 189 | 30 | 3,020 | 960 | APXH6R3ARA151MH70G |
| | 220 | H70 | 277 | 30 | 3,020 | 960 | APXH6R3ARA221MH70G |
| | 470 | J80 | 592 | 25 | 3,700 | 1,100 | APXH6R3ARA471MJ80G |
| 10 | 56 | F60 | 112 | 45 | 2,250 | 680 | APXH100ARA560MF60G |
| | 120 | H70 | 240 | 35 | 2,800 | 880 | APXH100ARA121MH70G |
| | 150 | H70 | 300 | 35 | 2,800 | 880 | APXH100ARA151MH70G |
| | 330 | J80 | 660 | 30 | 3,700 | 1,010 | APXH100ARA331MJ80G |
| 16 | 39 | F60 | 125 | 50 | 2,050 | 650 | APXH160ARA390MF60G |
| | 82 | H70 | 262 | 40 | 2,700 | 830 | APXH160ARA820MH70G |
| | 150 | J80 | 480 | 35 | 3,020 | 930 | APXH160ARA151MJ80G |
| | 180 | J80 | 576 | 35 | 3,020 | 930 | APXH160ARA181MJ80G |
| 20 | 22 | F60 | 88.0 | 60 | 1,650 | 590 | APXH200ARA220MF60G |
| | 47 | H70 | 188 | 45 | 2,000 | 780 | APXH200ARA470MH70G |
| | 82 | J80 | 328 | 45 | 2,400 | 820 | APXH200ARA820MJ80G |

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NIPPON CHEMI-CON

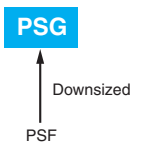
# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

## NPCAP™-PSG Series

- Super low ESR, high ripple current capability
- Endurance: 2,000 to 5,000 hours at 105℃
- Rated voltage : 16 to 25Vdc
- **RoHS Compliant**
- **Halogen Free**



## ◆SPECIFICATIONS

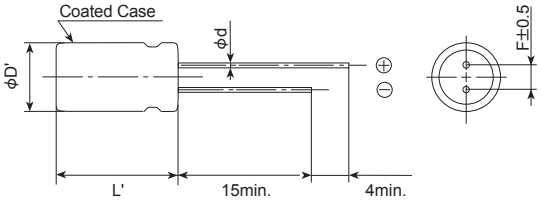
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage** | 16 to 25Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage(V)×1.15 (at 105℃) |
| **Leakage Current** *Note | I=0.2CV or 500μA, whichever is greater<br>Where, I : Leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max.Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours (20, 25V : 2,000 hours) at 105℃. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Bias Humidity Test** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

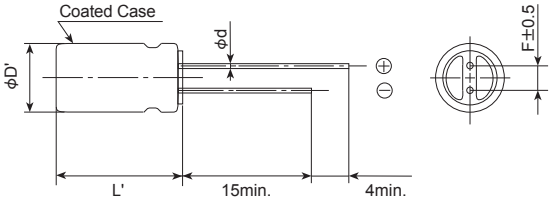
## ◆DIMENSIONS [mm]

- Terminal Code : E

F05,F08,H06,H08




HB5,JB5




| Size code | F05 | F08 | H06 | H08 | HB5 | JB5 |
|---|---|---|---|---|---|---|
| φD | 6.3 | | 8.0 | | | 10.0 |
| φd | 0.45 | | 0.6 | | | |
| F | 2.5 | | 3.5 | | | 5.0 |
| φD' | φD+0.5max. | | | | | |
| L' | L+1.0max. | | | | L+1.5max. | |

## ◆MARKING

EX) 16V150μF

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CAT. No. E1001M

NIPPON CHEMI-CON

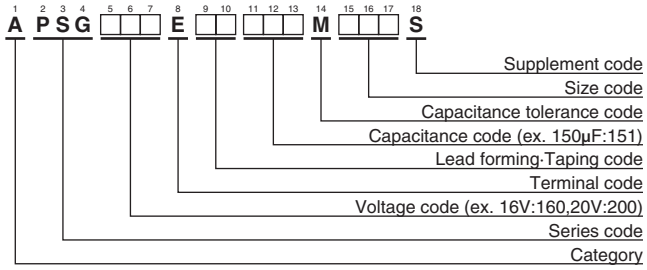
# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

## NPCAP™-PSG Series

## ◆PART NUMBERING SYSTEM




Please refer to “Product code guide (conductive polymer type)”

## ◆STANDARD RATINGS

| WV ($V_{dc}$) | Cap (μF) | Case size φD×L (mm) | ESR (mΩ max./20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 16 | 150 | 6.3×5 | 20 | 3,200 | APSG160E□□151MF05S |
| | 270 | 6.3×8 | 15 | 3,800 | APSG160E□□271MF08S |
| | 270 | 8×6 | 22 | 3,300 | APSG160E□□271MH06S |
| | 470 | 8×8 | 16 | 4,000 | APSG160E□□471MH08S |
| | 560 | 8×11.5 | 14 | 4,970 | APSG160E□□561MHB5S |
| | 820 | 10×11.5 | 12 | 5,400 | APSG160E□□821MJB5S |
| | 1,000 | 10×11.5 | 12 | 5,400 | APSG160E□□102MJB5S |
| 20 | 120 | 6.3×5 | 20 | 3,200 | APSG200E□□121MF05S |
| | 330 | 8×8 | 17 | 3,880 | APSG200E□□331MH08S |
| | 390 | 8×11.5 | 14 | 4,970 | APSG200E□□391MHB5S |
| | 680 | 10×11.5 | 12 | 5,400 | APSG200E□□681MJB5S |
| 25 | 56 | 6.3×5 | 30 | 2,600 | APSG250E□□560MF05S |
| | 180 | 8×8 | 18 | 3,770 | APSG250E□□181MH08S |
| | 180 | 8×11.5 | 16 | 4,650 | APSG250E□□181MHB5S |
| | 220 | 8×11.5 | 16 | 4,650 | APSG250E□□221MHB5S |
| | 330 | 10×11.5 | 14 | 5,000 | APSG250E□□331MJB5S |
| | 390 | 10×11.5 | 14 | 5,000 | APSG250E□□391MJB5S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

## NPCAP™-PSK Series

- Super low ESR, high ripple current capability
- Downsized from PSE series (φ6.3×8L to φ5×8L)
- Longer life (5,000 hours at 105℃)
- ESR after endurance is specified within the initial spec
- **RoHS Compliant**
- **Halogen Free**

PSK
↑ Downsized
PSE

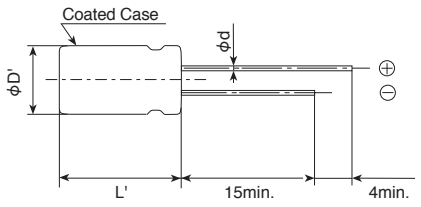
## ◆SPECIFICATIONS

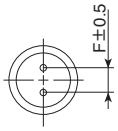
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 6.3 Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage(V)×1.15 (at 105℃) |
| **Leakage Current***Note | 500μA max. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.10 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max.Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦The initial specified value<br>ESR: ≦The initial specified value<br>Leakage current: ≦The initial specified value |
| **Bias Humidity Test** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦The initial specified value<br>ESR: ≦The initial specified value<br>Leakage current: ≦The initial specified value |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.<br>Appearance: No significant damage<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦The initial specified value<br>ESR: ≦The initial specified value<br>Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : E



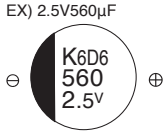




| Size code | E08 |
|---|---|
| φD | 5.0 |
| φd | 0.5(Note2) |
| F | 2.0 |
| φD' | φD+0.5max. |
| L' | L+1.0max. |

Note2 : 0.45 for rated voltage 2.5V

## ◆MARKING

EX) 2.5V560μF

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CAT. No. E1001M

NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

## NPCAP™-PSK Series

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | S | K | □ | □ | □ | E | □ | □ | □ | □ | □ | M | E | 0 | 8 | S |

- 18: Supplement code
- 15 16 17: Size code
- 14: Capacitance tolerance code
- 11 12 13: Capacitance code (ex. 560μF:561)
- 9 10: Lead forming·Taping code
- 8: Terminal code
- 5 6 7: Voltage code (ex. 2.5V:2R5, 6.3V:6R3)
- 2 3 4: Series code
- 1: Category

Please refer to "Product code guide (conductive polymer type)"

## ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Case size φD×L (mm) | ESR (mΩ max./20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 2.5 | 220 | 5×8 | 7 | 4,350 | APSK2R5E□□221ME08S |
| | 330 | 5×8 | 7 | 4,350 | APSK2R5E□□331ME08S |
| | 470 | 5×8 | 7 | 4,350 | APSK2R5E□□471ME08S |
| | 560 | 5×8 | 7 | 4,350 | APSK2R5E□□561ME08S |
| 6.3 | 270 | 5×8 | 10 | 3,700 | APSK6R3E□□271ME08S |
| | 330 | 5×8 | 8 | 4,050 | APSK6R3E□□331ME08S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

## NPCAP™-PSF Series

- Super low ESR, high ripple current capability
- ESR 5mΩ max. (2 to 4Vdc)
- Longer life (5,000 hours at 105℃)
- ESR after endurance is specified within the initial spec (2 to 4Vdc)
- Rated voltage range : 2 to 16Vdc
- **RoHS Compliant**
- **Halogen Free**

PSF
↑ Lower ESR
PSE

## ◆SPECIFICATIONS

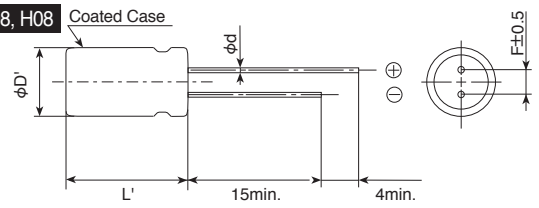
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2 to 16Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage(V)×1.15 (at 105℃) |
| **Leakage Current** *Note | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.10 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max.Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: 2 to 4Vdc : ≦The initial specified value |
| | ESR: 16Vdc : ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Bias Humidity Test** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: 2 to 4Vdc : ≦The initial specified value |
| | ESR: 16Vdc : ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: 2 to 4Vdc : ≦The initial specified value |
| | ESR: 16Vdc : ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

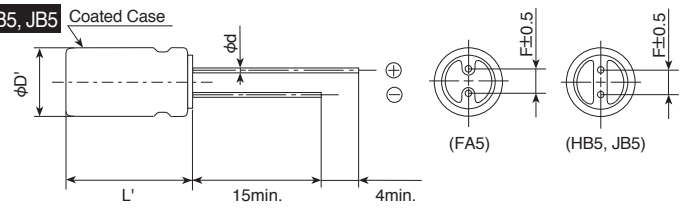
## ◆DIMENSIONS [mm]

●Terminal Code : E

F05, F08, H08 Coated Case



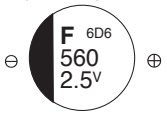

FA5, HB5, JB5 Coated Case




| Size code | F05 | F08 | FA5 | H08 | HB5 | JB5 |
|---|---|---|---|---|---|---|
| φD | 6.3 | | | 8.0 | | 10.0 |
| φd | 0.45 | 0.6 | 0.5 | 0.6 | | |
| F | 2.5 | | | 3.5 | | 5.0 |
| φD' | φD+0.5max. | | | | | |
| L' | L+1.0max. | | L+0.3max. | L+1.0max. | L+1.5max. | |

## ◆MARKING

EX) 2.5V560μF

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CAT. No. E1001M

NIPPON CHEMI-CON

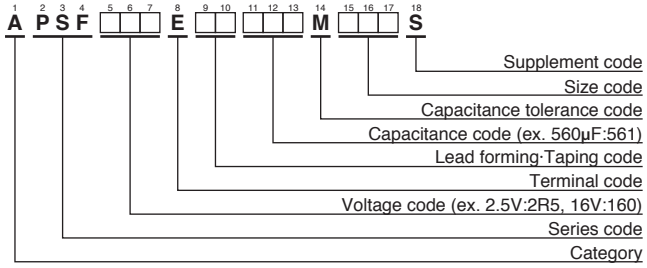
# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

## NPCAP™-PSF Series

### ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (conductive polymer type)"

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Case size φD×L(mm) | Leakage current (μAmax/after 2min.) | ESR (mΩ max./20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 2 | 1,000 | 6.3×8 | 500 | 5 | 5,900 | APSF2R0E□□102MF08S |
| 2.5 | 330 | 6.3×8 | 500 | 5 | 5,900 | APSF2R5E□□331MF08S |
| | 470 | 6.3×8 | 500 | 5 | 5,900 | APSF2R5E□□471MF08S |
| | 560 | 6.3×8 | 500 | 5 | 5,900 | APSF2R5E□□561MF08S |
| | 820 | 6.3×8 | 500 | 5 | 5,900 | APSF2R5E□□821MF08S |
| | 1,200 | 6.3×8 | 1,200 | 5 | 5,900 | APSF2R5E□□122MF08S |
| | 1,600 | 8×8 | 800 | 5 | 6,100 | APSF2R5E□□162MH08S |
| 4 | 470 | 6.3×8 | 500 | 5 | 5,900 | APSF4R0E□□471MF08S |
| | 560 | 6.3×8 | 500 | 5 | 5,900 | APSF4R0E□□561MF08S |
| 16 | 100 | 6.3×5 | 500 | 24 | 2,490 | APSF160E□□101MF05S |
| | 100 | 6.3×10.5 | 500 | 25 | 2,820 | APSF160E□□101MFA5S |
| | 270 | 8×8 | 864 | 10 | 5,000 | APSF160E□□271MH08S |
| | 270 | 8×11.5 | 864 | 11 | 5,080 | APSF160E□□271MHB5S |
| | 330 | 8×8 | 1,050 | 13 | 4,700 | APSF160E□□331MH08S |
| | 470 | 8×11.5 | 1,500 | 11 | 5,400 | APSF160E□□471MHB5S |
| | 470 | 10×11.5 | 1,500 | 10 | 6,100 | APSF160E□□471MJB5S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PSE Series

- Super low ESR, high ripple current capability
- Downsized from PSC series (φ8×8L to φ6.3×8L)
- Endurance is longer life than PSC series (5,000 hours at 105℃)
- ESR after endurance is specified within the initial spec
- Rated voltage range : 2.5 to 6.3Vdc
- **RoHS Compliant**
- **Halogen Free**

PSE
↑ Longer life / Downsized
PSC

## ◆SPECIFICATIONS

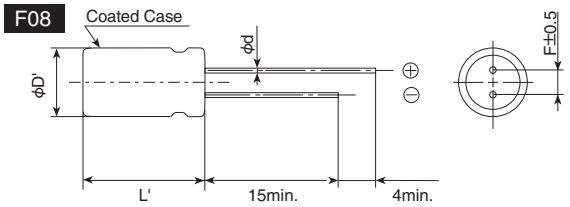
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 6.3Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage(V)×1.15 (at 105℃) |
| **Leakage Current** *Note | I=0.2CV or 500μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.10 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max.Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: ≦The initial specified value |
| | Leakage current: ≦The initial specified value |
| **Bias Humidity Test** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: ≦The initial specified value |
| | Leakage current: ≦The initial specified value |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦The initial specified value |
| | ESR: ≦The initial specified value |
| | Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

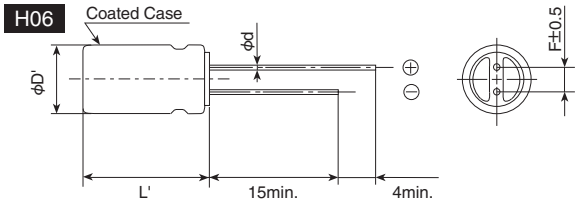
## ◆DIMENSIONS [mm]

●Terminal Code : E

F08




H06




| Size code | F08 | H06 |
|---|---|---|
| φD | 6.3 | 8.0 |
| φd | 0.6 | |
| F | 2.5 | 3.5 |
| φD' | φD+0.5max. | |
| L' | L+1.5max. | |

## ◆MARKING

EX) 2.5V820μF

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CAT. No. E1001M

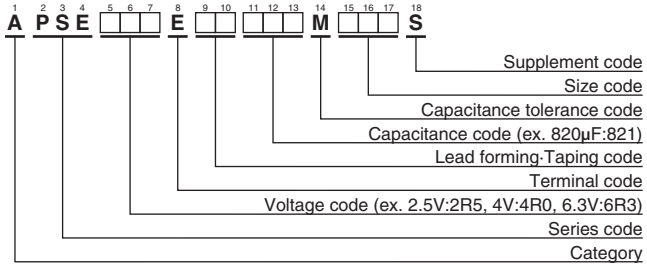
NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PSE Series

### ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (conductive polymer type)"

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Case size φD×L(mm) | ESR (mΩ max./20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 2.5 | 680 | 8×6 | 8 | 4,900 | APSE2R5E□□681MH06S |
| | 820 | 6.3×8 | 7 | 5,000 | APSE2R5E□□821MF08S |
| 4 | 560 | 6.3×8 | 7 | 5,000 | APSE4R0E□□561MF08S |
| 6.3 | 470 | 6.3×8 | 8 | 4,700 | APSE6R3E□□471MF08S |
| | 560 | 6.3×8 | 8 | 4,700 | APSE6R3E□□561MF08S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PSC Series

- Super low ESR, high ripple current capability
- Lower profile than PSA (φ8×8L to φ10×12.5L)
- Rated voltage range : 2.5 to 16Vdc
- Nominal capacitance range : 270 to 2,700μF
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- Added 2.5V 820μF (ESR 5mΩ max.)
- **RoHS Compliant**

PSC
↑ Low profile, Lower ESR
PSA

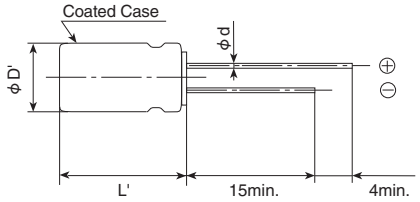
## ◆SPECIFICATIONS

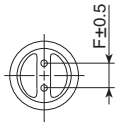
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 16Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 105℃) |
| **Leakage Current** *Note | I=0.2CV or 500μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.10 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max.Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | D.F. (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Bias Humidity Test** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | D.F. (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | D.F. (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : E



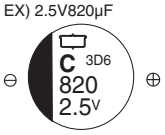




| Size code | H08 | HB5 | JB5 | JC5 |
|---|---|---|---|---|
| φD | 8.0 | 8.0 | 10.0 | 10.0 |
| φd | 0.6 | 0.8(Note1) | 0.8(Note1) | 0.6 |
| F | 3.5 | 3.5 | 5.0 | 5.0 |
| φD' | φD+0.5max. | | | |
| L' | L+1.0max. | L+1.5max. | | |

Note1 : 0.6 for rated volt 16V.

## ◆MARKING

EX) 2.5V820μF

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CAT. No. E1001M

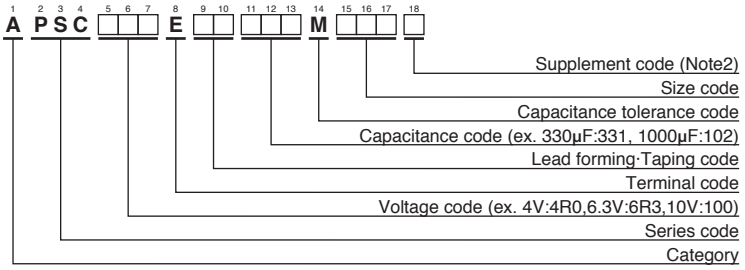
NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PSC Series

### ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (conductive polymer type)"

(Note2) PSC series, 2.5V820μF(ESR 5mΩ max.) has supplement code "J".
Can case, terminal and terminal plating are the same as all others in PSC series.

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Case size φD×L(mm) | ESR (mΩ max/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 2.5 | 560 | 8×8 | 7 | 6,100 | APSC2R5E□□561MH08S |
| | 820 | 8×8 | 5 | 6,100 | APSC2R5E□□821MH08J |
| | 820 | 8×8 | 7 | 6,100 | APSC2R5E□□821MH08S |
| | 1,000 | 8×8 | 7 | 6,100 | APSC2R5E□□102MH08S |
| | 1,000 | 8×11.5 | 7 | 6,100 | APSC2R5E□□102MHB5S |
| | 1,500 | 8×11.5 | 7 | 6,100 | APSC2R5E□□152MHB5S |
| | 2,700 | 10×11.5 | 8 | 5,560 | APSC2R5E□□272MJB5S |
| 4 | 560 | 8×8 | 7 | 6,100 | APSC4R0E□□561MH08S |
| | 680 | 8×11.5 | 7 | 6,100 | APSC4R0E□□681MHB5S |
| | 1,000 | 10×11.5 | 6 | 6,640 | APSC4R0E□□102MJB5S |
| 6.3 | 470 | 8×8 | 8 | 5,700 | APSC6R3E□□471MH08S |
| | 560 | 8×8 | 8 | 5,700 | APSC6R3E□□561MH08S |
| | 820 | 10×11.5 | 7 | 6,640 | APSC6R3E□□821MJB5S |
| | 1,500 | 10×11.5 | 10 | 5,560 | APSC6R3E□□152MJB5S |
| 10 | 390 | 8×11.5 | 9 | 5,650 | APSC100E□□391MHB5S |
| | 680 | 10×11.5 | 7 | 6,100 | APSC100E□□681MJB5S |
| 16 | 270 | 8×11.5 | 11 | 5,080 | APSC160E□□271MHB5S |
| | 330 | 10×11.5 | 10 | 6,100 | APSC160E□□331MJB5S |
| | 330 | 10×12.5 | 10 | 6,100 | APSC160E□□331MJC5S |
| | 470 | 10×11.5 | 10 | 6,100 | APSC160E□□471MJB5S |

□□ : Enter the appropriate lead forming or taping code.

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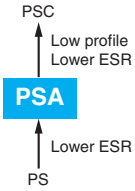
NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PSA Series

- Super low ESR, high temperature resistance and high ripple current capability
- Rated voltage range : 2.5 to 16Vdc
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- **RoHS Compliant**



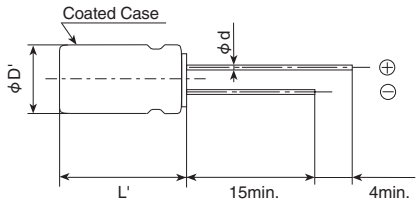
## ◆SPECIFICATIONS

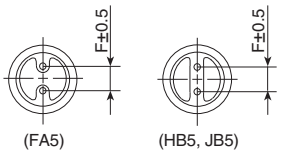
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 16Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 105℃) |
| **Leakage Current** *Note | I=0.2CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.08 max. (FA5 size : 0.12max.) (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | D.F. (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Bias Humidity Test** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | D.F. (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor (R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance : No significant damage |
| | Capacitance change : ≦±20% of the initial value |
| | D.F. (tanδ) : ≦150% of the initial specified value |
| | ESR : ≦150% of the initial specified value |
| | Leakage current : ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : E

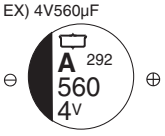



| Size code | FA5 | HB5 | JB5 |
|---|---|---|---|
| φD | 6.3 | 8.0 | 10.0 |
| φd | 0.5 | 0.8 | |
| F | 2.5 | 3.5 | 5.0 |
| φD' | φD+0.5max | | |
| L' | L+0.3max | L+1.5max | |

## ◆MARKING

EX) 4V560μF

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CAT. No. E1001M

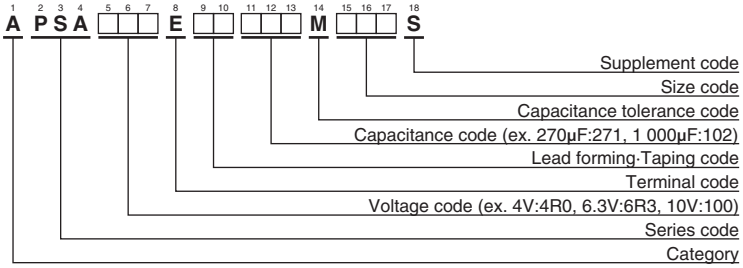
NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PSA Series

### ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (conductive polymer type)"

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Case size φD×L(mm) | ESR (mΩ max/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 2.5 | 390 | 6.3×10.5 | 20 | 3,160 | APSA2R5E□□391MFA5S |
| | 680 | 8×11.5 | 7 | 5,580 | APSA2R5E□□681MHB5S |
| | 820 | 8×11.5 | 7 | 5,580 | APSA2R5E□□821MHB5S |
| | 1,000 | 10×11.5 | 6 | 5,860 | APSA2R5E□□102MJB5S |
| | 1,500 | 10×11.5 | 7 | 5,860 | APSA2R5E□□152MJB5S |
| 4 | 270 | 6.3×10.5 | 20 | 3,160 | APSA4R0E□□271MFA5S |
| | 390 | 6.3×10.5 | 24 | 3,300 | APSA4R0E□□391MFA5S |
| | 560 | 8×11.5 | 7 | 5,580 | APSA4R0E□□561MHB5S |
| | 820 | 10×11.5 | 6 | 5,860 | APSA4R0E□□821MJB5S |
| 6.3 | 220 | 6.3×10.5 | 20 | 3,160 | APSA6R3E□□221MFA5S |
| | 330 | 6.3×10.5 | 28 | 3,190 | APSA6R3E□□331MFA5S |
| | 390 | 8×11.5 | 8 | 5,080 | APSA6R3E□□391MHB5S |
| | 470 | 8×11.5 | 7 | 5,700 | APSA6R3E□□471MHB5S |
| | 680 | 10×11.5 | 7 | 5,860 | APSA6R3E□□681MJB5S |
| 10 | 47 | 6.3×10.5 | 25 | 2,820 | APSA100E□□470MFA5S |
| | 68 | 6.3×10.5 | 25 | 2,820 | APSA100E□□680MFA5S |
| | 100 | 6.3×10.5 | 25 | 2,820 | APSA100E□□101MFA5S |
| | 150 | 6.3×10.5 | 25 | 2,820 | APSA100E□□151MFA5S |
| | 270 | 8×11.5 | 9 | 4,710 | APSA100E□□271MHB5S |
| | 470 | 10×11.5 | 8 | 5,650 | APSA100E□□471MJB5S |
| 16 | 100 | 6.3×10.5 | 25 | 2,820 | APSA160E□□101MFA5S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PS Series

- Super low ESR, high temperature resistance
- Large capacitance & Improved high ripple current capability
- Rated voltage range : 2.5 to 35Vdc
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications
  For computer motherboards
- **RoHS Compliant**

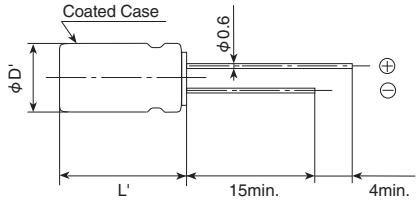
## ◆SPECIFICATIONS

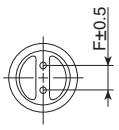
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 2.5 to 35Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Surge Voltage** | Rated voltage×1.15 (at 105℃) |
| **Leakage Current** *Note | I=0.2CV (Rated voltage 2.5 to 25Vdc) / I=0.5CV (Rated voltage 35Vdc)<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−25℃)/Z(+20℃)≦1.15<br>Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Bias Humidity Test** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |
| | Appearance: No significant damage |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦150% of the initial specified value |
| | ESR: ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Failure Rate** | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃) |

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

## ◆DIMENSIONS [mm]

●Terminal Code : E

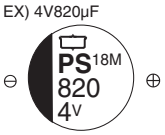



| Size code | HB5 | JC5 |
|---|---|---|
| φD | 8 | 10 |
| φd | 0.6 | |
| F | 3.5 | 5.0 |
| φD' | φD+0.5max | |
| L' | L+1.5max. | |

## ◆MARKING

EX) 4V820μF

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CAT. No. E1001M

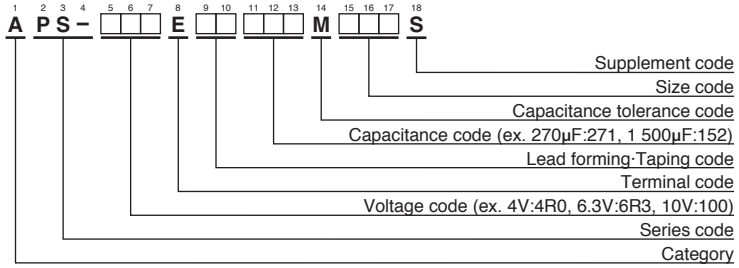
NIPPON CHEMI-CON

# CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

## NPCAP™-PS Series

### ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (conductive polymer type)"

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Case size φD×L(mm) | ESR (mΩmax/20℃, 100k to 300kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 2.5 | 680 | 8×11.5 | 10 | 5,230 | APS-2R5E□□681MHB5S |
| | 820 | 8×11.5 | 10 | 5,230 | APS-2R5E□□821MHB5S |
| | 1,500 | 10×12.5 | 8 | 5,500 | APS-2R5E□□152MJC5S |
| 4 | 560 | 8×11.5 | 10 | 5,230 | APS-4R0E□□561MHB5S |
| | 820 | 10×12.5 | 8 | 5,500 | APS-4R0E□□821MJC5S |
| | 1,000 | 10×12.5 | 8 | 5,500 | APS-4R0E□□102MJC5S |
| | 1,200 | 10×12.5 | 8 | 5,500 | APS-4R0E□□122MJC5S |
| 6.3 | 390 | 8×11.5 | 12 | 4,770 | APS-6R3E□□391MHB5S |
| | 470 | 8×11.5 | 12 | 4,770 | APS-6R3E□□471MHB5S |
| | 680 | 10×12.5 | 10 | 5,500 | APS-6R3E□□681MJC5S |
| | 820 | 10×12.5 | 10 | 5,500 | APS-6R3E□□821MJC5S |
| | 1,000 | 10×12.5 | 10 | 5,500 | APS-6R3E□□102MJC5S |
| 10 | 270 | 8×11.5 | 14 | 4,420 | APS-100E□□271MHB5S |
| | 330 | 8×11.5 | 14 | 4,420 | APS-100E□□331MHB5S |
| | 470 | 10×12.5 | 12 | 5,300 | APS-100E□□471MJC5S |
| | 560 | 10×12.5 | 12 | 5,300 | APS-100E□□561MJC5S |
| 16 | 100 | 8×11.5 | 16 | 4,360 | APS-160E□□101MHB5S |
| | 180 | 8×11.5 | 16 | 4,360 | APS-160E□□181MHB5S |
| | 270 | 10×12.5 | 14 | 5,050 | APS-160E□□271MJC5S |
| | 330 | 10×12.5 | 14 | 5,050 | APS-160E□□331MJC5S |
| 20 | 100 | 8×11.5 | 24 | 3,320 | APS-200E□□101MHB5S |
| | 150 | 10×12.5 | 20 | 4,320 | APS-200E□□151MJC5S |
| 25 | 68 | 8×11.5 | 24 | 3,320 | APS-250E□□680MHB5S |
| | 100 | 10×12.5 | 20 | 4,320 | APS-250E□□101MJC5S |
| 35 | 18 | 8×11.5 | 34 | 2,830 | APS-350E□□180MHB5S |
| | 33 | 10×12.5 | 30 | 3,270 | APS-350E□□330MJC5S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

## CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

# RECOMMENDED SOLDERING CONDITIONS FOR NPCAP™

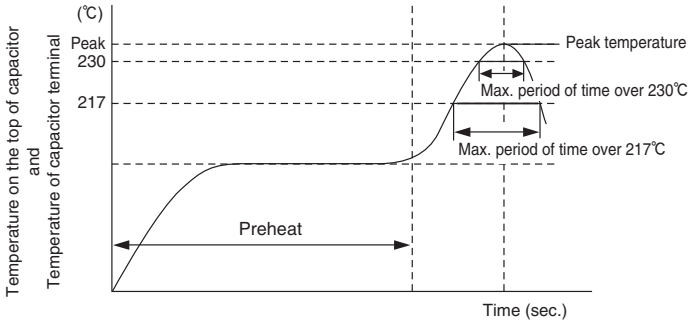
### ◆SURFACE MOUNT TYPE

The following conditions are recommended for air or infrared reflow soldering PXK/PXS/PXF/PXE/PXA/PXH series onto a glass epoxy circuit board of 90×50×0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and temperature of capacitor terminal.

Reflow should be performed twice or less.

Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.

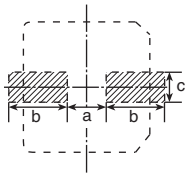
### ● Recommended soldering heat conditions




| Voltage range ($V_{DC}$) | Preheat | Time maintained above 217℃ | Time maintained above 230℃ | Peak temp. | Reflow number |
|---|---|---|---|---|---|
| 2.5 to 16V | 150 to 180℃ 120 sec.max. | 50 sec.max. | 40 sec.max. | 260℃max. | 1-cycle only |
| | | | | 250℃max. | 2-cycle allowed |
| 20 to 25V | | 50 sec.max. (40 sec.max.) | 40 sec.max. (30 sec.max.) | 250℃max. (240℃max.) | 1-cycle only |
| | | 40 sec.max. | 30 sec.max. | | 2-cycle allowed |

( ) : Applies for 20V 82μF(J80) and 25V 39μF(J80)

### ● Recommended Solder Land on PC Board




Solder land on PC board

[mm]

| Size code | a | b | c |
|---|---|---|---|
| D55 | 1.0 | 2.6 | 1.6 |
| E46,E60,E61 | 1.4 | 3.0 | 1.6 |
| F46, F55 F60, F61, F80 | 1.9 | 3.5 | 1.6 |
| H70, H80, HA0, HC0 | 3.1 | 4.2 | 2.2 |
| J80, JA0, JC0 | 4.5 | 4.4 | 2.2 |

### ◆RADIAL LEAD TYPE

### ● Recommended soldering heat conditions

**Preheat ：150℃ 120 seconds max.**

**Flow soldering ：260+5℃ max. 10+1 seconds max.**

### ◆PRECAUTIONS FOR USERS

#### Soldering method

SMD type have no capability to withstand such dip or wave soldering as totally immersing components into a solder bath.

#### Reflow soldering

Reflow the capacitors within Recommended Reflow Soldering Conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult with us if other reflow conditions are employed.

1.Location of components : Temperature increases at the edge of PC board more than the center.
2.Population of PC board : The lower the component population is, the more temperature rises.
3.Material of PC board : A ceramic-made board needs more heat than a glass epoxy-made board. The heat increase may cause damage to the capacitors.
4.Thickness of PC board : A thicker board needs more heat than a thinner board. The heat may damage the capacitors.
5.Size of PC board : A larger board needs more heat than a smaller board. The heat may damage the capacitors.
6.Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7.Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8.Case leakage current will increase (～mA) after the reflow process, the leakage current which rose gradually decreases when voltage is applied.
9.Vapor phase soldering (VPS) is not used.

#### Rework of soldering

Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

#### Mechanical stress

Do not grab the capacitors to lift the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

#### Cleaning assembly board

Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

#### Coating on assembly board

1.Before curing coating material, remove the cleaning solvents from the assembly board.
2.Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

#### Molding with resin

Internal chemical reaction gradually produces gas in the capacitor; increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine in resin will penetrate the end seal, reach the element, and damage of the capacitor.

#### Glue

The followings are requirements for glue.

1.A low curing temperature over a short period of time
2.Strong adhension and heat resistance after curing
3.Long shelf life
4.No corrosion

#### Others

Refer to PRECAUTIONS AND GUIDELINES(Conductive Polymer).

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CAT. No. E1001M

# Aluminum Electrolytic Capacitors

# Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

For Conductive Polymer Aluminum Solid Electrolytic Capacitors, see Precautions and Guidelines (Conductive Polymer Aluminum Solid Electrolytic Capacitors)

## 1 Device circuits design considerations

**1) Confirm installation and operating requirements for capacitors, then use them within the performance limits prescribed in this catalog or product specifications.**

### 2) Polarity

Aluminum electrolytic capacitors are polarized.
Never apply a reverse voltage or AC voltage. Connecting with wrong polarity will short-circuit or damage the capacitor with the pressure relief vent opening early on. To identify the polarity of a capacitor, see the relevant diagram in the catalogs or product specifications, or the polarity marking on the body of the capacitor. Incidentally, the rubber end seal bungs of the radial lead type capacitors have a solder-flux gas escaping configuration, which is nothing to do with the polarity of the capacitors. For circuits where the polarity is occasionally reversed, use a bi-polar type of aluminum electrolytic capacitor. However, note that even bi-polar type capacitors must not be used for AC circuits.

### 3) Operating voltage

Do not apply an over-voltage that exceeds a rated voltage specified for the capacitors. The total peak value of the ripple voltage plus the DC voltage must not exceed the rated voltage of the capacitors. Although capacitors specify a surge voltage that exceeds the full rated voltage, it does not assure long-term use but limited use under specific conditions.

### 4) Ripple current

Do not apply an overcurrent that exceeds the rated ripple current specified for the capacitors. Excessive ripple current will increase heat production within the capacitors, causing the capacitors to be damaged as follows:
- Shorten lifetime
- Open pressure relief vent
- Short circuit

The rated ripple current is specified along with a specific ripple frequency.
Where using the capacitors at any other ripple frequency other than the specified frequency, calculate the allowable ripple current by multiplying the rated ripple current by a frequency compensation factor (Frequency Multiplier) specified for each product series.

### 5) Operating temperature (Category temperature)

Do not apply high temperatures that exceed the upper limit of the category temperature range specified for the capacitors.
Using the capacitor at temperatures higher than the upper limit will considerably shorten the lifetime of the capacitor and make the pressure relief vent open.
In other words, lowering ambient temperatures will extend the expected lifetime of the capacitors.

### 6) Lifetime

Select the capacitors to meet the service life requirements of a device.

### 7) Charging and discharging

Do not use capacitors in circuits intended for rapid charge and discharge cycle operations.
If capacitors are used in the circuits that repeat a charge and discharge with a large voltage drop or a rapid charge and discharge at a short interval cycle, capacitance will decrease and/or the capacitors will be damaged by internal heat generation.
Consult us for a heavy charge and discharge type of capacitor so that the capacitor will be designed in accordance with requirements of duty cycle of charge and discharge, the number of cycles, discharging resistance and operating temperatures.

### 8) Failure mode of capacitors

Non-solid aluminum electrolytic capacitors have a limited lifetime which ends in an open circuit failure mode, in general. Depending on the product type and operating conditions, the failure mode may involve in opening of the pressure relief vent.

### 9) Capacitor insulation

Electrically isolate the following sections of a capacitor from the negative terminal, the positive terminal and the circuit patterns.
- The outer can case of a non-solid aluminum capacitor.
- The dummy terminal of a snap-in type non-solid aluminum capacitor, which is designed for mounting stability.

### 10) Outer sleeve

The outer sleeve of a capacitor does not assure electrical insulation (except for screw-terminal type capacitors). It should not be used where electrical insulation is required.

### 11) Operating conditions

Do not use/expose capacitors to the following conditions:
① Direct contact with water, salt water or oil, or high condensation environment.
② Direct sunlight.
③ Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine and its compounds, bromine and its compounds and ammonium.
④ Ozone, ultraviolet rays or radiation.
⑤ Extreme vibration or mechanical shock that exceeds limits in the catalogs or product specifications.

### 12) Mounting

① Non-solid aluminum electrolytic capacitors contain paper separators and electric-conductive electrolyte that contains organic solvent as main solvent material, both of which are flammable. If the electrolyte leaks onto a printed circuit board, it can erode the device circuit pattern, may short-circuit the copper traces, smoke and burn. Make sure of designing a PC board as follows:
- Provide the appropriate hole spacing on the PC board to match the terminal spacing of a capacitor.
- Provide the following adequate clearance space over the pressure relief vent of a capacitor to avoid blocking the correct opening of the pressure relief vent.

| Case diameter | Clearance |
|---|---|
| $\phi$8(6.3) to $\phi$16mm: | 2mm minimum |
| $\phi$18 to $\phi$35mm: | 3mm minimum |
| $\phi$40 mm and above: | 5mm minimum |

- Do not locate any wire or circuit pattern over the pressure relief vent of a capacitor.
- If a capacitor is mounted with its pressure relief vent facing down on the PC board, provide a ventilation hole in the board beneath it to let gas escape when the vent opens.
- Do not print any copper trace under the seal (terminal) side of a capacitor. Copper traces should be 1 mm (preferably 2mm or more) spaced apart from the side of the capacitor body.
- Avoid locating any heat source components near capacitors or on the opposite side of the PC board under capacitors.
- In designing a double-sided PC board, do not locate any through-hole via or unnecessary hole underneath a capacitor.
- In designing a double-sided PC board, do not print any circuit pattern underneath a capacitor.

② For a screw terminal type capacitor, tightening the terminal screws and the mounting clamp should be within the maximum torque specified in the catalogs or product specifications. Do not mount a screw terminal type capacitor with the terminals facing downward. Also, if the body of a capacitor is installed horizontally such as being laid on its side, do not position the pressure relief vent downward.
③ For a chip type capacitor, design the land patterns of the PC board in accordance with the recommended footprint dimensions described in the catalogs or product specifications.

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CAT. No. E1001M

# Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

### 13) Using capacitors for significantly safety-oriented applications

Consult us about capacitors for a device application affecting human safety (①Aviation and space, ②Nuclear, ③Medical and ④Vehicle) or for any device whose failure will make an impact on society.
Note that some products such as photoflash use capacitors which have been designed for specific applications cannot be used for any other application.

### 14) Others

Design device circuits taking into consideration the following conditions:
① Electrical characteristics of a capacitor depend on the temperature and frequency. In designing the device circuits, consider the change in the characteristics.
② If using more than one capacitor connected in parallel, design the device circuits to balance the current flow in individual capacitors.
③ If using more than one capacitor connected in series, connect shunting resistors in parallel with the individual capacitors to balance the voltage.

## 2 Installation

### 1) Assembling

① Do not try to reuse the capacitors once assembled and electrified, except only capacitors that are taken from a device for periodic inspection to measure their electrical characteristics.
② Capacitors may have been spontaneously recharged with time by a recovery voltage phenomenon. In this case, discharge the capacitors through a resistor of approximately 1kΩ before use.
③ If non-solid aluminum electrolytic capacitors have been stored at any conditions more than 35℃ and 75%RH for long storage periods of time more than the limits specified in the catalogs or product specifications, they may have high leakage current. In this case, make pre-conditioning by applying the rated voltage through a resistor of approximately 1kΩ.
④ Confirm the rated capacitance and voltage of capacitors before installation.
⑤ Confirm the polarity of capacitors before installation.
⑥ Do not try to use the capacitors that were dropped to the floor and so forth.
⑦ Do not deform the can case of a capacitor.
⑧ Make sure that the terminal spacing of a capacitor equals the holes spacing on the PC board before installing the capacitor. For radial lead type capacitors, some standard pre-formed lead types are also available.
⑨ When installing a snap-in type capacitor on the PC board, insert the terminals into the holes and press the capacitor down until the body is settled flush on the surface of the PC board (without the body standing off).
⑩ Do not apply excessive mechanical force to capacitors more than the limits prescribed in the catalogs or product specifications. Avoid excessive mechanical force while the capacitors are in the process of vacuum-picking, placing and positioning by automatic mounting machines or cutting the lead wires by automatic insertion machines.

### 2) Soldering and heat resistance

① For soldering using a soldering iron, consider the following conditions:
- Soldering conditions (temperature and time) should be within the limits prescribed in the catalogs or product specifications.
- If it is necessary to pre-form the terminal spacing of a capacitor to match the hole spacing on the PC board before assembly and soldering, do not make mechanical stress reach into the body of the capacitor but only the lead wires.
- Do not touch the body of a capacitor with the hot tip of the soldering iron.

② For flow soldering, consider the following conditions:
- Do not dip the body of a capacitor into a solder bath. Expose only the terminals to the melt solder with the PC board interposing between the solder and the body of the capacitor. Solder only the reverse side of the PC board where the body of the capacitor is not located.
- Soldering conditions should be within the limits prescribed in the catalogs or product specifications.
- Do not apply flux to any part of a capacitor other than the terminals.
- Do not let any other component lean against nor come into contact with the capacitor while soldering.

③ For reflow soldering, consider the following conditions:
- Soldering conditions (preheat, reflow temperature and time) should be within the limits prescribed in the catalogs or product specifications.
- When using the infrared heater and setting its temperatures, adjust the heating levels taking into consideration that the color and materials of a capacitor vary in their infrared absorbance.
- The allowable number of reflow passes is specified in the catalogs or product specifications.
- When mounting a capacitor on the double-sided PC board, do not place any wiring pattern underneath the capacitor.
- Avoid using Vapor Phase Soldering (VPS) system reflow.

④ Do not try to reuse the capacitor that was removed from the PC board after soldering.
⑤ Only use chip type capacitors for reflow soldering. The other type capacitors are not designed for the reflow.

### 3) Handling after soldering

After soldering the PC board, do not apply the following mechanical stress to the capacitor:
① Do not tilt, push down or twist the body of the capacitor.
② Do not grab the body of the capacitor to carry the assembly board.
③ Do not hit anything against the capacitor. When stacking the assembled boards, do not put any of the PC boards or other components against the capacitor.
④ Do not drop the assembled board.

### 4) Cleaning assembly boards

① Do not clean capacitors with the following cleaning agents:
- Halogenated solvents: cause capacitor failures due to corrosion.
- Alkali system solvents: corrode (dissolve) the aluminum can case.
- Terpene and petroleum system solvents: deteriorate the rubber seal materials.
- Xylene: deteriorates the rubber seal materials as well.
- Acetone: erases the markings printed on a capacitor.

Where cleaning is necessary, use only solvent resistant type capacitors that have been assured for the cleaning within the specific cleaning conditions prescriber in the catalogs or product specifications. In particular, carefully set up the conditions for ultrasonic cleaning system.

② Where cleaning the solvent resistance type of aluminum electrolytic capacitors, confirm the following conditions:
- Control the contamination (the conductivity, pH, specific gravity, water content, etc.) of the cleaning agents.
- After the cleaning, do not leave the capacitors (assembly boards) in an environment of cleaning agent-rich or in a closed container. Sufficiently evaporate the residual cleaning agent from the assembly boards and the capacitors by forced hot air at temperatures less than the upper limit of category temperature range for more than 10 minutes.
  In general, aluminum electrolytic capacitors are sensitive to contamination of halogen ions (particularly to chlorine ions). Depending on the properties of the electrolyte and rubber seal materials used in a capacitor, the halogen ions lead up to catastrophic failures on the capacitor. Where the inside of a capacitor has been contaminated with more than a certain amount of halogen ions and the capacitor is in use, the corrosion reaction of aluminum occurs. The corrosion causes the capacitor to have a significant increase in leakage current with heat produced, open the pressure relief vent and become open circuit mode failure.
  Due to global environmental issues (greenhouse effects and other environmental destruction by depletion of the ozone layer), the conventional cleaning solvents of CFC 113, Trichloroethylene and 1,1,1-trichloroethylene were replaced by substitutes.
  The following are some substitute cleaning agents and allowable cleaning conditions:

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# Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

a) Fatty-alcohol cleaning agents
Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750H, 750K, 750L and 710M (Kao)
Technocare FRW-14, 15, 16 and 17 (Momentive Performance Materials)
[Cleaning conditions]
Either of immersion or ultrasonic cleaning, for a maximum of 10 minutes and at a maximum liquid temperature of 60℃ is acceptable. Make sure that the markings on the capacitor are not rubbed against any other component or the PC board during cleaning. Note that shower cleaning affects the markings on the capacitor.
b) HCFC (Freon 225) as Alternative CFCs
AK225AES (Asahi Glass)
[Cleaning conditions]
Solvent resistant type capacitors, which were originally developed to intend to resist Freon TE or Freon TES, are also capable of withstanding any one of immersion, ultrasonic or vapor cleaning, for a maximum of 5 minutes (or 2 minutes for KRE and KRE-BP series capacitors or 3 minutes for SRM series). However, this type of cleaning agent is not recommended to use, as the cleaning materials may be banned in near future in view of global environmental issues.
c) IPA (Isopropyl Alcohol)
Immersion cleaning with a maximum flux concentration of 2 wt% is acceptable.

**5) Adhesives and coating materials**

① Do not use any adhesive or coating materials containing halogenated solvents.
② Make sure of the following conditions before applying adhesive or coating materials to a capacitor,
- No flux residue nor stain is left between the rubber seal of a capacitor and PC board.
- Dry the capacitor to remove residual cleaning agents before applying adhesive and coating materials. Do not cover up the entire surface of the rubber seal of the capacitor with adhesives or coating materials.
- Heating and curing conditions for adhesives and coating materials should be followed as prescribed in the catalogs or product specifications.
- Covering up the entire surface of the rubber seal with resin mold materials will obstruct the normal diffusion of internal hydrogen gas from a capacitor and result in serious failures. Also, where the adhesive and coating materials contain a large amount of halogen ions, the halogen ions will contaminate the inside of the capacitor through the rubber seal materials, causing the capacitor to become a failure.
- Depending on solvent materials that the adhesive or coating materials contains, note that the outer sleeve of a capacitor may lose a gloss or whiten in appearance.

**6) Fumigation**

In exporting or importing electronic devices, they may be exposed to fumigation with halide such as methyl bromide. Where aluminum electrolytic capacitors are exposed to halide such as methyl bromide, the capacitors will be damaged with the corrosion reaction with halogen ions in the same way as cleaning agents. For the export and import, Nippon Chemi-Con considers using some packaging method and so forth so that fumigation is not required. For customers to export or import electronic devices, semi-assembly products or capacitor components, confirm if they will be exposed to fumigation and also consider final condition of packaging. (Note that either cardboard or vinyl package has a risk of fumigation gas penetration.)

## 3 Precautions during operation of devices

1) Never touch the terminals of a capacitor directly with bare hands.
2) Do not short-circuit between the capacitor terminals with anything conductive.
Also, do not spill any conductive liquid such as acid or alkaline solution over a capacitor.
3) Confirm environmental conditions where the device will be placed. Do not use the devise in the following environmental conditions:
① Water or oil spatters, or high condensation environment.
② Direct sunlight.
③ Ozone, ultraviolet rays or radiation.
④ Toxic gases such as hydrogen sulfide, sulfuric acid, nitrous acid, chlorine and its compounds, bromine and its compounds and ammonium.
⑤ Extreme vibration or mechanical shock that exceeds the limits in the catalogs or product specifications.

## 4 Maintenance inspections

1) For industrial use capacitors, make periodic inspections of the capacitors. Before the inspections, turn off the power supply of the device and discharge the electricity of the capacitors. Where checking it by a volt-ohm meter, confirm the polarity beforehand. Do not apply mechanical stress to the terminals of the capacitors during inspection.
2) Characteristics to be inspected
① Significant damage in appearance: vent opening, electrolyte leakage, etc.
② Electrical characteristics: leakage current, capacitance, tan $\delta$ and other characteristics prescribed in the catalogs or product specifications

If finding anything abnormal on the characteristics above, check the specifications of the capacitor and take appropriate actions such as replacement.

## 5 Capacitor venting

1) A capacitor with more than a certain case size has the pressure relief vent functioning to escape abnormal gas pressure increase.
If gas expels from a venting capacitor, disconnect the power supply of the device or unplug the power supply cord. If not disconnecting the power supply, the device circuit may be damaged due to the short circuit failure of the capacitor or short-circuited with the liquid that the gas was condensed to. It may cause secondary damages such as device burnout in the worst case scenario.
The gas that comes out of the open vent is vaporized electrolyte, not smoke.
2) The gas expelled from a venting capacitor is more than100°C. Never expose your face to the capacitor. If your eyes are exposed to the gas or you inhale it, immediately flush your eyes and/or gargle with water. If the electrolyte comes in contact with the skin, wash with soap and water.

## 6 Storage

1) Do not store capacitors at high temperature or high humidity. Store the capacitors indoors at temperatures of 5 to 35℃ and humidities of less than 75%RH.
In principle, aluminum electrolytic capacitors should be used within three years after production.
2) Keep capacitors packed in the original packaging material wherever possible.

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# Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

3) Avoid the following storage environmental conditions:
   ① Water spattering, high temperatures, high humidity or condensation environment.
   ② Oil spattering or oil mist filled.
   ③ Salt water spattering or salt filled.
   ④ Acidic toxic gases such as hydrogen sulfide, sulfuric acid, nitrous acid, chlorine, bromine and methyl bromide filled.
   ⑤ Alkaline toxic gases such as ammonium filled.
   ⑥ Acid or alkaline solutions spattering.
   ⑦ Direct sunlight, ozone, ultraviolet rays or radiation.
   ⑧ Extreme vibration or shock loading
4) JEDEC J-STD-020 (rev. C) is not applicable.

## 7 Capacitor disposal

Please consult with a local organization for the proper disposal of industrial waste. For incinerating capacitors, apply a high-temperature incineration (over 800℃). Incinerating them at temperatures lower than that may produce toxic gases such as chlorine. To prevent capacitors from explosion, punch holes in or sufficiently crush the can cases of the capacitors, then incinerate.

## 8 Catalogs

Specifications in the catalogs are subject to change without notice. Test data shown in the catalogs are not assured as the whole performance values, but typical values.
For more details, refer to JEITA/EIAJ RCR-2367C (March 2006) with the title of “Safety Application Guide for fixed aluminum electrolytic capacitors for use in electronic equipment”.

## 9 Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

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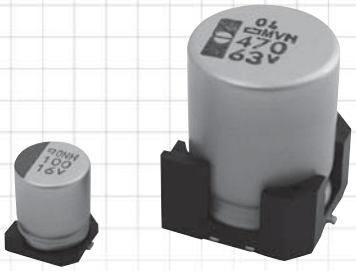
# Surface Mount Aluminum Electrolytic Capacitors



# PART NUMBERING SYSTEM

## Product code guide (Surface mount type)

**(Example : MVA series, 25V-47μF, φ6.3×5.2L)**

Please refer to the following table

| Contents | Code |
|---|---|
| Polar | E |
| Bi-polar | B |

| Series | Code |
|---|---|
| MVA | MVA |
| MV(Bi-polar) | MV- |

| Type | Code |
|---|---|
| No dummy terminal | A |
| With dummy terminal | G |

| Tol.(%) | Code |
|---|---|
| ±20 | M |

| Terminal plating material | Code |
|---|---|
| Sn-Bi | G |
| Sn | S |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | M | V | A | 2 | 5 | 0 | A | D | A | 4 | 7 | 0 | M | F | 5 | 5 | G |

Category / Series code / Voltage code / Terminal code / Taping・Tray code / Capacitance code / Capacitance tolerance / Size code / Supplement code

| Voltage(V) | Code |
|---|---|
| 4 | 4R0 |
| 6.3 | 6R3 |
| 10 | 100 |
| 25 | 250 |
| 100 | 101 |
| 250 | 251 |
| ⋮ | ⋮ |

| Taping type | | Reel dia. φ(mm) | Application size φD(mm) | Code |
|---|---|---|---|---|
| Taping | Reel (Cardboard) | 380 | φD=4～18 (not φD=12.5) | DA |
| | | 330 | φD=4～18 | DB |
| | Reel (Plastic) | 380 | φD=4～10 | PA |
| | Reel for reuse | 380 | φD=4～12.5 | RA |
| Tray | | - | φD=12.5～18 | TR |

Refer to product guide for taping and tray specifications.

| Cap.(μF) | Code |
|---|---|
| 1.0 | 1R0 |
| 4.7 | 4R7 |
| 10 | 100 |
| 47 | 470 |
| 100 | 101 |
| 470 | 471 |
| 1,000 | 102 |
| ⋮ | ⋮ |

| φD(mm) | Code |
|---|---|
| 4 | D |
| 5 | E |
| 6.3 | F |
| 8 | H |
| 10 | J |
| 12.5 | K |
| 16 | L |
| 18 | M |

| L(mm) | Code |
|---|---|
| 5.2 | 55 |
| 5.7 | 60 |
| 5.8 | 61 |
| 6.3 | 63 |
| 7.0 | 73 |
| 7.7 | 80 |
| 8.7 | 90 |
| 10 | A0 |
| 13.5 | E0 |
| 16 | G5 |
| 16.5 | H0 |
| 21.5 | N0 |

*Refer to the appendix (Part number) for codes not listed here.

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NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

## Alchip™-MVA Series

MVA → MVE (105℃)

- ●φ4 through φ18 case sizes are fully lined up
- ●Endurance : 2,000 hours at 85℃
- ●Suitable to fit for downsized equipment
- ●Solvent resistant type except 100 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +85℃ |
| **Rated Voltage Range** | 4 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | Rated voltage (Vdc): 4 to 100V / 160 to 450V<br>D55 to JA0: I=0.01CV or 3μA, whichever is greater.(after 2 minutes) / —<br>KE0 to MN0: I=0.03CV or 4μA, whichever is greater.(after 1 minute) / I=0.04CV+100μA max.(after 1 minute)<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃) |

**Dissipation Factor (tanδ)**

| Rated voltage (Vdc) | | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V | 160 to 250V | 400 & 450V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tanδ (Max.) | D55 to JA0 | 0.42 | 0.35 | 0.30 | 0.26 | 0.16 | 0.14 | 0.12 | 0.12 | 0.12 | — | — |
| | KE0 to MN0 | — | 0.38 | 0.34 | 0.30 | 0.26 | 0.22 | 0.18 | 0.14 | 0.10 | 0.20 | 0.25 |

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

**Low Temperature Characteristics (Max. Impedance Ratio)**

| Rated voltage (Vdc) | | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V | 160 to 250V | 400 & 450V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D55 to JA0 | Z(−25℃)/Z(+20℃) | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | — | — |
| | Z(−40℃)/Z(+20℃) | 17 | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 4 | — | — |
| KE0 to MN0 | Z(−25℃)/Z(+20℃) | — | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 6 |
| | Z(−40℃)/Z(+20℃) | — | 12 | 10 | 8 | 5 | 4 | 3 | 3 | 3 | 6 | 10 |

(at 120Hz)

**Endurance**

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.

| Size code | D55 to JA0 | D55 to JA0 | KE0 to MN0 |
|---|---|---|---|
| Rated voltage (Vdc) | 4V & 6.3V | 10 to 100V | 6.3 to 450V |
| Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value | |
| D.F. (tanδ) | ≦200% of the initial specified value | ≦200% of the initial specified value | |
| Leakage current | ≦The initial specified value | ≦The initial specified value | |

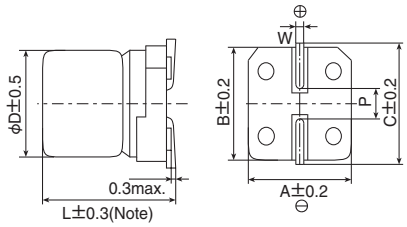
**Shelf Life**

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

| Size code | D55 to JA0 | D55 to JA0 | KE0 to MN0 |
|---|---|---|---|
| Rated voltage | 4V & 6.3V | 10 to 100V | 6.3 to 450V |
| Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value | |
| D.F. (tanδ) | ≦200% of the initial specified value | ≦200% of the initial specified value | |
| Leakage current | ≦The initial specified value | ≦The initial specified value | |

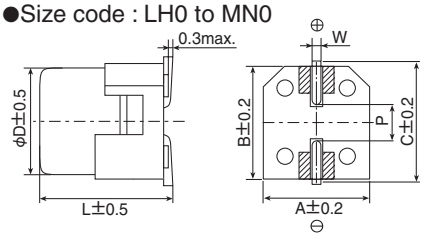
## ◆DIMENSIONS [mm]

●Terminal Code : A
●Size code : D55 to MN0




Note : L±0.5 for HA0 to MN0

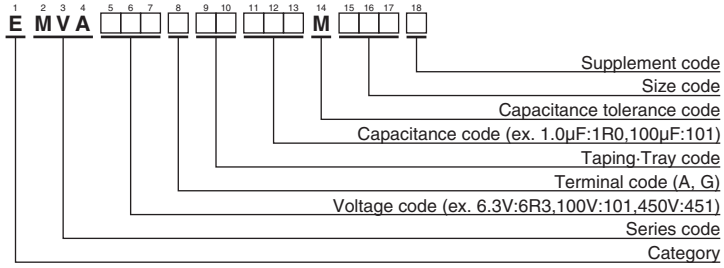
●Terminal Code : G
●Size code : LH0 to MN0




▨ : Dummy terminals

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D55 | 4 | 5.2 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E55 | 5 | 5.2 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F55 | 6.3 | 5.2 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| KE0 | 12.5 | 13.5 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| KG5 | 12.5 | 16.0 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| LH0 | 16 | 16.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| LN0 | 16 | 21.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| MH0 | 18 | 16.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |
| MN0 | 18 | 21.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |

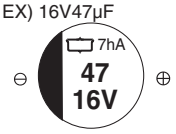
## ◆PART NUMBERING SYSTEM



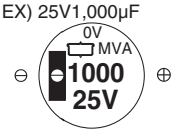

Please refer to "Product code guide (surface mount type)"

## ◆MARKING

D55 to JA0
EX) 16V47μF




KE0 to HN0
EX) 25V1,000μF

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

## Alchip™-MVA Series

### ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 4 | 33 | D55 | 0.42 | 25 | EMVA4R0ADA330MD55G |
| | 47 | D55 | 0.42 | 30 | EMVA4R0ADA470MD55G |
| | 100 | E55 | 0.42 | 50 | EMVA4R0ADA101ME55G |
| | 220 | F55 | 0.42 | 80 | EMVA4R0ADA221MF55G |
| | 330 | F80 | 0.42 | 135 | EMVA4R0ADA331MF80G |
| | 470 | F80 | 0.42 | 150 | EMVA4R0ADA471MF80G |
| | 1,000 | HA0 | 0.42 | 320 | EMVA4R0ADA102MHA0G |
| 6.3 | 33 | D55 | 0.35 | 30 | EMVA6R3ADA330MD55G |
| | 47 | D55 | 0.35 | 33 | EMVA6R3ADA470MD55G |
| | 100 | E55 | 0.35 | 55 | EMVA6R3ADA101ME55G |
| | 220 | F55 | 0.35 | 88 | EMVA6R3ADA221MF55G |
| | 330 | F80 | 0.35 | 135 | EMVA6R3ADA331MF80G |
| | 470 | HA0 | 0.35 | 280 | EMVA6R3ADA471MHA0G |
| | 680 | HA0 | 0.35 | 290 | EMVA6R3ADA681MHA0G |
| | 820 | HA0 | 0.35 | 320 | EMVA6R3ADA821MHA0G |
| | 1,000 | JA0 | 0.35 | 430 | EMVA6R3ADA102MJA0G |
| | 1,500 | JA0 | 0.35 | 480 | EMVA6R3ADA152MJA0G |
| | 2,200 | KE0 | 0.40 | 890 | EMVA6R3ARA222MKE0S |
| | 3,300 | KG5 | 0.42 | 1,000 | EMVA6R3ARA332MKG5S |
| | 3,300 | LH0 | 0.42 | 1,200 | EMVA6R3□DA332MLH0S |
| | 4,700 | LH0 | 0.44 | 1,400 | EMVA6R3□DA472MLH0S |
| | 6,800 | LN0 | 0.48 | 1,750 | EMVA6R3□DA682MLN0S |
| | 6,800 | MH0 | 0.48 | 1,700 | EMVA6R3□DA682MMH0S |
| | 10,000 | MN0 | 0.56 | 2,000 | EMVA6R3□DA103MMN0S |
| 10 | 22 | D55 | 0.30 | 26 | EMVA100ADA220MD55G |
| | 33 | D55 | 0.30 | 30 | EMVA100ADA330MD55G |
| | 47 | E55 | 0.30 | 44 | EMVA100ADA470ME55G |
| | 100 | F55 | 0.30 | 70 | EMVA100ADA101MF55G |
| | 150 | F55 | 0.30 | 79 | EMVA100ADA151MF55G |
| | 220 | F80 | 0.30 | 130 | EMVA100ADA221MF80G |
| | 330 | HA0 | 0.30 | 270 | EMVA100ADA331MHA0G |
| | 470 | HA0 | 0.30 | 280 | EMVA100ADA471MHA0G |
| | 1,000 | JA0 | 0.30 | 430 | EMVA100ADA102MJA0G |
| | 2,200 | KE0 | 0.36 | 960 | EMVA100ARA222MKE0S |
| | 3,300 | LH0 | 0.38 | 1,300 | EMVA100□DA332MLH0S |
| | 4,700 | LN0 | 0.40 | 1,550 | EMVA100□DA472MLN0S |
| | 4,700 | MH0 | 0.40 | 1,600 | EMVA100□DA472MMH0S |
| | 6,800 | MN0 | 0.44 | 1,850 | EMVA100□DA682MMN0S |
| 16 | 22 | D55 | 0.26 | 26 | EMVA160ADA220MD55G |
| | 33 | E55 | 0.26 | 37 | EMVA160ADA330ME55G |
| | 47 | E55 | 0.26 | 44 | EMVA160ADA470ME55G |
| | 100 | F55 | 0.26 | 70 | EMVA160ADA101MF55G |
| | 150 | F80 | 0.26 | 110 | EMVA160ADA151MF80G |
| | 220 | F80 | 0.26 | 130 | EMVA160ADA221MF80G |
| | 330 | HA0 | 0.26 | 270 | EMVA160ADA331MHA0G |
| | 470 | HA0 | 0.26 | 280 | EMVA160ADA471MHA0G |
| | 680 | JA0 | 0.26 | 380 | EMVA160ADA681MJA0G |
| | 1,000 | KE0 | 0.30 | 710 | EMVA160ARA102MKE0S |
| | 2,200 | LH0 | 0.32 | 1,150 | EMVA160□DA222MLH0S |
| | 3,300 | LN0 | 0.34 | 1,450 | EMVA160□DA332MLN0S |
| | 3,300 | MH0 | 0.34 | 1,450 | EMVA160□DA332MMH0S |
| | 4,700 | MN0 | 0.36 | 1,750 | EMVA160□DA472MMN0S |
| 25 | 10 | D55 | 0.16 | 24 | EMVA250ADA100MD55G |
| | 22 | E55 | 0.16 | 41 | EMVA250ADA220ME55G |
| | 33 | E55 | 0.16 | 47 | EMVA250ADA330ME55G |
| | 47 | F55 | 0.16 | 60 | EMVA250ADA470MF55G |
| | 56 | F55 | 0.16 | 66 | EMVA250ADA560MF55G |
| | 100 | F80 | 0.16 | 120 | EMVA250ADA101MF80G |
| | 150 | HA0 | 0.16 | 210 | EMVA250ADA151MHA0G |
| | 220 | HA0 | 0.16 | 260 | EMVA250ADA221MHA0G |
| | 330 | HA0 | 0.16 | 300 | EMVA250ADA331MHA0G |
| | 470 | JA0 | 0.16 | 400 | EMVA250ADA471MJA0G |
| | 1,000 | KE0 | 0.26 | 820 | EMVA250ARA102MKE0S |
| | 2,200 | LN0 | 0.28 | 1,450 | EMVA250□DA222MLN0S |
| | 2,200 | MH0 | 0.28 | 1,400 | EMVA250□DA222MMH0S |
| | 3,300 | MN0 | 0.30 | 1,800 | EMVA250□DA332MMN0S |
| 35 | 4.7 | D55 | 0.14 | 18 | EMVA350ADA4R7MD55G |
| | 10 | D55 | 0.14 | 24 | EMVA350ADA100MD55G |
| | 22 | E55 | 0.14 | 41 | EMVA350ADA220ME55G |
| 35 | 33 | F55 | 0.14 | 54 | EMVA350ADA330MF55G |
| | 100 | F80 | 0.14 | 120 | EMVA350ADA101MF80G |
| | 150 | HA0 | 0.14 | 210 | EMVA350ADA151MHA0G |
| | 220 | HA0 | 0.14 | 260 | EMVA350ADA221MHA0G |
| | 330 | JA0 | 0.14 | 360 | EMVA350ADA331MJA0G |
| | 470 | KE0 | 0.22 | 600 | EMVA350ARA471MKE0S |
| | 1,000 | LH0 | 0.22 | 1,100 | EMVA350□DA102MLH0S |
| | 2,200 | MN0 | 0.24 | 1,700 | EMVA350□DA222MMN0S |
| 50 | 3.3 | D55 | 0.12 | 15 | EMVA500ADA3R3MD55G |
| | 4.7 | D55 | 0.12 | 18 | EMVA500ADA4R7MD55G |
| | 10 | E55 | 0.12 | 30 | EMVA500ADA100ME55G |
| | 22 | F55 | 0.12 | 47 | EMVA500ADA220MF55G |
| | 33 | F80 | 0.12 | 70 | EMVA500ADA330MF80G |
| | 47 | F80 | 0.12 | 85 | EMVA500ADA470MF80G |
| | 100 | HA0 | 0.12 | 190 | EMVA500ADA101MHA0G |
| | 220 | JA0 | 0.12 | 320 | EMVA500ADA221MJA0G |
| | 330 | KE0 | 0.18 | 600 | EMVA500ARA331MKE0S |
| | 470 | KG5 | 0.18 | 740 | EMVA500ARA471MKG5S |
| | 470 | LH0 | 0.18 | 850 | EMVA500□DA471MLH0S |
| | 1,000 | LN0 | 0.18 | 1,300 | EMVA500□DA102MLN0S |
| | 1,000 | MN0 | 0.18 | 1,400 | EMVA500□DA102MMN0S |
| 63 | 1.0 | D55 | 0.12 | 8.0 | EMVA630ADA1R0MD55G |
| | 2.2 | D55 | 0.12 | 12 | EMVA630ADA2R2MD55G |
| | 3.3 | E55 | 0.12 | 17 | EMVA630ADA3R3ME55G |
| | 4.7 | E55 | 0.12 | 20 | EMVA630ADA4R7ME55G |
| | 10 | F55 | 0.12 | 32 | EMVA630ADA100MF55G |
| | 22 | F80 | 0.12 | 60 | EMVA630ADA220MF80G |
| | 33 | HA0 | 0.12 | 110 | EMVA630ADA330MHA0G |
| | 47 | HA0 | 0.12 | 130 | EMVA630ADA470MHA0G |
| | 56 | JA0 | 0.12 | 160 | EMVA630ADA560MJA0G |
| | 68 | JA0 | 0.12 | 170 | EMVA630ADA680MJA0G |
| | 100 | KE0 | 0.14 | 380 | EMVA630ARA101MKE0S |
| | 220 | KE0 | 0.14 | 580 | EMVA630ARA221MKE0S |
| | 330 | KG5 | 0.14 | 720 | EMVA630ARA331MKG5S |
| | 330 | LH0 | 0.14 | 820 | EMVA630□DA331MLH0S |
| | 470 | LH0 | 0.14 | 950 | EMVA630□DA471MLH0S |
| | 470 | MH0 | 0.14 | 1,000 | EMVA630□DA471MMH0S |
| 100 | 22 | HA0 | 0.12 | 90 | EMVA101ADA220MHA0G |
| | 33 | JA0 | 0.12 | 120 | EMVA101ADA330MJA0G |
| | 68 | KE0 | 0.10 | 380 | EMVA101ARA680MKE0S |
| | 100 | KE0 | 0.10 | 440 | EMVA101ARA101MKE0S |
| | 220 | LN0 | 0.10 | 850 | EMVA101□DA221MLN0S |
| | 220 | MH0 | 0.10 | 800 | EMVA101□DA221MMH0S |
| | 330 | MN0 | 0.10 | 1,000 | EMVA101□DA331MMN0S |
| 160 | 47 | KG5 | 0.20 | 370 | EMVA161ARA470MKG5S |
| | 68 | LH0 | 0.20 | 500 | EMVA161□DA680MLH0S |
| | 100 | LN0 | 0.20 | 590 | EMVA161□DA101MLN0S |
| | 100 | MH0 | 0.20 | 590 | EMVA161□DA101MMH0S |
| 200 | 22 | KE0 | 0.20 | 240 | EMVA201ARA220MKE0S |
| | 33 | KG5 | 0.20 | 310 | EMVA201ARA330MKG5S |
| | 47 | LH0 | 0.20 | 420 | EMVA201□DA470MLH0S |
| | 68 | LN0 | 0.20 | 510 | EMVA201□DA680MLN0S |
| | 68 | MH0 | 0.20 | 510 | EMVA201□DA680MMH0S |
| | 100 | MN0 | 0.20 | 590 | EMVA201□DA101MMN0S |
| 250 | 10 | KE0 | 0.20 | 150 | EMVA251ARA100MKE0S |
| | 22 | KG5 | 0.20 | 240 | EMVA251ARA220MKG5S |
| | 33 | LH0 | 0.20 | 340 | EMVA251□DA330MLH0S |
| | 47 | LN0 | 0.20 | 420 | EMVA251□DA470MLN0S |
| | 47 | MH0 | 0.20 | 420 | EMVA251□DA470MMH0S |
| | 68 | MN0 | 0.20 | 490 | EMVA251□DA680MMN0S |
| 400 | 4.7 | KE0 | 0.25 | 120 | EMVA401ARA4R7MKE0S |
| | 10 | LH0 | 0.25 | 140 | EMVA401□DA100MLH0S |
| | 22 | LN0 | 0.25 | 280 | EMVA401□DA220MLN0S |
| | 22 | MH0 | 0.25 | 280 | EMVA401□DA220MMH0S |
| | 33 | MN0 | 0.25 | 350 | EMVA401□DA330MMN0S |
| 450 | 4.7 | KE0 | 0.25 | 120 | EMVA451ARA4R7MKE0S |
| | 10 | LH0 | 0.25 | 140 | EMVA451□DA100MLH0S |
| | 22 | LN0 | 0.25 | 280 | EMVA451□DA220MLN0S |
| | 33 | MN0 | 0.25 | 350 | EMVA451□DA330MMN0S |

□ : Enter the appropriate terminal code.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

## Alchip™-MVE Series

MVE → Longer life: MVL, MVJ

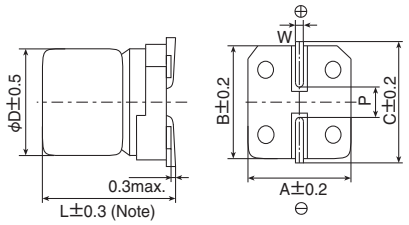
- Rated voltage range : 6.3 to 450V, capacitance range : 1.0 to 6,800μF
- Endurance : 1,000 to 2,000 hours at 105℃
- Case size range :φ4×5.2L to φ18×21.5L
- Solvent resistant type except 100 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | -40 to +105℃ | | | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 450Vdc | | | | | | | | | | | |
| **Capacitance Tolerance** | ±20%(M) | | | | | | | | | | | (20℃, 120Hz) |
| **Leakage Current** | Rated voltage(Vdc) | 6.3 to 100V | | | | | | | | 160 to 450V | | |
| | D55 to JA0 | I=0.01CV or 3μA, whichever is greater (2 minutes) | | | | | | | | — | | |
| | KE0 to MN0 | I=0.03CV or 4μA, whichever is greater (1 minute) | | | | | | | | I=0.04CV+100μA (1minute) | | |
| | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | | | (20℃) |
| **Dissipation Factor (tanδ)** | See STANDARD RATINGS | | | | | | | | | | | (20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V | 160 to 250V | 400 to 450V |
| | D55 to JA0 | Z(-25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | — | — |
| | | Z(-40℃)/Z(+20℃) | 12 | 8 | 6 | 4 | 3 | 3 | 3 | 4 | — | — |
| | KE0 to MN0 | Z(-25℃)/Z(+20℃) | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 6 |
| | | Z(-40℃)/Z(+20℃) | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 6 | 10 |
| | | | | | | | | | | | | (120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified period of time at 105℃. | | | | | | | | | | | |
| | Size code | D55 to F80 | | | | | HA0 to MN0 | | | | | |
| | Time | 1,000 hours | | | | | 2,000 hours | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | ≦±20% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | ≦200% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | ≦The initial specified value | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for B55 to F80 size) at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | | | |
| | Size code | D55 to F80 | | | | | HA0 to MN0 | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | ≦±20% of the initial value | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | ≦200% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | ≦The initial specified value | | | | | |

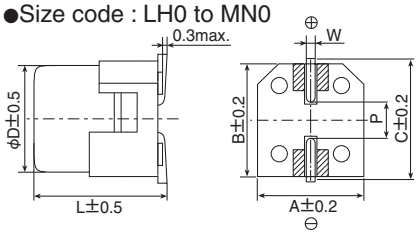
## ◆DIMENSIONS [mm]

- Terminal Code : A
- Size code : D55 to MN0




Note : L±0.5 for HA0 to MN0

- Terminal Code : G
- Size code : LH0 to MN0




▨ : Dummy terminals

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D55 | 4 | 5.2 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E55 | 5 | 5.2 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F55 | 6.3 | 5.2 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| KE0 | 12.5 | 13.5 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| KG5 | 12.5 | 16.0 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| LH0 | 16 | 16.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| LN0 | 16 | 21.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| MH0 | 18 | 16.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |
| MN0 | 18 | 21.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | M | V | E | | | | | | | | | | M | | | | |

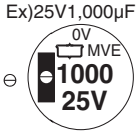
- 18 : Supplement code
- 15 16 17 : Size code
- 14 : Capacitance tolerance code
- 11 12 13 : Capacitance code (ex. 4.7μF:4R7,100μF:101)
- 9 10 : Taping·Tray code
- 8 : Terminal code (A, G)
- 5 6 7 : Voltage code (ex. 6.3V:6R3,100V:101,450V:451)
- 4 : Series code
- 1 : Category

Please refer to "Product code guide (surface mount type)"

## ◆MARKING

D55 to JA0
Ex)16V22μF

KE0 to MN0
Ex)25V1,000μF

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

## Alchip™-MVE Series

### ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 22 | D55 | 0.30 | 22 | EMVE6R3ADA220MD55G |
| | 33 | E55 | 0.30 | 34 | EMVE6R3ADA330ME55G |
| | 47 | E55 | 0.30 | 38 | EMVE6R3ADA470ME55G |
| | 100 | F55 | 0.30 | 69 | EMVE6R3ADA101MF55G |
| | 220 | F80 | 0.45 | 120 | EMVE6R3ADA221MF80G |
| | 330 | HA0 | 0.40 | 290 | EMVE6R3ADA331MHA0G |
| | 470 | HA0 | 0.45 | 320 | EMVE6R3ADA471MHA0G |
| | 680 | HA0 | 0.45 | 340 | EMVE6R3ADA681MHA0G |
| | 1,000 | JA0 | 0.40 | 410 | EMVE6R3ADA102MJA0G |
| | 1,500 | JA0 | 0.45 | 550 | EMVE6R3ADA152MJA0G |
| | 2,200 | KE0 | 0.40 | 680 | EMVE6R3ARA222MKE0S |
| | 2,200 | LH0 | 0.40 | 840 | EMVE6R3□DA222MLH0S |
| | 3,300 | KG5 | 0.42 | 850 | EMVE6R3ARA332MKG5S |
| | 3,300 | MH0 | 0.42 | 1,000 | EMVE6R3□DA332MMH0S |
| | 4,700 | LN0 | 0.44 | 1,200 | EMVE6R3□DA472MLN0S |
| | 4,700 | MH0 | 0.44 | 1,200 | EMVE6R3□DA472MMH0S |
| | 6,800 | LN0 | 0.48 | 1,200 | EMVE6R3□DA682MLN0S |
| | 6,800 | MN0 | 0.48 | 1,350 | EMVE6R3□DA682MMN0S |
| 10 | 22 | E55 | 0.24 | 30 | EMVE100ADA220ME55G |
| | 33 | E55 | 0.24 | 34 | EMVE100ADA330ME55G |
| | 47 | F55 | 0.24 | 48 | EMVE100ADA470MF55G |
| | 100 | F55 | 0.30 | 69 | EMVE100ADA101MF55G |
| | 150 | F80 | 0.35 | 100 | EMVE100ADA151MF80G |
| | 220 | F80 | 0.35 | 120 | EMVE100ADA221MF80G |
| | 330 | HA0 | 0.35 | 290 | EMVE100ADA331MHA0G |
| | 470 | HA0 | 0.35 | 320 | EMVE100ADA471MHA0G |
| | 1,000 | JA0 | 0.35 | 410 | EMVE100ADA102MJA0G |
| | 2,200 | KG5 | 0.36 | 750 | EMVE100ARA222MKG5S |
| | 2,200 | LH0 | 0.36 | 850 | EMVE100□DA222MLH0S |
| | 3,300 | LH0 | 0.38 | 1,000 | EMVE100□DA332MLH0S |
| | 3,300 | MH0 | 0.38 | 1,100 | EMVE100□DA332MMH0S |
| | 4,700 | LN0 | 0.40 | 1,300 | EMVE100□DA472MLN0S |
| | 4,700 | MN0 | 0.40 | 1,350 | EMVE100□DA472MMN0S |
| 16 | 10 | D55 | 0.20 | 17 | EMVE160ADA100MD55G |
| | 22 | E55 | 0.20 | 30 | EMVE160ADA220ME55G |
| | 33 | F55 | 0.20 | 45 | EMVE160ADA330MF55G |
| | 47 | F55 | 0.20 | 48 | EMVE160ADA470MF55G |
| | 100 | F55 | 0.26 | 69 | EMVE160ADA101MF55G |
| | 150 | F80 | 0.28 | 100 | EMVE160ADA151MF80G |
| | 220 | F80 | 0.28 | 120 | EMVE160ADA221MF80G |
| | 330 | HA0 | 0.28 | 290 | EMVE160ADA331MHA0G |
| | 470 | HA0 | 0.28 | 320 | EMVE160ADA471MHA0G |
| | 680 | JA0 | 0.28 | 470 | EMVE160ADA681MJA0G |
| | 1,000 | KE0 | 0.30 | 550 | EMVE160ARA102MKE0S |
| | 1,000 | LH0 | 0.30 | 650 | EMVE160□DA102MLH0S |
| | 2,200 | LH0 | 0.32 | 950 | EMVE160□DA222MLH0S |
| | 2,200 | MH0 | 0.32 | 1,000 | EMVE160□DA222MMH0S |
| | 3,300 | LN0 | 0.34 | 1,200 | EMVE160□DA332MLN0S |
| | 3,300 | MH0 | 0.34 | 1,200 | EMVE160□DA332MMH0S |
| 25 | 10 | E55 | 0.16 | 27 | EMVE250ADA100ME55G |
| | 22 | F55 | 0.16 | 44 | EMVE250ADA220MF55G |
| | 33 | F55 | 0.16 | 50 | EMVE250ADA330MF55G |
| | 47 | F55 | 0.16 | 60 | EMVE250ADA470MF55G |
| | 100 | F80 | 0.18 | 100 | EMVE250ADA101MF80G |
| | 150 | HA0 | 0.18 | 240 | EMVE250ADA151MHA0G |
| | 220 | HA0 | 0.18 | 320 | EMVE250ADA221MHA0G |
| | 330 | JA0 | 0.16 | 450 | EMVE250ADA331MJA0G |
| | 470 | JA0 | 0.18 | 490 | EMVE250ADA471MJA0G |
| | 1,000 | LH0 | 0.26 | 820 | EMVE250□DA102MLH0S |
| | 1,000 | MH0 | 0.26 | 880 | EMVE250□DA102MMH0S |
| | 2,200 | LN0 | 0.28 | 1,250 | EMVE250□DA222MLN0S |
| | 2,200 | MN0 | 0.28 | 1,300 | EMVE250□DA222MMN0S |
| 35 | 4.7 | D55 | 0.14 | 16 | EMVE350ADA4R7MD55G |
| | 10 | E55 | 0.14 | 27 | EMVE350ADA100ME55G |
| | 22 | F55 | 0.14 | 44 | EMVE350ADA220MF55G |
| | 47 | F80 | 0.16 | 80 | EMVE350ADA470MF80G |
| | 100 | F80 | 0.16 | 100 | EMVE350ADA101MF80G |
| | 150 | HA0 | 0.16 | 260 | EMVE350ADA151MHA0G |
| | 220 | JA0 | 0.16 | 375 | EMVE350ADA221MJA0G |

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 330 | JA0 | 0.16 | 450 | EMVE350ADA331MJA0G |
| | 470 | KE0 | 0.22 | 520 | EMVE350ARA471MKE0S |
| | 470 | LH0 | 0.22 | 650 | EMVE350□DA471MLH0S |
| | 1,000 | LH0 | 0.22 | 750 | EMVE350□DA102MLH0S |
| | 1,000 | MH0 | 0.22 | 1,000 | EMVE350□DA102MMH0S |
| | 2,200 | MN0 | 0.24 | 1,450 | EMVE350□DA222MMN0S |
| 50 | 1.0 | D55 | 0.12 | 8.0 | EMVE500ADA1R0MD55G |
| | 2.2 | D55 | 0.12 | 12 | EMVE500ADA2R2MD55G |
| | 3.3 | D55 | 0.12 | 15 | EMVE500ADA3R3MD55G |
| | 4.7 | E55 | 0.12 | 20 | EMVE500ADA4R7ME55G |
| | 10 | F55 | 0.12 | 32 | EMVE500ADA100MF55G |
| | 33 | F80 | 0.14 | 65 | EMVE500ADA330MF80G |
| | 47 | F80 | 0.14 | 80 | EMVE500ADA470MF80G |
| | 100 | HA0 | 0.14 | 230 | EMVE500ADA101MHA0G |
| | 220 | JA0 | 0.14 | 375 | EMVE500ADA221MJA0G |
| | 330 | KE0 | 0.18 | 500 | EMVE500ARA331MKE0S |
| | 330 | LH0 | 0.18 | 600 | EMVE500□DA331MLH0S |
| | 470 | LH0 | 0.18 | 700 | EMVE500□DA471MLH0S |
| | 470 | MH0 | 0.18 | 750 | EMVE500□DA471MMH0S |
| | 1,000 | MN0 | 0.18 | 1,200 | EMVE500□DA102MMN0S |
| 63 | 1.0 | D55 | 0.12 | 8.0 | EMVE630ADA1R0MD55G |
| | 2.2 | D55 | 0.12 | 12 | EMVE630ADA2R2MD55G |
| | 3.3 | E55 | 0.12 | 17 | EMVE630ADA3R3ME55G |
| | 4.7 | F55 | 0.12 | 22 | EMVE630ADA4R7MF55G |
| | 10 | F55 | 0.12 | 32 | EMVE630ADA100MF55G |
| | 22 | F80 | 0.12 | 58 | EMVE630ADA220MF80G |
| | 33 | HA0 | 0.12 | 140 | EMVE630ADA330MHA0G |
| | 47 | HA0 | 0.12 | 170 | EMVE630ADA470MHA0G |
| | 100 | JA0 | 0.12 | 310 | EMVE630ADA101MJA0G |
| | 220 | KE0 | 0.14 | 470 | EMVE630ARA221MKE0S |
| | 220 | LH0 | 0.14 | 560 | EMVE630□DA221MLH0S |
| | 330 | LH0 | 0.14 | 700 | EMVE630□DA331MLH0S |
| | 330 | MH0 | 0.14 | 750 | EMVE630□DA331MMH0S |
| | 470 | LN0 | 0.14 | 900 | EMVE630□DA471MLN0S |
| | 470 | MH0 | 0.14 | 900 | EMVE630□DA471MMH0S |
| 100 | 22 | HA0 | 0.12 | 100 | EMVE101ADA220MHA0G |
| | 33 | JA0 | 0.12 | 150 | EMVE101ADA330MJA0G |
| | 47 | KE0 | 0.10 | 250 | EMVE101ARA470MKE0S |
| | 68 | KE0 | 0.10 | 300 | EMVE101ARA680MKE0S |
| | 100 | KE0 | 0.10 | 380 | EMVE101ARA101MKE0S |
| | 100 | LH0 | 0.10 | 450 | EMVE101□DA101MLH0S |
| | 220 | LN0 | 0.10 | 750 | EMVE101□DA221MLN0S |
| | 220 | MH0 | 0.10 | 750 | EMVE101□DA221MMH0S |
| | 330 | MN0 | 0.10 | 980 | EMVE101□DA331MMN0S |
| 160 | 33 | KE0 | 0.15 | 95 | EMVE161ARA330MKE0S |
| | 47 | LH0 | 0.15 | 260 | EMVE161□DA470MLH0S |
| | 68 | LN0 | 0.15 | 320 | EMVE161□DA680MLN0S |
| | 68 | MH0 | 0.15 | 320 | EMVE161□DA680MMH0S |
| | 100 | LN0 | 0.15 | 380 | EMVE161□DA101MLN0S |
| 200 | 10 | KE0 | 0.15 | 80 | EMVE201ARA100MKE0S |
| | 22 | KG5 | 0.15 | 110 | EMVE201ARA220MKG5S |
| | 33 | LH0 | 0.15 | 220 | EMVE201□DA330MLH0S |
| | 47 | LN0 | 0.15 | 270 | EMVE201□DA470MLN0S |
| | 47 | MH0 | 0.15 | 270 | EMVE201□DA470MMH0S |
| | 68 | MN0 | 0.15 | 330 | EMVE201□DA680MMN0S |
| 250 | 4.7 | KE0 | 0.15 | 65 | EMVE251ARA4R7MKE0S |
| | 10 | KG5 | 0.15 | 105 | EMVE251ARA100MKG5S |
| | 22 | LH0 | 0.15 | 180 | EMVE251□DA220MLH0S |
| | 33 | LN0 | 0.15 | 230 | EMVE251□DA330MLN0S |
| | 33 | MH0 | 0.15 | 230 | EMVE251□DA330MMH0S |
| | 47 | MN0 | 0.15 | 280 | EMVE251□DA470MMN0S |
| 400 | 4.7 | KG5 | 0.20 | 50 | EMVE401ARA4R7MKG5S |
| | 10 | LH0 | 0.20 | 85 | EMVE401□DA100MLH0S |
| | 22 | MN0 | 0.20 | 130 | EMVE401□DA220MMN0S |
| 450 | 3.3 | KE0 | 0.20 | 40 | EMVE451ARA3R3MKE0S |
| | 4.7 | KG5 | 0.20 | 50 | EMVE451ARA4R7MKG5S |
| | 10 | LH0 | 0.20 | 85 | EMVE451□DA100MLH0S |
| | 22 | MN0 | 0.20 | 130 | EMVE451□DA220MMN0S |

□ : Enter the appropriate terminal code.

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NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower ESR, 105℃

## Alchip™-MZJ Series

- Lower ESR, 2,000 hours at 105℃
- Rated voltage range : 6.3 to 35V
- Nominal capacitance range : 10 to 1,800μF
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

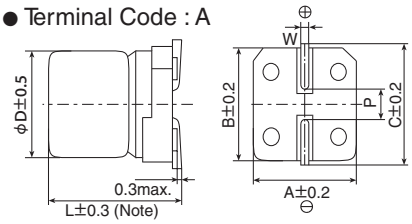
MZJ
↑ Lower ESR
MZA

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ | | | | | | |
| **Rated Voltage Range** | 6.3 to 35Vdc | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | tanδ(Max.) | 0.26 | 0.19 | 0.16 | 0.14 | 0.12 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | Z(−25℃)/Z(+20℃) | 2 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 3 | 3 | 3 | 3 | 3 | |
| | Z(−55℃)/Z(+20℃) | 4 | 4 | 4 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| **Surge Voltage Test** | The capacitors shall be subjected to 1,000 cycles each consisting of charging with the specified surge voltage for 30±5 seconds through a protective resistor (as required for RC=0.1±0.05sec) and open-circuiting for 5.5 minutes at a room temperature of 15 to 35℃. | | | | | | |
| | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | Surge voltage (Vdc) | 7.2V | 12V | 18V | 29V | 40V | |
| | Appearance | No significant damage | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| | (Caution)<br>Surge Voltage Test intends to evaluate capacitors in durability of an exceptional excessive voltage under specific conditions.It does not imply long-term use at all. | | | | | | |

## ◆DIMENSIONS [mm]

● Terminal Code : A

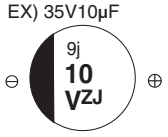



Note : L±0.5 for HA0 and JA0

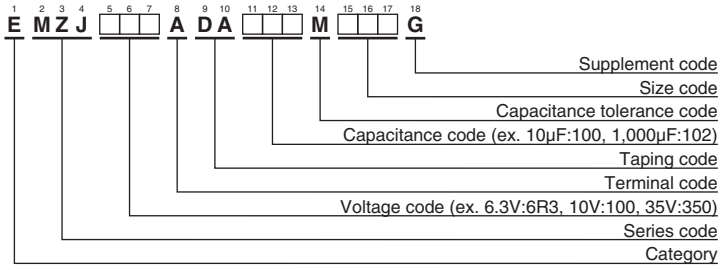
| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D61 | 4 | 5.8 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆MARKING

EX) 35V10μF




## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

● Rated voltage symbol

| Rated voltage (Vdc) | Symbol |
|---|---|
| 6.3 | j |
| 10 | A |
| 16 | C |
| 25 | E |
| 35 | V |

Applying voltage over the rated voltages causes the capacitors to have short lifetime.
Besides, applying voltage over the specified surge voltages may cause to have short circuit failure. A protection circuit should be used if applied voltage will exceed the rated voltages.

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NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower ESR, 105℃

## Alchip™-MZJ Series

### ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Size code | tanδ | ESR (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 47 | D61 | 0.26 | 0.85 | 160 | EMZJ6R3ADA470MD61G |
| | 100 | E61 | 0.26 | 0.36 | 240 | EMZJ6R3ADA101ME61G |
| | 220 | F61 | 0.26 | 0.26 | 300 | EMZJ6R3ADA221MF61G |
| | 330 | F80 | 0.26 | 0.16 | 600 | EMZJ6R3ADA331MF80G |
| | 1,000 | HA0 | 0.26 | 0.08 | 850 | EMZJ6R3ADA102MHA0G |
| | 1,500 | JA0 | 0.26 | 0.06 | 1,190 | EMZJ6R3ADA152MJA0G |
| | 1,800 | JA0 | 0.26 | 0.06 | 1,190 | EMZJ6R3ADA182MJA0G |
| 10 | 33 | D61 | 0.19 | 0.85 | 160 | EMZJ100ADA330MD61G |
| | 150 | F61 | 0.19 | 0.26 | 300 | EMZJ100ADA151MF61G |
| | 680 | HA0 | 0.19 | 0.08 | 850 | EMZJ100ADA681MHA0G |
| | 1,000 | JA0 | 0.19 | 0.06 | 1,190 | EMZJ100ADA102MJA0G |
| | 1,200 | JA0 | 0.19 | 0.06 | 1,190 | EMZJ100ADA122MJA0G |
| 16 | 22 | D61 | 0.16 | 0.85 | 160 | EMZJ160ADA220MD61G |
| | 47 | E61 | 0.16 | 0.36 | 240 | EMZJ160ADA470ME61G |
| | 100 | F61 | 0.16 | 0.26 | 300 | EMZJ160ADA101MF61G |
| | 150 | F80 | 0.16 | 0.16 | 600 | EMZJ160ADA151MF80G |
| | 220 | F80 | 0.16 | 0.16 | 600 | EMZJ160ADA221MF80G |
| | 470 | HA0 | 0.16 | 0.08 | 850 | EMZJ160ADA471MHA0G |
| | 680 | JA0 | 0.16 | 0.06 | 1,190 | EMZJ160ADA681MJA0G |
| | 820 | JA0 | 0.16 | 0.06 | 1,190 | EMZJ160ADA821MJA0G |
| 25 | 10 | D61 | 0.14 | 0.85 | 160 | EMZJ250ADA100MD61G |
| | 22 | E61 | 0.14 | 0.36 | 240 | EMZJ250ADA220ME61G |
| | 33 | E61 | 0.14 | 0.36 | 240 | EMZJ250ADA330ME61G |
| | 33 | F61 | 0.14 | 0.26 | 300 | EMZJ250ADA330MF61G |
| | 47 | F61 | 0.14 | 0.26 | 300 | EMZJ250ADA470MF61G |
| | 68 | F61 | 0.14 | 0.26 | 300 | EMZJ250ADA680MF61G |
| | 100 | F80 | 0.14 | 0.16 | 600 | EMZJ250ADA101MF80G |
| | 330 | HA0 | 0.14 | 0.08 | 850 | EMZJ250ADA331MHA0G |
| | 470 | JA0 | 0.14 | 0.06 | 1,190 | EMZJ250ADA471MJA0G |
| | 560 | JA0 | 0.14 | 0.06 | 1,190 | EMZJ250ADA561MJA0G |
| 35 | 10 | D61 | 0.12 | 0.85 | 160 | EMZJ350ADA100MD61G |
| | 22 | E61 | 0.12 | 0.36 | 240 | EMZJ350ADA220ME61G |
| | 33 | F61 | 0.12 | 0.26 | 300 | EMZJ350ADA330MF61G |
| | 47 | F61 | 0.12 | 0.26 | 300 | EMZJ350ADA470MF61G |
| | 68 | F61 | 0.12 | 0.26 | 300 | EMZJ350ADA680MF61G |
| | 100 | F80 | 0.12 | 0.16 | 600 | EMZJ350ADA101MF80G |
| | 100 | HA0 | 0.12 | 0.08 | 850 | EMZJ350ADA101MHA0G |
| | 150 | HA0 | 0.12 | 0.08 | 850 | EMZJ350ADA151MHA0G |
| | 220 | HA0 | 0.12 | 0.08 | 850 | EMZJ350ADA221MHA0G |
| | 330 | JA0 | 0.12 | 0.06 | 1,190 | EMZJ350ADA331MJA0G |
| | 390 | JA0 | 0.12 | 0.06 | 1,190 | EMZJ350ADA391MJA0G |

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NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower impedance, 105℃

## Alchip™-MZA Series

- Lowest impedance, 2,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

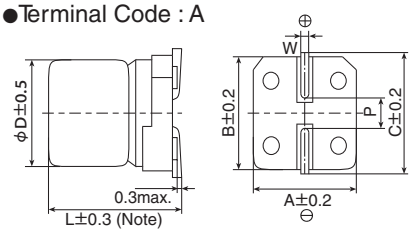
MZA
↑ Lower Z
MVY

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category Temperature Range | -55 to +105℃ | | | | | | | | | |
| Rated Voltage Range | 6.3 to 80Vdc | | | | | | | | | |
| Capacitance Tolerance | ±20%(M) | | | | | | | | | (20℃, 120Hz) |
| Leakage Current | I=0.01CV or 3μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | (at 20℃ after 2 minutes) |
| Dissipation Factor (tanδ) | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | |
| | tanδ(Max.) | 0.26 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | 0.08 | (20℃, 120Hz) |
| Low Temperature Characteristics (Max. impedance Ratio) | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | |
| | Z(-25℃)/Z(+20℃) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | Z(-40℃)/Z(+20℃) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | Z(-55℃)/Z(+20℃) | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | (120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. | | | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : A




Note : L±0.5 for HA0 and JA0

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D61 | 4 | 5.8 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

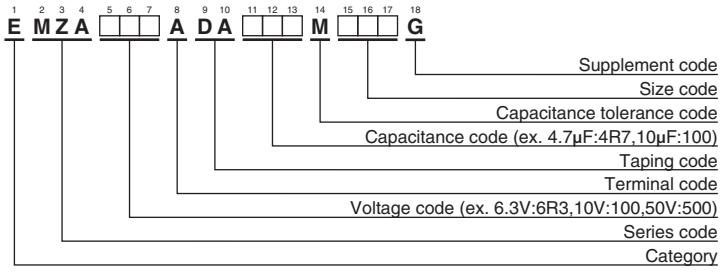
## ◆MARKING

EX) 16V220μF

●Rated voltage symbol

| Rated voltage (Vdc) | Symbol |
|---|---|
| 6.3 | j |
| 10 | A |
| 16 | C |
| 25 | E |
| 35 | V |
| 50 | H |
| 63 | J |
| 80 | K |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

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NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower impedance, 105℃

## Alchip™-MZA Series

## ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Size code | tanδ | Impedance (Ω max/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 22 | D61 | 0.26 | 1.35 | 90 | EMZA6R3ADA220MD61G |
| | 47 | D61 | 0.26 | 1.35 | 90 | EMZA6R3ADA470MD61G |
| | 47 | E61 | 0.26 | 0.70 | 160 | EMZA6R3ADA470ME61G |
| | 100 | E61 | 0.26 | 0.70 | 160 | EMZA6R3ADA101ME61G |
| | 100 | F61 | 0.26 | 0.36 | 240 | EMZA6R3ADA101MF61G |
| | 220 | F61 | 0.26 | 0.36 | 240 | EMZA6R3ADA221MF61G |
| | 330 | F80 | 0.26 | 0.34 | 280 | EMZA6R3ADA331MF80G |
| | 470 | HA0 | 0.26 | 0.16 | 600 | EMZA6R3ADA471MHA0G |
| | 1,000 | HA0 | 0.26 | 0.16 | 600 | EMZA6R3ADA102MHA0G |
| | 1,500 | JA0 | 0.26 | 0.08 | 850 | EMZA6R3ADA152MJA0G |
| 10 | 22 | D61 | 0.19 | 1.35 | 90 | EMZA100ADA220MD61G |
| | 33 | D61 | 0.19 | 1.35 | 90 | EMZA100ADA330MD61G |
| | 33 | E61 | 0.19 | 0.70 | 160 | EMZA100ADA330ME61G |
| | 220 | F80 | 0.19 | 0.34 | 280 | EMZA100ADA221MF80G |
| | 330 | HA0 | 0.19 | 0.16 | 600 | EMZA100ADA331MHA0G |
| | 470 | HA0 | 0.19 | 0.16 | 600 | EMZA100ADA471MHA0G |
| | 680 | HA0 | 0.19 | 0.16 | 600 | EMZA100ADA681MHA0G |
| | 1,000 | JA0 | 0.19 | 0.08 | 850 | EMZA100ADA102MJA0G |
| 16 | 10 | D61 | 0.16 | 1.35 | 90 | EMZA160ADA100MD61G |
| | 22 | D61 | 0.16 | 1.35 | 90 | EMZA160ADA220MD61G |
| | 22 | E61 | 0.16 | 0.70 | 160 | EMZA160ADA220ME61G |
| | 47 | E61 | 0.16 | 0.70 | 160 | EMZA160ADA470ME61G |
| | 47 | F61 | 0.16 | 0.36 | 240 | EMZA160ADA470MF61G |
| | 100 | F61 | 0.16 | 0.36 | 240 | EMZA160ADA101MF61G |
| | 220 | F80 | 0.16 | 0.34 | 280 | EMZA160ADA221MF80G |
| | 330 | HA0 | 0.16 | 0.16 | 600 | EMZA160ADA331MHA0G |
| | 470 | HA0 | 0.16 | 0.16 | 600 | EMZA160ADA471MHA0G |
| | 680 | JA0 | 0.16 | 0.08 | 850 | EMZA160ADA681MJA0G |
| 25 | 10 | D61 | 0.14 | 1.35 | 90 | EMZA250ADA100MD61G |
| | 22 | E61 | 0.14 | 0.70 | 160 | EMZA250ADA220ME61G |
| | 33 | E61 | 0.14 | 0.70 | 160 | EMZA250ADA330ME61G |
| | 33 | F61 | 0.14 | 0.36 | 240 | EMZA250ADA330MF61G |
| | 47 | F61 | 0.14 | 0.36 | 240 | EMZA250ADA470MF61G |
| | 100 | F80 | 0.14 | 0.34 | 280 | EMZA250ADA101MF80G |
| | 220 | HA0 | 0.14 | 0.16 | 600 | EMZA250ADA221MHA0G |
| | 330 | HA0 | 0.14 | 0.16 | 600 | EMZA250ADA331MHA0G |
| | 470 | JA0 | 0.14 | 0.08 | 850 | EMZA250ADA471MJA0G |
| 35 | 4.7 | D61 | 0.12 | 1.35 | 90 | EMZA350ADA4R7MD61G |
| | 10 | D61 | 0.12 | 1.35 | 90 | EMZA350ADA100MD61G |
| | 10 | E61 | 0.12 | 0.70 | 160 | EMZA350ADA100ME61G |
| | 22 | E61 | 0.12 | 0.70 | 160 | EMZA350ADA220ME61G |
| | 33 | F61 | 0.12 | 0.36 | 240 | EMZA350ADA330MF61G |
| | 47 | F61 | 0.12 | 0.36 | 240 | EMZA350ADA470MF61G |
| | 100 | F80 | 0.12 | 0.34 | 280 | EMZA350ADA101MF80G |
| | 100 | HA0 | 0.12 | 0.16 | 600 | EMZA350ADA101MHA0G |
| | 220 | HA0 | 0.12 | 0.16 | 600 | EMZA350ADA221MHA0G |
| | 330 | JA0 | 0.12 | 0.08 | 850 | EMZA350ADA331MJA0G |
| 50 | 4.7 | D61 | 0.10 | 2.90 | 60 | EMZA500ADA4R7MD61G |
| | 10 | E61 | 0.10 | 1.52 | 85 | EMZA500ADA100ME61G |
| | 10 | F61 | 0.10 | 0.88 | 165 | EMZA500ADA100MF61G |
| | 22 | F61 | 0.10 | 0.88 | 165 | EMZA500ADA220MF61G |
| | 33 | F80 | 0.10 | 0.68 | 195 | EMZA500ADA330MF80G |
| | 47 | F80 | 0.10 | 0.68 | 195 | EMZA500ADA470MF80G |
| | 100 | HA0 | 0.10 | 0.34 | 350 | EMZA500ADA101MHA0G |
| | 220 | JA0 | 0.10 | 0.18 | 670 | EMZA500ADA221MJA0G |
| 63 | 4.7 | E61 | 0.08 | 4.8 | 50 | EMZA630ADA4R7ME61G |
| | 10 | F61 | 0.08 | 2.2 | 80 | EMZA630ADA100MF61G |
| | 22 | F80 | 0.08 | 2.1 | 120 | EMZA630ADA220MF80G |
| | 33 | HA0 | 0.08 | 0.70 | 250 | EMZA630ADA330MHA0G |
| | 47 | HA0 | 0.08 | 0.70 | 250 | EMZA630ADA470MHA0G |
| | 68 | HA0 | 0.08 | 0.70 | 250 | EMZA630ADA680MHA0G |
| | 100 | JA0 | 0.08 | 0.45 | 400 | EMZA630ADA101MJA0G |
| 80 | 3.3 | E61 | 0.08 | 5.0 | 25 | EMZA800ADA3R3ME61G |
| | 4.7 | F61 | 0.08 | 3.0 | 40 | EMZA800ADA4R7MF61G |
| | 10 | F80 | 0.08 | 2.4 | 60 | EMZA800ADA100MF80G |
| | 22 | HA0 | 0.08 | 1.3 | 130 | EMZA800ADA220MHA0G |
| | 33 | HA0 | 0.08 | 1.3 | 130 | EMZA800ADA330MHA0G |
| | 47 | JA0 | 0.08 | 0.70 | 200 | EMZA800ADA470MJA0G |

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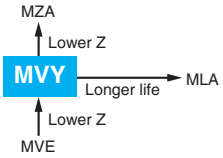
NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## Alchip™-MVY Series

- Endurance : 1,000 to 5,000 hours at 105℃
- Low impedance
- For digital equipment, especially DC-DC converters
- Solvent resistant type except 80 & 100Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

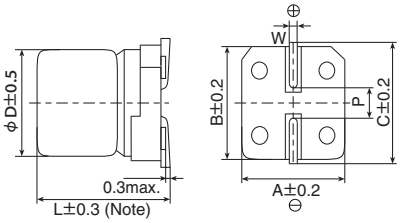


## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ (6.3 to 63Vdc)　−40 to +105℃ (80 & 100Vdc) | | | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 100Vdc | | | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) |
| | tanδ (Max.) | D55 to F80 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | — | — | — | |
| | | HA0 & JA0 | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | — | — | — | |
| | | KE0 to MN0 | 0.26 | 0.22 | 0.18 | 0.16 | 0.14 | 0.12 | 0.14 | 0.10 | 0.10 | |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | |
| | Z(−40℃)/Z(+20℃) | D55 to JA0 | 3 | 2 | 2 | 2 | 2 | 2 | — | — | — | |
| | | KE0 to MN0 | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃. | | | | | | | | | | | |
| | Time | D55 to F80 : 1,000 hours<br>HA0 & JA0 : 2,000 hours<br>KE0 to MN0 : 5,000 hours | | | | | | | | | | |
| | Rated voltage | 6.3Vdc (D55 to JA0) | 6.3 to 100Vdc | | | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value | | | | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | ≦200% of the initial specified value | | | | | | | | | |
| | Leakage current | ≦The initial specified value | ≦The initial specified value | | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | | | |
| | Rated voltage | 6.3Vdc (D55 to JA0) | 6.3 to 100Vdc | | | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value | | | | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | ≦200% of the initial specified value | | | | | | | | | |
| | Leakage current | ≦The initial specified value | ≦The initial specified value | | | | | | | | | |

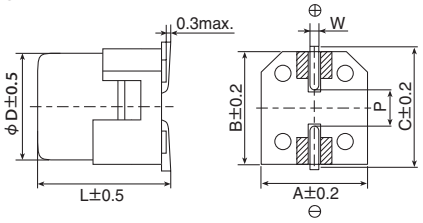
## ◆DIMENSIONS [mm]

- Terminal Code : A
- Size code : D55 to MN0




Note : L±0.5 for HA0 to MN0

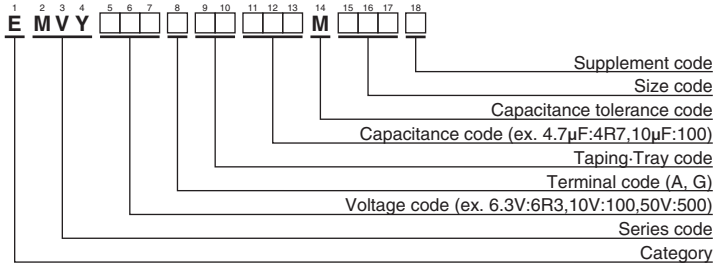
- Terminal Code : G
- Size code : LH0 to MN0




: Dummy terminals

| Size code | ϕD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D55 | 4 | 5.2 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E55 | 5 | 5.2 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F55 | 6.3 | 5.2 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| KE0 | 12.5 | 13.5 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| KG5 | 12.5 | 16.0 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| LH0 | 16 | 16.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| LN0 | 16 | 21.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| MH0 | 18 | 16.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |
| MN0 | 18 | 21.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |

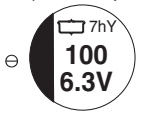
## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

D55 to JA0
EX) 6.3V100μF




KE0 to MN0
EX) 16V1,000μF

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.



CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## Alchip™-MVY Series

### ◆STANDARD RATINGS

is not solvent resistant (80/100Vdc).

| WV (Vdc) | Cap (μF) | Size code | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 22 | D55 | 3.0 | 60 | EMVY6R3ADA220MD55G |
| | 33 | E55 | 1.8 | 95 | EMVY6R3ADA330ME55G |
| | 47 | E55 | 1.8 | 95 | EMVY6R3ADA470ME55G |
| | 100 | F55 | 1.0 | 140 | EMVY6R3ADA101MF55G |
| | 220 | F55 | 1.0 | 140 | EMVY6R3ADA221MF55G |
| | 330 | F80 | 0.34 | 280 | EMVY6R3ADA331MF80G |
| | 470 | HA0 | 0.30 | 450 | EMVY6R3ADA471MHA0G |
| | 680 | HA0 | 0.30 | 450 | EMVY6R3ADA681MHA0G |
| | 1,000 | HA0 | 0.30 | 450 | EMVY6R3ADA102MHA0G |
| | 1,500 | JA0 | 0.15 | 670 | EMVY6R3ADA152MJA0G |
| | 2,200 | KE0 | 0.070 | 820 | EMVY6R3ARA222MKE0S |
| | 2,200 | LH0 | 0.054 | 1,260 | EMVY6R3□DA222MLH0S |
| | 3,300 | KG5 | 0.060 | 950 | EMVY6R3ARA332MKG5S |
| | 3,300 | MH0 | 0.054 | 1,350 | EMVY6R3□DA332MMH0S |
| | 4,700 | LN0 | 0.038 | 1,630 | EMVY6R3□DA472MLN0S |
| | 4,700 | MH0 | 0.054 | 1,350 | EMVY6R3□DA472MMH0S |
| | 6,800 | LN0 | 0.038 | 1,630 | EMVY6R3□DA682MLN0S |
| | 6,800 | MN0 | 0.038 | 1,750 | EMVY6R3□DA682MMN0S |
| | 8,200 | MN0 | 0.038 | 1,750 | EMVY6R3□DA822MMN0S |
| 10 | 22 | E55 | 1.8 | 95 | EMVY100ADA220ME55G |
| | 33 | E55 | 1.8 | 95 | EMVY100ADA330ME55G |
| | 47 | F55 | 1.0 | 140 | EMVY100ADA470MF55G |
| | 100 | F55 | 1.0 | 140 | EMVY100ADA101MF55G |
| | 220 | F80 | 0.34 | 280 | EMVY100ADA221MF80G |
| | 330 | HA0 | 0.30 | 450 | EMVY100ADA331MHA0G |
| | 470 | HA0 | 0.30 | 450 | EMVY100ADA471MHA0G |
| | 680 | JA0 | 0.15 | 670 | EMVY100ADA681MJA0G |
| | 1,000 | JA0 | 0.15 | 670 | EMVY100ADA102MJA0G |
| | 2,200 | KG5 | 0.060 | 950 | EMVY100ARA222MKG5S |
| | 2,200 | LH0 | 0.054 | 1,260 | EMVY100□DA222MLH0S |
| | 3,300 | LH0 | 0.054 | 1,260 | EMVY100□DA332MLH0S |
| | 3,300 | MH0 | 0.054 | 1,350 | EMVY100□DA332MMH0S |
| | 4,700 | LN0 | 0.038 | 1,630 | EMVY100□DA472MLN0S |
| | 4,700 | MN0 | 0.038 | 1,750 | EMVY100□DA472MMN0S |
| | 6,800 | MN0 | 0.038 | 1,750 | EMVY100□DA682MMN0S |
| 16 | 10 | D55 | 3.0 | 60 | EMVY160ADA100MD55G |
| | 22 | E55 | 1.8 | 95 | EMVY160ADA220ME55G |
| | 33 | F55 | 1.0 | 140 | EMVY160ADA330MF55G |
| | 47 | F55 | 1.0 | 140 | EMVY160ADA470MF55G |
| | 100 | F55 | 1.0 | 140 | EMVY160ADA101MF55G |
| | 220 | F80 | 0.34 | 280 | EMVY160ADA221MF80G |
| | 330 | HA0 | 0.30 | 450 | EMVY160ADA331MHA0G |
| | 470 | HA0 | 0.30 | 450 | EMVY160ADA471MHA0G |
| | 680 | JA0 | 0.15 | 670 | EMVY160ADA681MJA0G |
| | 1,000 | KE0 | 0.070 | 820 | EMVY160ARA102MKE0S |
| | 1,000 | LH0 | 0.054 | 1,260 | EMVY160□DA102MLH0S |
| | 2,200 | LH0 | 0.054 | 1,260 | EMVY160□DA222MLH0S |
| | 2,200 | MH0 | 0.054 | 1,350 | EMVY160□DA222MMH0S |
| | 3,300 | LN0 | 0.038 | 1,630 | EMVY160□DA332MLN0S |
| | 3,300 | MH0 | 0.054 | 1,350 | EMVY160□DA332MMH0S |
| | 4,700 | MN0 | 0.038 | 1,750 | EMVY160□DA472MMN0S |
| 25 | 10 | E55 | 1.8 | 95 | EMVY250ADA100ME55G |
| | 22 | F55 | 1.0 | 140 | EMVY250ADA220MF55G |
| | 33 | F55 | 1.0 | 140 | EMVY250ADA330MF55G |
| | 47 | F55 | 1.0 | 140 | EMVY250ADA470MF55G |
| | 100 | F80 | 0.34 | 280 | EMVY250ADA101MF80G |
| | 220 | HA0 | 0.30 | 450 | EMVY250ADA221MHA0G |
| | 330 | HA0 | 0.30 | 450 | EMVY250ADA331MHA0G |
| | 470 | JA0 | 0.15 | 670 | EMVY250ADA471MJA0G |
| | 1,000 | LH0 | 0.054 | 1,260 | EMVY250□DA102MLH0S |
| | 1,000 | MH0 | 0.054 | 1,350 | EMVY250□DA102MMH0S |
| | 2,200 | LN0 | 0.038 | 1,630 | EMVY250□DA222MLN0S |
| | 2,200 | MN0 | 0.038 | 1,750 | EMVY250□DA222MMN0S |
| | 3,300 | MN0 | 0.038 | 1,750 | EMVY250□DA332MMN0S |
| 35 | 4.7 | D55 | 3.0 | 60 | EMVY350ADA4R7MD55G |
| | 10 | E55 | 1.8 | 95 | EMVY350ADA100ME55G |
| | 22 | F55 | 1.0 | 140 | EMVY350ADA220MF55G |
| | 33 | F55 | 1.0 | 140 | EMVY350ADA330MF55G |
| | 47 | F55 | 1.0 | 140 | EMVY350ADA470MF55G |
| | 47 | F61 | 1.0 | 140 | EMVY350ADA470MF61G |
| | 68 | F80 | 0.34 | 280 | EMVY350ADA680MF80G |
| | 100 | HA0 | 0.30 | 450 | EMVY350ADA101MHA0G |
| | 220 | HA0 | 0.30 | 450 | EMVY350ADA221MHA0G |
| | 330 | JA0 | 0.15 | 670 | EMVY350ADA331MJA0G |
| | 470 | KE0 | 0.070 | 820 | EMVY350ARA471MKE0S |
| | 470 | LH0 | 0.054 | 1,260 | EMVY350□DA471MLH0S |
| | 1,000 | LH0 | 0.054 | 1,260 | EMVY350□DA102MLH0S |
| | 1,000 | MH0 | 0.054 | 1,350 | EMVY350□DA102MMH0S |
| | 2,200 | MN0 | 0.038 | 1,750 | EMVY350□DA222MMN0S |
| 50 | 1.0 | D55 | 5.0 | 30 | EMVY500ADA1R0MD55G |
| | 2.2 | D55 | 5.0 | 30 | EMVY500ADA2R2MD55G |
| | 3.3 | D55 | 5.0 | 30 | EMVY500ADA3R3MD55G |
| | 4.7 | E55 | 3.0 | 50 | EMVY500ADA4R7ME55G |
| | 10 | F55 | 2.0 | 70 | EMVY500ADA100MF55G |
| | 22 | F55 | 2.0 | 70 | EMVY500ADA220MF55G |
| | 33 | F80 | 0.60 | 170 | EMVY500ADA330MF80G |
| | 47 | F80 | 0.60 | 170 | EMVY500ADA470MF80G |
| | 68 | HA0 | 0.60 | 300 | EMVY500ADA680MHA0G |
| | 100 | HA0 | 0.60 | 300 | EMVY500ADA101MHA0G |
| | 220 | JA0 | 0.30 | 500 | EMVY500ADA221MJA0G |
| | 330 | KE0 | 0.11 | 650 | EMVY500ARA331MKE0S |
| | 330 | LH0 | 0.087 | 900 | EMVY500□DA331MLH0S |
| | 470 | LH0 | 0.087 | 900 | EMVY500□DA471MLH0S |
| | 470 | MH0 | 0.087 | 1,060 | EMVY500□DA471MMH0S |
| | 1,000 | MN0 | 0.050 | 1,520 | EMVY500□DA102MMN0S |
| 63 | 68 | KE0 | 0.19 | 500 | EMVY630ARA680MKE0S |
| | 100 | KE0 | 0.19 | 500 | EMVY630ARA101MKE0S |
| | 220 | KE0 | 0.19 | 500 | EMVY630ARA221MKE0S |
| | 220 | LH0 | 0.12 | 845 | EMVY630□DA221MLH0S |
| | 330 | LH0 | 0.12 | 845 | EMVY630□DA331MLH0S |
| | 330 | MH0 | 0.12 | 905 | EMVY630□DA331MMH0S |
| | 470 | LN0 | 0.085 | 1,100 | EMVY630□DA471MLN0S |
| | 470 | MH0 | 0.12 | 905 | EMVY630□DA471MMH0S |
| 80 | 100 | KE0 | 0.33 | 450 | EMVY800ARA101MKE0S |
| | 220 | KG5 | 0.26 | 550 | EMVY800ARA221MKG5S |
| | 330 | LN0 | 0.16 | 900 | EMVY800□DA331MLN0S |
| | 330 | MH0 | 0.24 | 700 | EMVY800□DA331MMH0S |
| | 470 | MN0 | 0.16 | 950 | EMVY800□DA471MMN0S |
| 100 | 47 | KE0 | 0.33 | 450 | EMVY101ARA470MKE0S |
| | 68 | KE0 | 0.33 | 450 | EMVY101ARA680MKE0S |
| | 100 | KE0 | 0.33 | 450 | EMVY101ARA101MKE0S |
| | 100 | LH0 | 0.24 | 650 | EMVY101□DA101MLH0S |
| | 220 | LN0 | 0.16 | 900 | EMVY101□DA221MLN0S |
| | 220 | MH0 | 0.24 | 700 | EMVY101□DA221MMH0S |
| | 330 | MN0 | 0.16 | 950 | EMVY101□DA331MMN0S |

□ : Enter the appropriate terminal code.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 10000-hours-life, 105℃

## Alchip™-MZF Series

- ●Endurance : 10,000 hours at 105℃
- ●Low impedance
- ●Rated voltage range : 6.3 to 50V
- ●Nominal capacitance range : 10 to 470μF
- ●Suitable for high reliability products
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

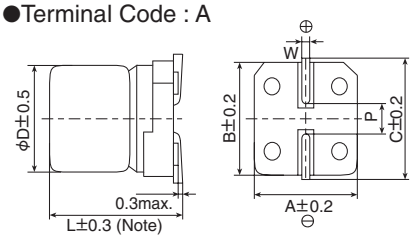
MLA → (Longer life) MZE → (Longer life) **MZF**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | -25 to +105℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20%(M) | | | | | | | (at 20℃,120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃, after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 | 0.14 | (at 20℃,120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(-10℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 10,000 hours at 105℃.<br>Capacitance change: ≦±30% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±30% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value | | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : A




Note : L±0.5 for HA0 and JA0

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E73 | 5 | 7.0 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F73 | 6.3 | 7.0 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F90 | 6.3 | 8.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆PART NUMBERING SYSTEM

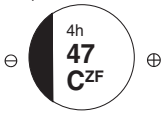
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | M | Z | F | | | | A | D | A | | | | M | | | | G |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 16V47μF




●Rated voltage symbol

| Rated voltage (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|---|---|---|---|---|---|---|
| Symbol | j | A | C | E | V | H |

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Impedance (Ω max/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 47 | E73 | 2.2 | 95 | EMZF6R3ADA470ME73G |
| | 100 | F73 | 1.1 | 140 | EMZF6R3ADA101MF73G |
| | 220 | F90 | 1.0 | 230 | EMZF6R3ADA221MF90G |
| | 330 | F90 | 1.0 | 230 | EMZF6R3ADA331MF90G |
| | 470 | HA0 | 0.22 | 600 | EMZF6R3ADA471MHA0G |
| 10 | 33 | E73 | 2.2 | 95 | EMZF100ADA330ME73G |
| | 150 | F73 | 1.1 | 140 | EMZF100ADA151MF73G |
| 16 | 22 | E73 | 2.2 | 95 | EMZF160ADA220ME73G |
| | 47 | F73 | 1.1 | 140 | EMZF160ADA470MF73G |
| | 100 | F73 | 1.1 | 140 | EMZF160ADA101MF73G |
| | 150 | F90 | 1.0 | 230 | EMZF160ADA151MF90G |
| | 220 | F90 | 1.0 | 230 | EMZF160ADA221MF90G |
| | 330 | HA0 | 0.22 | 600 | EMZF160ADA331MHA0G |
| | 470 | JA0 | 0.16 | 850 | EMZF160ADA471MJA0G |
| 25 | 22 | E73 | 2.2 | 95 | EMZF250ADA220ME73G |

| WV (Vdc) | Cap (μF) | Size code | Impedance (Ω max/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 25 | 33 | F73 | 1.1 | 140 | EMZF250ADA330MF73G |
| | 47 | F73 | 1.1 | 140 | EMZF250ADA470MF73G |
| | 100 | F90 | 1.0 | 230 | EMZF250ADA101MF90G |
| | 220 | HA0 | 0.22 | 600 | EMZF250ADA221MHA0G |
| | 330 | JA0 | 0.16 | 850 | EMZF250ADA331MJA0G |
| 35 | 10 | E73 | 2.2 | 95 | EMZF350ADA100ME73G |
| | 10 | F73 | 1.1 | 140 | EMZF350ADA100MF73G |
| | 22 | E73 | 2.2 | 95 | EMZF350ADA220ME73G |
| | 22 | F73 | 1.1 | 140 | EMZF350ADA220MF73G |
| | 33 | F90 | 1.0 | 230 | EMZF350ADA330MF90G |
| | 47 | F90 | 1.0 | 230 | EMZF350ADA470MF90G |
| | 100 | HA0 | 0.22 | 600 | EMZF350ADA101MHA0G |
| | 220 | JA0 | 0.16 | 850 | EMZF350ADA221MJA0G |
| 50 | 47 | HA0 | 0.53 | 350 | EMZF500ADA470MHA0G |
| | 100 | JA0 | 0.35 | 670 | EMZF500ADA101MJA0G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS Low impedance, 7000 to 8000-hours-life, 105℃

## Alchip™-MZE Series

MVY → (Longer life) MLA → (Longer life) **MZE**

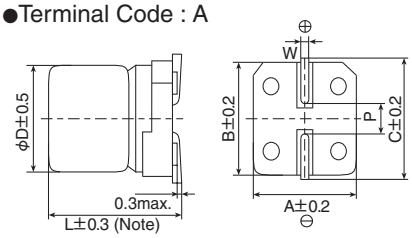
- Endurance : 7,000 to 8,000 hours at 105℃
- Low impedance
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 10 to 470μF
- Suitable for high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | -25 to +105℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20%(M) | | | | | | | (at 20℃,120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃, after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 | 0.14 | (at 20℃,120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(-10℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃. | | | | | | | |
| | Time | E73 & F73 : 7,000 hours<br>F90 to JA0 : 8,000 hours | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : A




Note : L±0.5 for HA0 and JA0

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E73 | 5 | 7.0 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F73 | 6.3 | 7.0 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F90 | 6.3 | 8.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆PART NUMBERING SYSTEM

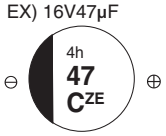
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | M | Z | E | | | | A | D | A | | | | M | | | | G |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 16V47μF




●Rated voltage symbol

| Rated voltage (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|---|---|---|---|---|---|---|
| Symbol | j | A | C | E | V | H |

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 47 | E73 | 2.2 | 95 | EMZE6R3ADA470ME73G |
| | 100 | F73 | 1.1 | 140 | EMZE6R3ADA101MF73G |
| | 220 | F90 | 1.0 | 230 | EMZE6R3ADA221MF90G |
| | 330 | F90 | 1.0 | 230 | EMZE6R3ADA331MF90G |
| | 470 | HA0 | 0.22 | 600 | EMZE6R3ADA471MHA0G |
| 10 | 33 | E73 | 2.2 | 95 | EMZE100ADA330ME73G |
| | 150 | F73 | 1.1 | 140 | EMZE100ADA151MF73G |
| 16 | 22 | E73 | 2.2 | 95 | EMZE160ADA220ME73G |
| | 47 | F73 | 1.1 | 140 | EMZE160ADA470MF73G |
| | 100 | F73 | 1.1 | 140 | EMZE160ADA101MF73G |
| | 150 | F90 | 1.0 | 230 | EMZE160ADA151MF90G |
| | 220 | F90 | 1.0 | 230 | EMZE160ADA221MF90G |
| | 330 | HA0 | 0.22 | 600 | EMZE160ADA331MHA0G |
| | 470 | JA0 | 0.16 | 850 | EMZE160ADA471MJA0G |
| 25 | 22 | E73 | 2.2 | 95 | EMZE250ADA220ME73G |

| WV (Vdc) | Cap (μF) | Size code | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 25 | 33 | F73 | 1.1 | 140 | EMZE250ADA330MF73G |
| | 47 | F73 | 1.1 | 140 | EMZE250ADA470MF73G |
| | 100 | F90 | 1.0 | 230 | EMZE250ADA101MF90G |
| | 220 | HA0 | 0.22 | 600 | EMZE250ADA221MHA0G |
| | 330 | JA0 | 0.16 | 850 | EMZE250ADA331MJA0G |
| 35 | 10 | E73 | 2.2 | 95 | EMZE350ADA100ME73G |
| | 10 | F73 | 1.1 | 140 | EMZE350ADA100MF73G |
| | 22 | E73 | 2.2 | 95 | EMZE350ADA220ME73G |
| | 22 | F73 | 1.1 | 140 | EMZE350ADA220MF73G |
| | 33 | F90 | 1.0 | 230 | EMZE350ADA330MF90G |
| | 47 | F90 | 1.0 | 230 | EMZE350ADA470MF90G |
| | 100 | HA0 | 0.22 | 600 | EMZE350ADA101MHA0G |
| | 220 | JA0 | 0.16 | 850 | EMZE350ADA221MJA0G |
| 50 | 47 | HA0 | 0.53 | 350 | EMZE500ADA470MHA0G |
| | 100 | JA0 | 0.35 | 670 | EMZE500ADA101MJA0G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 5000-hours-life, 105℃

## Alchip™-MZK Series

- Endurance : 5,000 hours at 105℃
- Low impedance
- Rated voltage range : 6.3 to 35V
- Nominal capacitance range : 10 to 150μF
- Suitable for high reliability products
- Solvent resistant type
- **RoHS Compliant**

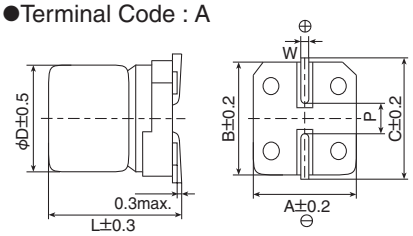
MVY → (Longer life) **MZK**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | -25 to +105℃ | | | | | | |
| **Rated Voltage Range** | 6.3 to 35Vdc | | | | | | |
| **Capacitance Tolerance** | ±20%(M) | | | | | | (at 20℃,120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃, after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | tanδ (Max.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 | (at 20℃,120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | Z(-10℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |

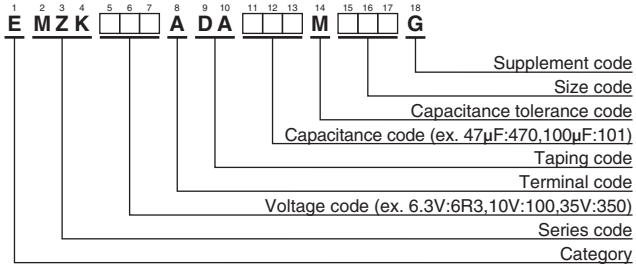
## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |

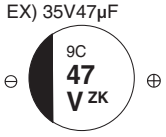
## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 35V47μF




●Rated voltage symbol

| Rated voltage (Vdc) | 6.3 | 10 | 16 | 25 | 35 |
|---|---|---|---|---|---|
| Symbol | j | A | C | E | V |

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Impedance (Ωmax/20℃,100kHz) | Rated ripple current (mArms/105℃,100kHz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 100 | E61 | 2.2 | 95 | EMZK6R3ADA101ME61G |
| 10 | 150 | F61 | 1.1 | 140 | EMZK100ADA151MF61G |
| 16 | 33 | E61 | 2.2 | 95 | EMZK160ADA330ME61G |
| | 47 | E61 | 2.2 | 95 | EMZK160ADA470ME61G |
| | 100 | F61 | 1.1 | 140 | EMZK160ADA101MF61G |
| 25 | 68 | F61 | 1.1 | 140 | EMZK250ADA680MF61G |
| 35 | 10 | E61 | 2.2 | 95 | EMZK350ADA100ME61G |
| | 10 | F61 | 1.1 | 140 | EMZK350ADA100MF61G |
| | 22 | E61 | 2.2 | 95 | EMZK350ADA220ME61G |
| | 22 | F61 | 1.1 | 140 | EMZK350ADA220MF61G |
| | 33 | F61 | 1.1 | 140 | EMZK350ADA330MF61G |
| | 47 | F61 | 1.1 | 140 | EMZK350ADA470MF61G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## Alchip™-MLA Series

- Low impedance, long life
- Rated voltage 6.3 to 50V, Capacitance 10 to 1,000μF
- Case size φ5×5.8L to φ10×10L
- Suitable for applications requiring long life and low impedance such as equipment in continuous operation, industrial applications, etc.
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

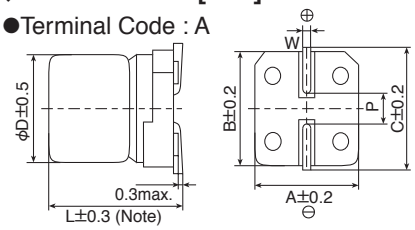
MVY → Longer life → **MLA**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | -40 to +105℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20%(M) | | | | | | | (20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage(Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | tanδ (Max.) | E61 to F61 | 0.28 | 0.24 | 0.22 | 0.16 | 0.13 | 0.12 |
| | | F80 | 0.32 | 0.27 | 0.24 | 0.16 | 0.13 | 0.12 |
| | | HA0 to JA0 | 0.28 | 0.24 | 0.22 | 0.16 | 0.13 | 0.12 |
| | | | | | | | | (20℃, 120Hz) |
| **Low Temperature Characteristics (Max. impedance Ratio)** | Rated voltage(Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | Z(-25℃)/Z(+20℃) | | 4 | 3 | 2 | 2 | 2 | 2 |
| | Z(-40℃)/Z(+20℃) | | 10 | 7 | 5 | 3 | 3 | 3 |
| | | | | | | | | (120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 3,000 hours at 105℃. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| **Shelf life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : A

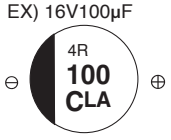



Note : L±0.5 for HA0 and JA0

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| **E61** | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| **F61** | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| **F80** | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| **HA0** | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| **JA0** | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆MARKING

EX) 16V100μF




●Rated voltage symbol

| Rated voltage (Vdc) | Symbol |
|---|---|
| 6.3 | j |
| 10 | A |
| 16 | C |
| 25 | E |
| 35 | V |
| 50 | H |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | M | L | A | | | | A | D | A | | | | M | | | | G |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 10μF:100,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,50V:500)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

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NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## Alchip™-MLA Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | tanδ | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 47 | E61 | 0.28 | 1.30 | 95 | EMLA6R3ADA470ME61G |
| | 100 | F61 | 0.28 | 0.70 | 140 | EMLA6R3ADA101MF61G |
| | 150 | F61 | 0.28 | 0.70 | 140 | EMLA6R3ADA151MF61G |
| | 220 | F80 | 0.32 | 0.70 | 230 | EMLA6R3ADA221MF80G |
| | 330 | F80 | 0.32 | 0.70 | 230 | EMLA6R3ADA331MF80G |
| | 330 | HA0 | 0.28 | 0.16 | 600 | EMLA6R3ADA331MHA0G |
| | 470 | HA0 | 0.28 | 0.16 | 600 | EMLA6R3ADA471MHA0G |
| | 1,000 | JA0 | 0.28 | 0.08 | 850 | EMLA6R3ADA102MJA0G |
| 10 | 33 | E61 | 0.24 | 1.30 | 95 | EMLA100ADA330ME61G |
| | 47 | F61 | 0.24 | 0.70 | 140 | EMLA100ADA470MF61G |
| | 100 | F61 | 0.24 | 0.70 | 140 | EMLA100ADA101MF61G |
| | 150 | F61 | 0.24 | 0.70 | 140 | EMLA100ADA151MF61G |
| | 220 | F80 | 0.27 | 0.70 | 230 | EMLA100ADA221MF80G |
| | 220 | HA0 | 0.24 | 0.16 | 600 | EMLA100ADA221MHA0G |
| | 330 | HA0 | 0.24 | 0.16 | 600 | EMLA100ADA331MHA0G |
| | 470 | HA0 | 0.24 | 0.16 | 600 | EMLA100ADA471MHA0G |
| 16 | 22 | E61 | 0.22 | 1.30 | 95 | EMLA160ADA220ME61G |
| | 33 | F61 | 0.22 | 0.70 | 140 | EMLA160ADA330MF61G |
| | 47 | F61 | 0.22 | 0.70 | 140 | EMLA160ADA470MF61G |
| | 100 | F61 | 0.22 | 0.70 | 140 | EMLA160ADA101MF61G |
| | 100 | F80 | 0.24 | 0.70 | 230 | EMLA160ADA101MF80G |
| | 150 | F80 | 0.24 | 0.70 | 230 | EMLA160ADA151MF80G |
| | 220 | F80 | 0.24 | 0.70 | 230 | EMLA160ADA221MF80G |
| | 220 | HA0 | 0.22 | 0.16 | 600 | EMLA160ADA221MHA0G |
| | 330 | HA0 | 0.22 | 0.16 | 600 | EMLA160ADA331MHA0G |
| | 470 | HA0 | 0.22 | 0.16 | 600 | EMLA160ADA471MHA0G |
| | 470 | JA0 | 0.22 | 0.08 | 850 | EMLA160ADA471MJA0G |
| 25 | 10 | E61 | 0.16 | 1.30 | 95 | EMLA250ADA100ME61G |
| | 22 | E61 | 0.16 | 1.30 | 95 | EMLA250ADA220ME61G |
| | 22 | F61 | 0.16 | 0.70 | 140 | EMLA250ADA220MF61G |

| WV (Vdc) | Cap (μF) | Size code | tanδ | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 25 | 33 | F61 | 0.16 | 0.70 | 140 | EMLA250ADA330MF61G |
| | 47 | F61 | 0.16 | 0.70 | 140 | EMLA250ADA470MF61G |
| | 47 | F80 | 0.16 | 0.70 | 230 | EMLA250ADA470MF80G |
| | 100 | F80 | 0.16 | 0.70 | 230 | EMLA250ADA101MF80G |
| | 100 | HA0 | 0.16 | 0.16 | 600 | EMLA250ADA101MHA0G |
| | 150 | HA0 | 0.16 | 0.16 | 600 | EMLA250ADA151MHA0G |
| | 220 | HA0 | 0.16 | 0.16 | 600 | EMLA250ADA221MHA0G |
| | 330 | HA0 | 0.16 | 0.16 | 600 | EMLA250ADA331MHA0G |
| | 330 | JA0 | 0.16 | 0.08 | 850 | EMLA250ADA331MJA0G |
| | 470 | JA0 | 0.16 | 0.08 | 850 | EMLA250ADA471MJA0G |
| 35 | 10 | E61 | 0.13 | 1.30 | 95 | EMLA350ADA100ME61G |
| | 22 | F61 | 0.13 | 0.70 | 140 | EMLA350ADA220MF61G |
| | 33 | F61 | 0.13 | 0.70 | 140 | EMLA350ADA330MF61G |
| | 33 | F80 | 0.13 | 0.70 | 230 | EMLA350ADA330MF80G |
| | 47 | F80 | 0.13 | 0.70 | 230 | EMLA350ADA470MF80G |
| | 100 | F80 | 0.13 | 0.70 | 230 | EMLA350ADA101MF80G |
| | 100 | HA0 | 0.13 | 0.16 | 600 | EMLA350ADA101MHA0G |
| | 150 | HA0 | 0.13 | 0.16 | 600 | EMLA350ADA151MHA0G |
| | 220 | HA0 | 0.13 | 0.16 | 600 | EMLA350ADA221MHA0G |
| | 220 | JA0 | 0.13 | 0.08 | 850 | EMLA350ADA221MJA0G |
| | 330 | JA0 | 0.13 | 0.08 | 850 | EMLA350ADA331MJA0G |
| 50 | 10 | F61 | 0.12 | 2.00 | 70 | EMLA500ADA100MF61G |
| | 22 | F61 | 0.12 | 2.00 | 70 | EMLA500ADA220MF61G |
| | 33 | F80 | 0.12 | 1.60 | 100 | EMLA500ADA330MF80G |
| | 47 | F80 | 0.12 | 1.60 | 100 | EMLA500ADA470MF80G |
| | 47 | HA0 | 0.12 | 0.34 | 350 | EMLA500ADA470MHA0G |
| | 100 | HA0 | 0.12 | 0.34 | 350 | EMLA500ADA101MHA0G |
| | 100 | JA0 | 0.12 | 0.18 | 670 | EMLA500ADA101MJA0G |
| | 150 | JA0 | 0.12 | 0.18 | 670 | EMLA500ADA151MJA0G |
| | 220 | JA0 | 0.12 | 0.18 | 670 | EMLA500ADA221MJA0G |

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

10000-hours-life, 105℃

## Alchip™-MLF Series

- Endurance : 10,000 hours at 105℃
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 1.0 to 1,000μF
- Suitable for high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

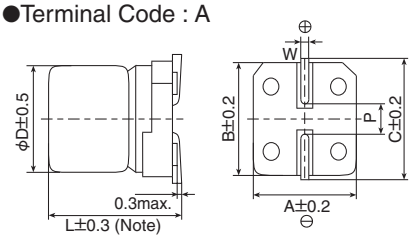
MVL → (Longer life) MLE → (Longer life) **MLF**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Category Temperature Range | -25 to +105℃ | | | | | | | |
| Rated Voltage Range | 6.3 to 50Vdc | | | | | | | |
| Capacitance Tolerance | ±20%(M) | | | | | | | (at 20℃,120Hz) |
| Leakage Current | I=0.03CV or 4μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃, after 2 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 | 0.14 | (at 20℃,120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(-10℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 10,000 hours at 105℃. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

## ◆DIMENSIONS [mm]

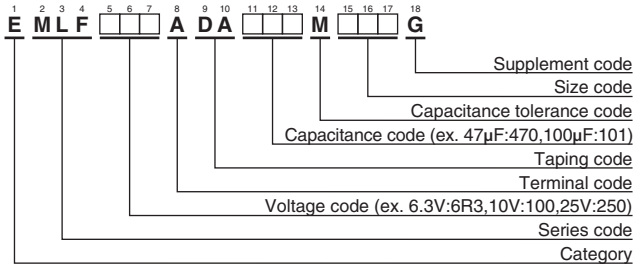
●Terminal Code : A




Note : L±0.5 for HA0 and JA0

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D73 | 4 | 7.0 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E73 | 5 | 7.0 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F73 | 6.3 | 7.0 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F90 | 6.3 | 8.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

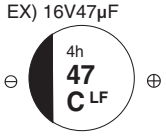
## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 16V47μF




●Rated voltage symbol

| Rated voltage (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|---|---|---|---|---|---|---|
| Symbol | j | A | C | E | V | H |

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Rated ripple current (mArms/105℃, 120Hz) | Part No. |
|---|---|---|---|---|
| 6.3 | 22 | D73 | 22 | EMLF6R3ADA220MD73G |
| | 47 | E73 | 36 | EMLF6R3ADA470ME73G |
| | 100 | F73 | 60 | EMLF6R3ADA101MF73G |
| | 220 | F90 | 101 | EMLF6R3ADA221MF90G |
| | 330 | HA0 | 160 | EMLF6R3ADA331MHA0G |
| | 1,000 | JA0 | 313 | EMLF6R3ADA102MJA0G |
| 10 | 33 | E73 | 35 | EMLF100ADA330ME73G |
| | 220 | HA0 | 141 | EMLF100ADA221MHA0G |
| 16 | 10 | D73 | 18 | EMLF160ADA100MD73G |
| | 22 | E73 | 30 | EMLF160ADA220ME73G |
| | 47 | F73 | 50 | EMLF160ADA470MF73G |
| | 100 | F90 | 81 | EMLF160ADA101MF90G |
| | 470 | JA0 | 254 | EMLF160ADA471MJA0G |
| 25 | 33 | F73 | 48 | EMLF250ADA330MF73G |
| | 47 | F90 | 63 | EMLF250ADA470MF90G |
| | 100 | HA0 | 116 | EMLF250ADA101MHA0G |

| WV (Vdc) | Cap (μF) | Size code | Rated ripple current (mArms/105℃, 120Hz) | Part No. |
|---|---|---|---|---|
| 35 | 1.0 | D73 | 6.2 | EMLF350ADA1R0MD73G |
| | 2.2 | D73 | 11 | EMLF350ADA2R2MD73G |
| | 3.3 | D73 | 14 | EMLF350ADA3R3MD73G |
| | 4.7 | D73 | 15 | EMLF350ADA4R7MD73G |
| | 4.7 | E73 | 19 | EMLF350ADA4R7ME73G |
| | 10 | E73 | 25 | EMLF350ADA100ME73G |
| | 10 | F73 | 30 | EMLF350ADA100MF73G |
| | 22 | F73 | 42 | EMLF350ADA220MF73G |
| | 22 | F90 | 49 | EMLF350ADA220MF90G |
| | 33 | F90 | 57 | EMLF350ADA330MF90G |
| | 220 | JA0 | 216 | EMLF350ADA221MJA0G |
| 50 | 33 | HA0 | 77 | EMLF500ADA330MHA0G |
| | 47 | HA0 | 92 | EMLF500ADA470MHA0G |
| | 100 | JA0 | 151 | EMLF500ADA101MJA0G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

7000 to 8000-hours-life, 105℃

## Alchip™-MLE Series

MVJ → (Longer life) MVL → (Longer life) **MLE**

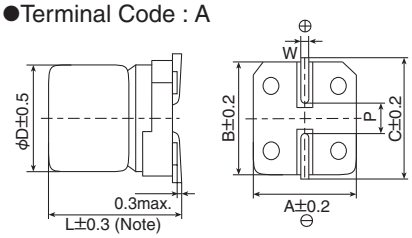
- Endurance : 7,000 to 8,000 hours at 105℃
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 1.0 to 1,000μF
- Suitable for high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | -25 to +105℃ |
| **Rated Voltage Range** | 6.3 to 50Vdc |
| **Capacitance Tolerance** | ±20%(M) (at 20℃,120Hz) |
| **Leakage Current** | I=0.03CV or 4μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) 6.3V 10V 16V 25V 35V 50V<br>tanδ (Max.) 0.32 0.28 0.26 0.16 0.14 0.14 (at 20℃,120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage(Vdc) 6.3V 10V 16V 25V 35V 50V<br>Z(-10℃)/Z(+20℃) 4 3 2 2 2 2 (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃.<br>Time: D73 to F73 : 7,000 hours; F90 to JA0 : 8,000 hours<br>Capacitance change: ≦±30% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±30% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value |

## ◆DIMENSIONS [mm]

●Terminal Code : A




Note : L±0.5 for HA0 and JA0

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D73 | 4 | 7.0 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E73 | 5 | 7.0 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F73 | 6.3 | 7.0 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F90 | 6.3 | 8.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆PART NUMBERING SYSTEM

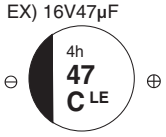
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | M | L | E | | | | A | D | A | | | | M | | | | G |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 16V47μF




●Rated voltage symbol

| Rated voltage (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|---|---|---|---|---|---|---|
| Symbol | j | A | C | E | V | H |

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | Rated ripple current (mArms/105℃, 120Hz) | Part No. |
|---|---|---|---|---|
| 6.3 | 22 | D73 | 22 | EMLE6R3ADA220MD73G |
| | 47 | E73 | 36 | EMLE6R3ADA470ME73G |
| | 100 | F73 | 60 | EMLE6R3ADA101MF73G |
| | 220 | F90 | 101 | EMLE6R3ADA221MF90G |
| | 330 | HA0 | 160 | EMLE6R3ADA331MHA0G |
| | 1,000 | JA0 | 313 | EMLE6R3ADA102MJA0G |
| 10 | 33 | E73 | 35 | EMLE100ADA330ME73G |
| | 220 | HA0 | 141 | EMLE100ADA221MHA0G |
| 16 | 10 | D73 | 18 | EMLE160ADA100MD73G |
| | 22 | E73 | 30 | EMLE160ADA220ME73G |
| | 47 | F73 | 50 | EMLE160ADA470MF73G |
| | 100 | F90 | 81 | EMLE160ADA101MF90G |
| | 470 | JA0 | 254 | EMLE160ADA471MJA0G |
| 25 | 33 | F73 | 48 | EMLE250ADA330MF73G |
| | 47 | F90 | 63 | EMLE250ADA470MF90G |
| | 100 | HA0 | 116 | EMLE250ADA101MHA0G |

| WV (Vdc) | Cap (μF) | Size code | Rated ripple current (mArms/105℃, 120Hz) | Part No. |
|---|---|---|---|---|
| 35 | 1.0 | D73 | 6.2 | EMLE350ADA1R0MD73G |
| | 2.2 | D73 | 11 | EMLE350ADA2R2MD73G |
| | 3.3 | D73 | 14 | EMLE350ADA3R3MD73G |
| | 4.7 | D73 | 15 | EMLE350ADA4R7MD73G |
| | 4.7 | E73 | 19 | EMLE350ADA4R7ME73G |
| | 10 | E73 | 25 | EMLE350ADA100ME73G |
| | 10 | F73 | 30 | EMLE350ADA100MF73G |
| | 22 | F73 | 42 | EMLE350ADA220MF73G |
| | 22 | F90 | 49 | EMLE350ADA220MF90G |
| | 33 | F90 | 57 | EMLE350ADA330MF90G |
| | 220 | JA0 | 216 | EMLE350ADA221MJA0G |
| 50 | 33 | HA0 | 77 | EMLE500ADA330MHA0G |
| | 47 | HA0 | 92 | EMLE500ADA470MHA0G |
| | 100 | JA0 | 151 | EMLE500ADA101MJA0G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

5000-hours-life, 105℃

## Alchip™-MLK Series

MVL → Longer life → MLK

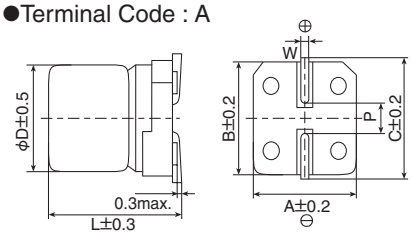
- ●6.1mm height
- ●Endurance : 5,000 hours at 105℃
- ●Rated voltage range : 6.3 to 35V
- ●Nominal capacitance range : 4.7 to 100μF
- ●Suitable to fit for downsized equipment
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | -25 to +105℃ | | | | | | |
| **Rated Voltage Range** | 6.3 to 35Vdc | | | | | | |
| **Capacitance Tolerance** | ±20%(M) | | | | | | (at 20℃,120Hz) |
| **Leakage Current** | I=0.03CV or 4μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃, after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | tanδ (Max.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 | (at 20℃,120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | Z(-10℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |

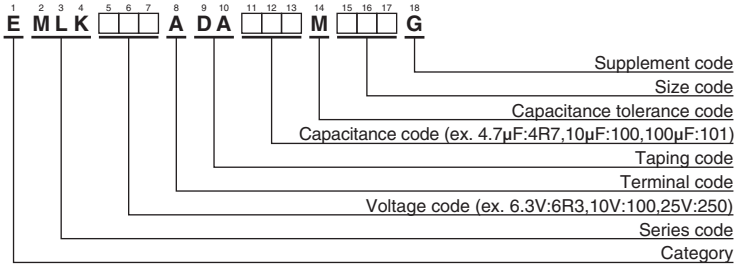
## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| E61 | 5 | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F61 | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |

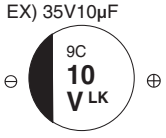
## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 35V10μF




●Rated voltage symbol

| Rated voltage (Vdc) | 6.3 | 10 | 16 | 25 | 35 |
|---|---|---|---|---|---|
| Symbol | j | A | C | E | V |

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 47 | E61 | 0.32 | 36 | EMLK6R3ADA470ME61G |
| | 100 | F61 | 0.32 | 60 | EMLK6R3ADA101MF61G |
| 10 | 33 | E61 | 0.28 | 35 | EMLK100ADA330ME61G |
| 16 | 22 | E61 | 0.26 | 30 | EMLK160ADA220ME61G |
| | 47 | F61 | 0.26 | 50 | EMLK160ADA470MF61G |
| 25 | 33 | F61 | 0.16 | 48 | EMLK250ADA330MF61G |
| 35 | 4.7 | E61 | 0.14 | 19 | EMLK350ADA4R7ME61G |
| | 10 | E61 | 0.14 | 25 | EMLK350ADA100ME61G |
| | 10 | F61 | 0.14 | 30 | EMLK350ADA100MF61G |
| | 22 | F61 | 0.14 | 42 | EMLK350ADA220MF61G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

3000 to 5000-hours-life, 105℃

## Alchip™-MVL Series

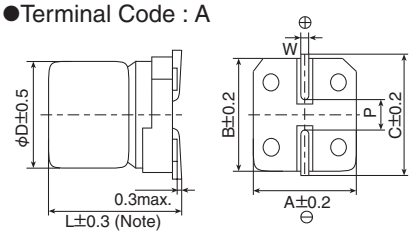
- Endurance : 3,000 to 5,000 hours at 105℃
- Suitable for applications requiring long life such as continuously operating equipment, industrial applications, etc
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Category Temperature Range | -40 to +105℃ | | | | | | | |
| Rated Voltage Range | 6.3 to 50Vdc | | | | | | | |
| Capacitance Tolerance | ±20%(M) | | | | | | | (at 20℃,120Hz) |
| Leakage Current | I=0.03CV or 4μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃, after 2 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Max. tanδ | 0.28 | 0.24 | 0.20 | 0.16 | 0.13 | 0.12 | (at 20℃,120Hz) |
| Low Temperature Characteristics (Max. impedance Ratio) | Rated voltage(Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(-25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | |
| | Z(-40℃)/Z(+20℃) | 10 | 7 | 5 | 3 | 3 | 3 | (120Hz) |
| Endurance | After the capacitors are subjected to the rated DC voltage for 3,000 hours (HA0 & JA0 sizes 5,000 hours) at 105℃, the following specifications shall be satisfied when the capacitors are restored to 20℃. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

## ◆DIMENSIONS [mm]

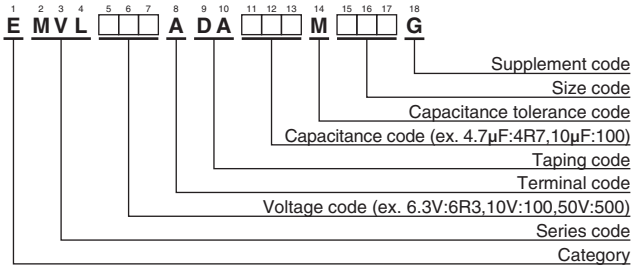
●Terminal Code : A




Note : L±0.5 for HA0 and JA0

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D60 | 4 | 5.7 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E60 | 5 | 5.7 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F60 | 6.3 | 5.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 16V47μF

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 22 | D60 | 0.28 | 22 | EMVL6R3ADA220MD60G |
| | 47 | E60 | 0.28 | 36 | EMVL6R3ADA470ME60G |
| | 100 | F60 | 0.28 | 60 | EMVL6R3ADA101MF60G |
| | 220 | F80 | 0.28 | 101 | EMVL6R3ADA221MF80G |
| | 330 | HA0 | 0.28 | 160 | EMVL6R3ADA331MHA0G |
| | 1,000 | JA0 | 0.28 | 313 | EMVL6R3ADA102MJA0G |
| 10 | 33 | E60 | 0.24 | 35 | EMVL100ADA330ME60G |
| | 220 | HA0 | 0.24 | 141 | EMVL100ADA221MHA0G |
| 16 | 10 | D60 | 0.20 | 18 | EMVL160ADA100MD60G |
| | 22 | E60 | 0.20 | 30 | EMVL160ADA220ME60G |
| | 47 | F60 | 0.20 | 50 | EMVL160ADA470MF60G |
| | 100 | F80 | 0.20 | 81 | EMVL160ADA101MF80G |
| | 470 | JA0 | 0.20 | 254 | EMVL160ADA471MJA0G |
| 25 | 33 | F60 | 0.16 | 48 | EMVL250ADA330MF60G |
| | 47 | F80 | 0.16 | 63 | EMVL250ADA470MF80G |
| | 100 | HA0 | 0.16 | 116 | EMVL250ADA101MHA0G |
| | 330 | JA0 | 0.16 | 238 | EMVL250ADA331MJA0G |

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 4.7 | D60 | 0.13 | 15 | EMVL350ADA4R7MD60G |
| | 10 | E60 | 0.13 | 25 | EMVL350ADA100ME60G |
| | 22 | F60 | 0.13 | 42 | EMVL350ADA220MF60G |
| | 33 | F80 | 0.13 | 57 | EMVL350ADA330MF80G |
| | 220 | JA0 | 0.13 | 216 | EMVL350ADA221MJA0G |
| 50 | 1.0 | D60 | 0.12 | 6.2 | EMVL500ADA1R0MD60G |
| | 2.2 | D60 | 0.12 | 11 | EMVL500ADA2R2MD60G |
| | 3.3 | D60 | 0.12 | 14 | EMVL500ADA3R3MD60G |
| | 4.7 | E60 | 0.12 | 19 | EMVL500ADA4R7ME60G |
| | 10 | F60 | 0.12 | 30 | EMVL500ADA100MF60G |
| | 22 | F80 | 0.12 | 49 | EMVL500ADA220MF80G |
| | 33 | HA0 | 0.12 | 77 | EMVL500ADA330MHA0G |
| | 47 | HA0 | 0.12 | 92 | EMVL500ADA470MHA0G |
| | 100 | JA0 | 0.12 | 151 | EMVL500ADA101MJA0G |

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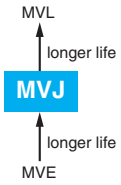
NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

2000-hours-life, 105℃

## Alchip™-MVJ Series

- Endurance : 2,000 hours at 105℃
- Solvent resistant type
- **RoHS Compliant**



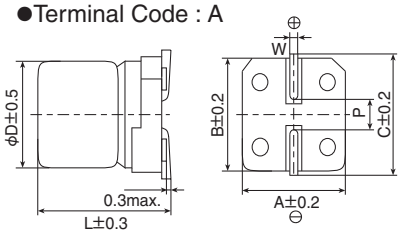
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.30 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 12 | 8 | 6 | 4 | 3 | 3 | (at 120Hz) |

| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. | | | |
|---|---|---|---|---|
| | Rated voltage | 6.3Vdc | 10 & 16Vdc | 25 to 50Vdc |
| | Capacitance change | ≦±30% of the initial value | ≦±25% of the initial value | ≦±20% of the initial value |
| | D.F. (tanδ) | ≦300% of the initial specified value | ≦300% of the initial specified value | ≦200% of the initial specified value |
| | Leakage current | ≦The initial specified value | ≦The initial specified value | ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Rated voltage | 6.3Vdc | 10 & 16Vdc | 25 to 50Vdc |
| | Capacitance change | ≦±30% of the initial value | ≦±25% of the initial value | ≦±20% of the initial value |
| | D.F. (tanδ) | ≦300% of the initial specified value | ≦300% of the initial specified value | ≦200% of the initial specified value |
| | Leakage current | ≦The initial specified value | ≦The initial specified value | ≦The initial specified value |

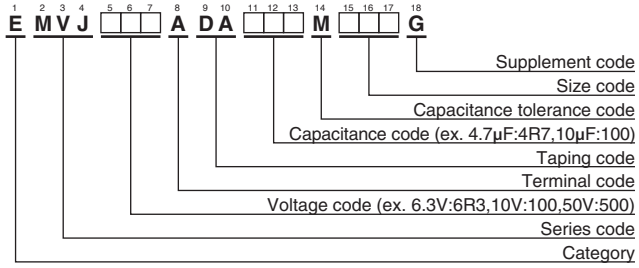
## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D60 | 4 | 5.7 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E60 | 5 | 5.7 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F60 | 6.3 | 5.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 6.3V100μF

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 22 | D60 | 0.30 | 21 | EMVJ6R3ADA220MD60G |
| | 47 | E60 | 0.30 | 36 | EMVJ6R3ADA470ME60G |
| | 100 | F60 | 0.30 | 56 | EMVJ6R3ADA101MF60G |
| 10 | 33 | E60 | 0.24 | 34 | EMVJ100ADA330ME60G |
| 16 | 10 | D60 | 0.20 | 16 | EMVJ160ADA100MD60G |
| | 22 | E60 | 0.20 | 30 | EMVJ160ADA220ME60G |
| | 47 | F60 | 0.20 | 48 | EMVJ160ADA470MF60G |
| 25 | 33 | F60 | 0.16 | 45 | EMVJ250ADA330MF60G |

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 4.7 | D60 | 0.14 | 15 | EMVJ350ADA4R7MD60G |
| | 10 | E60 | 0.14 | 25 | EMVJ350ADA100ME60G |
| | 22 | F60 | 0.14 | 40 | EMVJ350ADA220MF60G |
| 50 | 1.0 | D60 | 0.12 | 5.6 | EMVJ500ADA1R0MD60G |
| | 2.2 | D60 | 0.12 | 10 | EMVJ500ADA2R2MD60G |
| | 3.3 | D60 | 0.12 | 14 | EMVJ500ADA3R3MD60G |
| | 4.7 | E60 | 0.12 | 19 | EMVJ500ADA4R7ME60G |
| | 10 | F60 | 0.12 | 29 | EMVJ500ADA100MF60G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

## Alchip™-MVH Series

- Lower ESR, Higher ripple current
- Endurance : 1,000 to 5,000 hours at 125℃
- Suitable to fit for automotive equipment
- Solvent resistant type (10 to 50V)
- **RoHS Compliant**

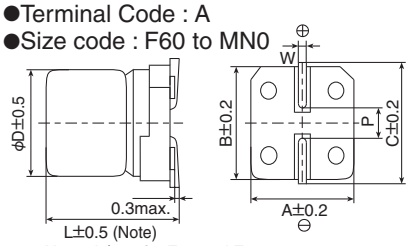
MVH
125℃
MVE

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | -40 to +125℃ |
| **Rated Voltage Range** | 10 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | Rated voltage (Vdc): 10 to 100Vdc / 160 to 450Vdc<br>F60 to JA0: I=0.01CV or 3μA, whichever is greater. / I=0.04CV+100<br>KE0 to MN0: I=0.03CV or 4μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc): 10V / 16V / 25V / 35V / 50V / 63V / 80V / 100V / 160 to 250V / 400 & 450V<br>tanδ (Max.) F60 to JA0: 0.24 / 0.20 / 0.16 / 0.14 / 0.14 / 0.12 / 0.12 / 0.10 / — / —<br>tanδ (Max.) KE0 to MN0: 0.22 / 0.18 / 0.16 / 0.14 / 0.12 / 0.14 / — / 0.10 / 0.20 / 0.24<br>When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc): 10V / 16V / 25V / 35V / 50V / 63V / 80V / 100V / 160 to 250V / 400 & 450V<br>F60 to JA0 Z(−25℃)/Z(+20℃): 3 / 2 / 2 / 2 / 2 / 2 / 2 / 2 / — / —<br>F60 to JA0 Z(−40℃)/Z(+20℃): 6 / 4 / 4 / 3 / 3 / 3 / 3 / 3 / — / —<br>KE0 to MN0 Z(−25℃)/Z(+20℃): 4 / 3 / 2 / 2 / 2 / 2 / — / 2 / 3 / 6<br>KE0 to MN0 Z(−40℃)/Z(+20℃): 8 / 6 / 4 / 3 / 3 / 3 / — / 3 / 6 / 10 (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified time at 125℃.<br>Time: F60 to H63 (10 to 100Vdc) : 1,000hours; HA0 to JA0 (10 to 100Vdc) : 2,000hours; KE0 to MN0 (10 to 100Vdc) : 5,000hours; KE0 to MN0 (160 to 450Vdc) : 2,000hours<br>Capacitance change: ≦±30% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for 400 to 450Vdc) at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Rated voltage(Vdc): 10 to 50Vdc / 63 to 450Vdc<br>Capacitance change: ≦±30% of the initial value / ≦±30% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value / ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value / ≦500% of the initial specified value |

## ◆DIMENSIONS [mm]

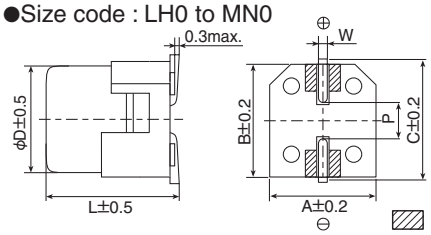
- Terminal Code : A
- Size code : F60 to MN0




Note : L±0.3 for F60 and F80

| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| F60 | 6.3 | 5.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H63 | 8 | 6.3 | 8.3 | 8.3 | 9.0 | 0.5 to 0.8 | 2.3 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| KE0 | 12.5 | 13.5 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| KG5 | 12.5 | 16.0 | 13.0 | 13.0 | 13.7 | 1.0 to 1.3 | 4.2 |
| LH0 | 16 | 16.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| LN0 | 16 | 21.5 | 17.0 | 17.0 | 18.0 | 1.0 to 1.3 | 6.5 |
| MH0 | 18 | 16.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |
| MN0 | 18 | 21.5 | 19.0 | 19.0 | 20.0 | 1.0 to 1.3 | 6.5 |

- Terminal Code : G
- Size code : LH0 to MN0




: Dummy terminals

## ◆MARKING

F60 to JA0

EX) 35V47μF

KE0 to MN0

EX) 16V1,000μF

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CAT. No. E1001M

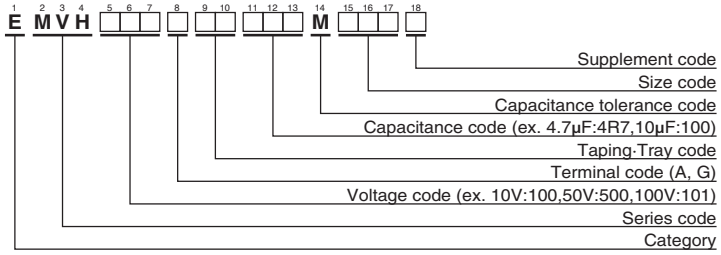
NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

## Alchip™-MVH Series

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆STANDARD RATINGS

is not solvent resistant (63 to 450Vdc).

| WV (Vdc) | Cap (μF) | Size code | ESR (Ω max/ 100kHz) | | Rated ripple current (mArms/125℃) | | Part No. |
|---|---|---|---|---|---|---|---|
| | | | 20℃ | -40℃ | 100kHz | 120Hz | |
| 10 | 100 | F80 | 0.90 | 14.0 | 110 | — | EMVH100ADA101MF80G |
| | 100 | H63 | 0.90 | 14.0 | 110 | — | EMVH100ADA101MH63G |
| | 220 | F80 | 0.90 | 14.0 | 110 | — | EMVH100ADA221MF80G |
| | 220 | H63 | 0.90 | 14.0 | 110 | — | EMVH100ADA221MH63G |
| | 220 | HA0 | 0.40 | 6.0 | 220 | — | EMVH100ADA221MHA0G |
| | 330 | HA0 | 0.40 | 6.0 | 220 | — | EMVH100ADA331MHA0G |
| | 330 | JA0 | 0.30 | 4.5 | 296 | — | EMVH100ADA331MJA0G |
| | 470 | JA0 | 0.30 | 4.5 | 296 | — | EMVH100ADA471MJA0G |
| | 1,000 | KE0 | 0.14 | 2.1 | 750 | — | EMVH100ARA102MKE0S |
| | 2,200 | LH0 | 0.10 | 1.5 | 1,000 | — | EMVH100□DA222MLH0S |
| | 2,200 | MH0 | 0.10 | 1.5 | 1,200 | — | EMVH100□DA222MMH0S |
| | 3,300 | MH0 | 0.10 | 1.5 | 1,200 | — | EMVH100□DA332MMH0S |
| | 4,700 | MN0 | 0.058 | 0.87 | 1,550 | — | EMVH100□DA472MMN0S |
| 16 | 47 | F60 | 1.6 | 24.0 | 69 | — | EMVH160ADA470MF60G |
| | 100 | HA0 | 0.40 | 6.0 | 220 | — | EMVH160ADA101MHA0G |
| | 220 | HA0 | 0.40 | 6.0 | 220 | — | EMVH160ADA221MHA0G |
| | 220 | JA0 | 0.30 | 4.5 | 296 | — | EMVH160ADA221MJA0G |
| | 330 | JA0 | 0.30 | 4.5 | 296 | — | EMVH160ADA331MJA0G |
| | 470 | KE0 | 0.14 | 2.1 | 750 | — | EMVH160ARA471MKE0S |
| | 680 | KE0 | 0.14 | 2.1 | 750 | — | EMVH160ARA681MKE0S |
| | 680 | LH0 | 0.10 | 1.5 | 1,000 | — | EMVH160□DA681MLH0S |
| | 1,000 | MH0 | 0.10 | 1.5 | 1,200 | — | EMVH160□DA102MMH0S |
| | 2,200 | MH0 | 0.10 | 1.5 | 1,200 | — | EMVH160□DA222MMH0S |
| 25 | 33 | F60 | 1.6 | 24.0 | 69 | — | EMVH250ADA330MF60G |
| | 47 | F80 | 0.90 | 14.0 | 110 | — | EMVH250ADA470MF80G |
| | 47 | H63 | 0.90 | 14.0 | 110 | — | EMVH250ADA470MH63G |
| | 100 | F80 | 0.90 | 14.0 | 110 | — | EMVH250ADA101MF80G |
| | 100 | H63 | 0.90 | 14.0 | 110 | — | EMVH250ADA101MH63G |
| | 100 | HA0 | 0.40 | 6.0 | 220 | — | EMVH250ADA101MHA0G |
| | 220 | HA0 | 0.40 | 6.0 | 220 | — | EMVH250ADA221MHA0G |
| | 220 | JA0 | 0.30 | 4.5 | 296 | — | EMVH250ADA221MJA0G |
| | 330 | JA0 | 0.30 | 4.5 | 296 | — | EMVH250ADA331MJA0G |
| | 330 | KE0 | 0.14 | 2.1 | 750 | — | EMVH250ARA331MKE0S |
| | 470 | KE0 | 0.14 | 2.1 | 750 | — | EMVH250ARA471MKE0S |
| | 470 | LH0 | 0.10 | 1.5 | 1,000 | — | EMVH250□DA471MLH0S |
| | 680 | LH0 | 0.10 | 1.5 | 1,000 | — | EMVH250□DA681MLH0S |
| | 680 | MH0 | 0.10 | 1.5 | 1,200 | — | EMVH250□DA681MMH0S |
| | 1,000 | MN0 | 0.058 | 0.87 | 1,550 | — | EMVH250□DA102MMN0S |
| 35 | 10 | F60 | 1.6 | 24.0 | 69 | — | EMVH350ADA100MF60G |
| | 22 | F60 | 1.6 | 24.0 | 69 | — | EMVH350ADA220MF60G |
| | 33 | F80 | 0.90 | 14.0 | 110 | — | EMVH350ADA330MF80G |
| | 33 | H63 | 0.90 | 14.0 | 110 | — | EMVH350ADA330MH63G |
| | 47 | F80 | 0.90 | 14.0 | 110 | — | EMVH350ADA470MF80G |
| | 47 | H63 | 0.90 | 14.0 | 110 | — | EMVH350ADA470MH63G |
| | 47 | HA0 | 0.40 | 6.0 | 220 | — | EMVH350ADA470MHA0G |
| | 100 | HA0 | 0.40 | 6.0 | 220 | — | EMVH350ADA101MHA0G |
| | 100 | JA0 | 0.30 | 4.5 | 296 | — | EMVH350ADA101MJA0G |
| | 220 | JA0 | 0.30 | 4.5 | 296 | — | EMVH350ADA221MJA0G |
| | 330 | KE0 | 0.14 | 2.1 | 750 | — | EMVH350ARA331MKE0S |
| | 330 | LH0 | 0.10 | 1.5 | 1,000 | — | EMVH350□DA331MLH0S |
| | 470 | KG5 | 0.11 | 1.5 | 900 | — | EMVH350ARA471MKG5S |
| | 470 | LH0 | 0.10 | 1.5 | 1,000 | — | EMVH350□DA471MLH0S |
| | 680 | MH0 | 0.10 | 1.5 | 1,200 | — | EMVH350□DA681MMH0S |
| 50 | 10 | F60 | 2.8 | 42.0 | 51 | — | EMVH500ADA100MF60G |
| | 10 | H63 | 1.6 | 30.0 | 83 | — | EMVH500ADA100MH63G |
| | 22 | F80 | 2.0 | 30.0 | 83 | — | EMVH500ADA220MF80G |
| | 22 | H63 | 1.6 | 30.0 | 83 | — | EMVH500ADA220MH63G |

| WV (Vdc) | Cap (μF) | Size code | ESR (Ω max/ 100kHz) | | Rated ripple current (mArms/125℃) | | Part No. |
|---|---|---|---|---|---|---|---|
| | | | 20℃ | -40℃ | 100kHz | 120Hz | |
| 50 | 33 | F80 | 2.0 | 30.0 | 83 | — | EMVH500ADA330MF80G |
| | 33 | H63 | 1.6 | 30.0 | 83 | — | EMVH500ADA330MH63G |
| | 33 | HA0 | 0.70 | 11.0 | 160 | — | EMVH500ADA330MHA0G |
| | 47 | HA0 | 0.70 | 11.0 | 160 | — | EMVH500ADA470MHA0G |
| | 47 | JA0 | 0.50 | 7.5 | 247 | — | EMVH500ADA470MJA0G |
| | 100 | JA0 | 0.50 | 7.5 | 247 | — | EMVH500ADA101MJA0G |
| | 100 | KE0 | 0.23 | 3.5 | 550 | — | EMVH500ARA101MKE0S |
| | 220 | KE0 | 0.23 | 3.5 | 550 | — | EMVH500ARA221MKE0S |
| | 220 | LH0 | 0.15 | 2.3 | 850 | — | EMVH500□DA221MLH0S |
| | 330 | KG5 | 0.18 | 2.7 | 700 | — | EMVH500ARA331MKG5S |
| | 330 | LH0 | 0.15 | 2.3 | 850 | — | EMVH500□DA331MLH0S |
| | 470 | MH0 | 0.15 | 2.3 | 920 | — | EMVH500□DA471MMH0S |
| 63 | 10 | F80 | 2.0 | 100 | 60 | — | EMVH630ADA100MF80G |
| | 10 | H63 | 2.0 | 110 | 60 | — | EMVH630ADA100MH63G |
| | 22 | HA0 | 0.70 | 35.0 | 100 | — | EMVH630ADA220MHA0G |
| | 33 | HA0 | 0.70 | 35.0 | 100 | — | EMVH630ADA330MHA0G |
| | 33 | JA0 | 0.50 | 25.0 | 170 | — | EMVH630ADA330MJA0G |
| | 47 | HA0 | 0.70 | 35.0 | 100 | — | EMVH630ADA470MHA0G |
| | 47 | JA0 | 0.50 | 25.0 | 170 | — | EMVH630ADA470MJA0G |
| | 100 | KE0 | 0.25 | 12.5 | 500 | — | EMVH630ARA101MKE0S |
| | 220 | KG5 | 0.20 | 10.0 | 600 | — | EMVH630ARA221MKG5S |
| | 330 | LH0 | 0.18 | 9.0 | 820 | — | EMVH630□DA331MLH0S |
| | 470 | LN0 | 0.11 | 5.5 | 1,100 | — | EMVH630□DA471MLN0S |
| 80 | 10 | HA0 | 0.75 | 50.0 | 70 | — | EMVH800ADA100MHA0G |
| | 22 | HA0 | 0.75 | 50.0 | 70 | — | EMVH800ADA220MHA0G |
| | 22 | JA0 | 0.55 | 35.0 | 115 | — | EMVH800ADA220MJA0G |
| | 33 | HA0 | 0.75 | 50.0 | 70 | — | EMVH800ADA330MHA0G |
| | 33 | JA0 | 0.55 | 35.0 | 115 | — | EMVH800ADA330MJA0G |
| | 47 | JA0 | 0.55 | 35.0 | 115 | — | EMVH800ADA470MJA0G |
| 100 | 10 | HA0 | 0.75 | 50.0 | 70 | — | EMVH101ADA100MHA0G |
| | 22 | HA0 | 0.75 | 50.0 | 70 | — | EMVH101ADA220MHA0G |
| | 22 | JA0 | 0.55 | 35.0 | 115 | — | EMVH101ADA220MJA0G |
| | 33 | JA0 | 0.55 | 35.0 | 115 | — | EMVH101ADA330MJA0G |
| | 47 | KE0 | 0.33 | 16.5 | 450 | — | EMVH101ARA470MKE0S |
| | 68 | KG5 | 0.26 | 13.0 | 550 | — | EMVH101ARA680MKG5S |
| | 100 | LH0 | 0.24 | 12.0 | 650 | — | EMVH101□DA101MLH0S |
| | 220 | MN0 | 0.16 | 8.0 | 950 | — | EMVH101□DA221MMN0S |
| 160 | 10 | KE0 | — | — | — | 100 | EMVH161ARA100MKE0S |
| | 22 | LH0 | — | — | — | 180 | EMVH161□DA220MLH0S |
| | 33 | MH0 | — | — | — | 245 | EMVH161□DA330MMH0S |
| | 68 | MN0 | — | — | — | 380 | EMVH161□DA680MMN0S |
| 200 | 10 | KE0 | — | — | — | 100 | EMVH201ARA100MKE0S |
| | 22 | LH0 | — | — | — | 180 | EMVH201□DA220MLH0S |
| | 33 | LN0 | — | — | — | 250 | EMVH201□DA330MLN0S |
| | 33 | MH0 | — | — | — | 245 | EMVH201□DA330MMH0S |
| | 47 | MN0 | — | — | — | 315 | EMVH201□DA470MMN0S |
| 250 | 10 | KG5 | — | — | — | 110 | EMVH251ARA100MKG5S |
| | 22 | LN0 | — | — | — | 200 | EMVH251□DA220MLN0S |
| | 22 | MH0 | — | — | — | 205 | EMVH251□DA220MMH0S |
| | 33 | MN0 | — | — | — | 260 | EMVH251□DA330MMN0S |
| 400 | 4.7 | KE0 | — | — | — | 70 | EMVH401ARA4R7MKE0S |
| | 6.8 | LH0 | — | — | — | 100 | EMVH401□DA6R8MLH0S |
| | 10 | LN0 | — | — | — | 140 | EMVH401□DA100MLN0S |
| | 10 | MH0 | — | — | — | 135 | EMVH401□DA100MMH0S |
| 450 | 3.3 | KG5 | — | — | — | 65 | EMVH451ARA3R3MKG5S |
| | 4.7 | LH0 | — | — | — | 85 | EMVH451□DA4R7MLH0S |
| | 10 | MN0 | — | — | — | 145 | EMVH451□DA100MMN0S |

□ : Enter the appropriate terminal code.

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NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

## Alchip™-MHB Series

- ESR : Less than MVH
- Endurance : 2,000 hours at 125℃
- Rated Voltage Range : 10 to 35V
- Nominal capacitance range : 47 to 470μF
- Solvent resistant type
- **RoHS Compliant**

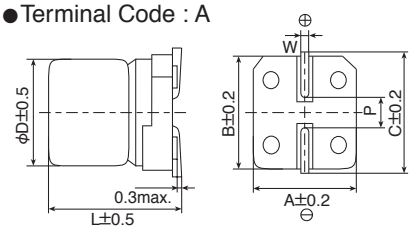
MHB
↑ Lower ESR
MVH

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| Category Temperature Range | -40 to +125℃ | | | | | | |
| Rated Voltage Range | 10 to 35Vdc | | | | | | |
| Capacitance Tolerance | ±20%(M) | | | | | | (20℃, 120Hz) |
| Leakage Current | I=0.01CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃ after 2 minutes) |
| Dissipation Factor (tanδ) | Rated voltage(Vdc) | 10V | 16V | 25V | 35V | | |
| | tanδ (Max.) | 0.24 | 0.20 | 0.16 | 0.14 | | (20℃, 120Hz) |
| Low Temperature Characteristics (Max. impedance Ratio) | Rated voltage(Vdc) | 10V | 16V | 25V | 35V | | |
| | Z(-25℃)/Z(+20℃) | 3 | 2 | 2 | 2 | | |
| | Z(-40℃)/Z(+20℃) | 4 | 3 | 3 | 3 | | (120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 125℃. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| | ESR(-40℃, 400kHz) | HA0 :≦ 6Ω<br>JA0 : ≦4.5Ω | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |

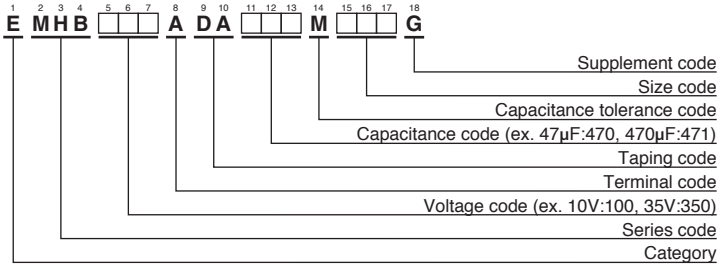
## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 16V220μF

●Rated voltage symbol

| Rated voltage (Vdc) | Symbol |
|---|---|
| 10 | A |
| 16 | C |
| 25 | E |
| 35 | V |

## ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Size code | ESR (Ω max/100k to 400kHz) | | Rated ripple current (mArms/125℃, 100k to 400kHz) | Part No. |
|---|---|---|---|---|---|---|
| | | | 20℃ | -40℃ | | |
| 10 | 330 | HA0 | 0.3 | 3.0 | 240 | EMHB100ADA331MHA0G |
| | 470 | JA0 | 0.2 | 2.0 | 330 | EMHB100ADA471MJA0G |
| 16 | 100 | HA0 | 0.3 | 3.0 | 240 | EMHB160ADA101MHA0G |
| | 220 | HA0 | 0.3 | 3.0 | 240 | EMHB160ADA221MHA0G |
| 25 | 100 | HA0 | 0.3 | 3.0 | 240 | EMHB250ADA101MHA0G |
| | 220 | HA0 | 0.3 | 3.0 | 240 | EMHB250ADA221MHA0G |
| | 330 | JA0 | 0.2 | 2.0 | 330 | EMHB250ADA331MJA0G |
| 35 | 47 | HA0 | 0.3 | 3.0 | 240 | EMHB350ADA470MHA0G |
| | 100 | HA0 | 0.3 | 3.0 | 240 | EMHB350ADA101MHA0G |
| | 100 | JA0 | 0.2 | 2.0 | 330 | EMHB350ADA101MJA0G |
| | 220 | JA0 | 0.2 | 2.0 | 330 | EMHB350ADA221MJA0G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

## Alchip™-MHJ Series

- Endurance : 2,000 hours at 125℃
- Rated voltage range : 10 to 35V
- Nominal capacitance range : 47 to 470μF
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

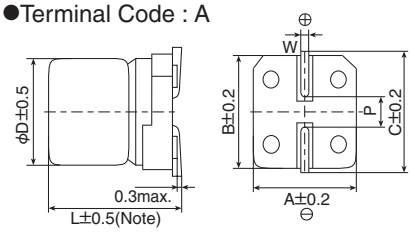
MHJ
↑ Lower ESR
MHB

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | |
|---|---|---|---|---|---|---|
| Category Temperature Range | -40 to +125℃ | | | | | |
| Rated Voltage Range | 10 to 35Vdc | | | | | |
| Capacitance Tolerance | ±20%(M) | | | | | (20℃, 120Hz) |
| Leakage Current | I=0.01CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | (at 20℃ after 2 minutes) |
| Dissipation Factor (tanδ) | Rated voltage(Vdc) | 10V | 16V | 25V | 35V | |
| | tanδ (Max.) | 0.30 | 0.23 | 0.18 | 0.16 | (20℃, 120Hz) |
| Low Temperature Characteristics (Max. impedance Ratio) | Rated voltage(Vdc) | 10V | 16V | 25V | 35V | |
| | Z(-25℃)/Z(+20℃) | 3 | 2 | 2 | 2 | |
| | Z(-40℃)/Z(+20℃) | 4 | 3 | 3 | 3 | (120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 125℃. | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | |
| | Leakage current | ≦The initial specified value | | | | |
| | ESR (Ωmax./100kHz) | | F80 | HA0 | JA0 | |
| | | 20℃ | 3.5 | 0.60 | 0.40 | |
| | | -40℃ | 40 | 4.5 | 3.5 | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | |
| | Leakage current | ≦The initial specified value | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : A




Note : L±0.3 for F80

| Size code | ϕD | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| F80 | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆PART NUMBERING SYSTEM

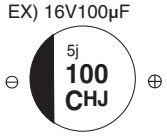
| 1 | 2 3 4 | 5 6 7 | 8 | 9 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| E | MHJ | | A | DA | | M | | G |

- 18 Supplement code
- 15 16 17 Size code
- 14 Capacitance tolerance code
- 11 12 13 Capacitance code (ex. 47μF:470, 100μF:101)
- 9 10 Taping code
- 8 Terminal code
- 5 6 7 Voltage code (ex. 16V:160, 35V:350)
- 2 3 4 Series code
- 1 Category

Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 16V100μF




●Rated voltage symbol

| Rated voltage (Vdc) | Symbol |
|---|---|
| 10 | A |
| 16 | C |
| 25 | E |
| 35 | V |

## ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Size code | ESR (Ωmax/100kHz) | | Rated ripple current (mArms/125℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| | | | 20℃ | -40℃ | | |
| 10 | 220 | HA0 | 0.15 | 3.0 | 350 | EMHJ100ADA221MHA0G |
| | 330 | HA0 | 0.15 | 3.0 | 350 | EMHJ100ADA331MHA0G |
| | 330 | JA0 | 0.12 | 2.0 | 550 | EMHJ100ADA331MJA0G |
| | 470 | JA0 | 0.12 | 2.0 | 550 | EMHJ100ADA471MJA0G |
| 16 | 100 | F80 | 0.45 | 5.0 | 220 | EMHJ160ADA101MF80G |
| | 100 | HA0 | 0.15 | 3.0 | 350 | EMHJ160ADA101MHA0G |
| | 220 | HA0 | 0.15 | 3.0 | 350 | EMHJ160ADA221MHA0G |
| | 330 | JA0 | 0.12 | 2.0 | 550 | EMHJ160ADA331MJA0G |
| | 470 | JA0 | 0.12 | 2.0 | 550 | EMHJ160ADA471MJA0G |
| 25 | 100 | HA0 | 0.15 | 3.0 | 350 | EMHJ250ADA101MHA0G |
| | 220 | JA0 | 0.12 | 2.0 | 550 | EMHJ250ADA221MJA0G |
| | 330 | JA0 | 0.12 | 2.0 | 550 | EMHJ250ADA331MJA0G |
| 35 | 47 | F80 | 0.45 | 5.0 | 220 | EMHJ350ADA470MF80G |
| | 47 | HA0 | 0.15 | 3.0 | 350 | EMHJ350ADA470MHA0G |
| | 100 | HA0 | 0.15 | 3.0 | 350 | EMHJ350ADA101MHA0G |
| | 220 | JA0 | 0.12 | 2.0 | 550 | EMHJ350ADA221MJA0G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low ESR, 105℃

## Alchip™-MKB Series

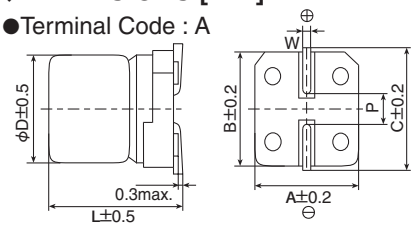
- Low ESR
- Endurance : 3,000 hours at 105℃
- Rated voltage 400V, Capacitance 2.2 to 4.7μF
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | |
|---|---|---|---|
| Category Temperature Range | -40 to +105℃ | | |
| Rated Voltage Range | 400Vdc | | |
| Capacitance Tolerance | ±20%(M) | | (20℃, 120Hz) |
| Leakage Current | I=0.04CV+100(max.)<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | (at 20℃ after 1 minute) |
| Dissipation Factor (tanδ) | Rated voltage(Vdc) | 400V | |
| | tanδ (Max.) | 0.25 | (20℃, 120Hz) |
| Low Temperature Characteristics (Max. impedance Ratio) | Rated voltage(Vdc) | 400V | |
| | Z(-25℃)/Z(+20℃) | 6 | |
| | Z(-40℃)/Z(+20℃) | 10 | (120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 3,000 hours at 105℃. | | |
| | Capacitance change | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |
| Shelf life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | |
| | Capacitance change | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |

## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| HA0 | 8 | 10.0 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| JA0 | 10 | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

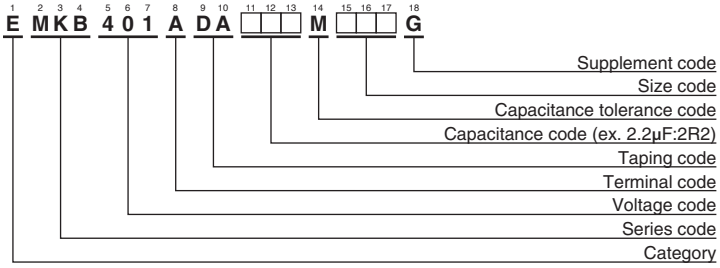
## ◆MARKING

EX) 400V3.9μF

●Rated voltage symbol

| Rated voltage (Vdc) | Symbol |
|---|---|
| 400 | 2G |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | ESR (Ωmax/120Hz) 20℃ | ESR (Ωmax/120Hz) -40℃ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|---|
| 400 | 2.2 | HA0 | 20 | 1,000 | 26 | EMKB401ADA2R2MHA0G |
| | 3.3 | JA0 | 10 | 500 | 37 | EMKB401ADA3R3MJA0G |
| | 3.9 | JA0 | 10 | 500 | 38 | EMKB401ADA3R9MJA0G |
| | 4.7 | JA0 | 10 | 500 | 39 | EMKB401ADA4R7MJA0G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

## Alchip™-MV-BP Series

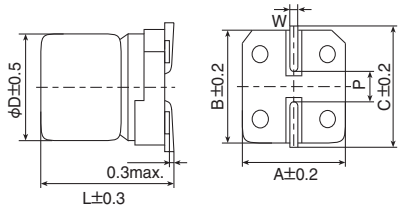
- Bi-polar chip type for the circuit, of which polarity is frequently reversed
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.05CV or 10μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.32 | 0.26 | 0.24 | 0.22 | 0.20 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 10 | 8 | 6 | 4 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃, however the polarization shall be reversed every 250 hours. | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS **C 5101-4**. | | | | | | | |
| | Capacitance change | ≦±15% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

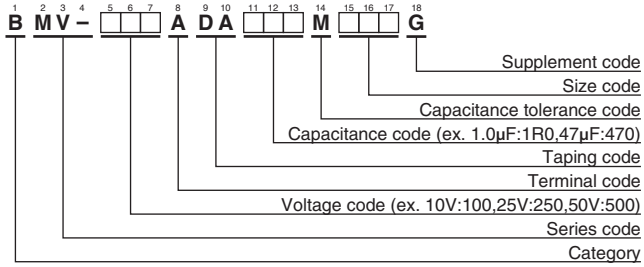
## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D55 | 4 | 5.2 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E55 | 5 | 5.2 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F55 | 6.3 | 5.2 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 35V4.7μF

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 10 | D55 | 0.32 | 13 | BMV-6R3ADA100MD55G |
| | 22 | E55 | 0.32 | 23 | BMV-6R3ADA220ME55G |
| | 47 | F55 | 0.32 | 36 | BMV-6R3ADA470MF55G |
| 10 | 33 | F55 | 0.26 | 33 | BMV-100ADA330MF55G |
| 16 | 4.7 | D55 | 0.24 | 11 | BMV-160ADA4R7MD55G |
| | 10 | E55 | 0.24 | 18 | BMV-160ADA100ME55G |
| | 22 | F55 | 0.24 | 28 | BMV-160ADA220MF55G |
| 25 | 3.3 | D55 | 0.22 | 9.0 | BMV-250ADA3R3MD55G |
| 35 | 2.2 | D55 | 0.20 | 8.0 | BMV-350ADA2R2MD55G |
| | 4.7 | E55 | 0.20 | 13 | BMV-350ADA4R7ME55G |
| | 10 | F55 | 0.20 | 21 | BMV-350ADA100MF55G |
| 50 | 1.0 | D55 | 0.20 | 5.5 | BMV-500ADA1R0MD55G |
| | 2.2 | E55 | 0.20 | 9.0 | BMV-500ADA2R2ME55G |
| | 3.3 | E55 | 0.20 | 11 | BMV-500ADA3R3ME55G |
| | 4.7 | F55 | 0.20 | 14 | BMV-500ADA4R7MF55G |

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CAT. No. E1001M

NIPPON CHEMI-CON

# SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

## Alchip™-MVK-BP Series

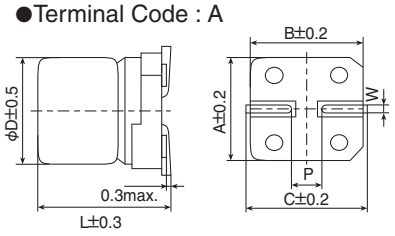
- Bi-polar chip type for the circuit, of which polarity is frequently reversed
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.05CV or 10μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.35 | 0.26 | 0.24 | 0.20 | 0.18 | 0.18 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 10 | 8 | 6 | 4 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃, however the polarization shall be reversed every 250 hours. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

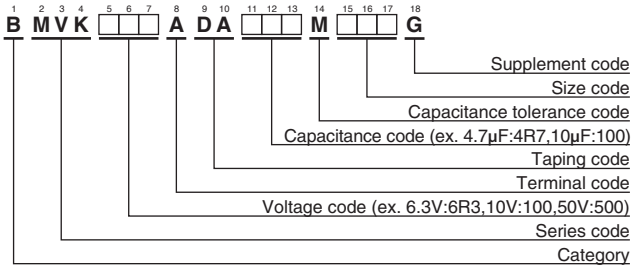
## ◆DIMENSIONS [mm]

●Terminal Code : A




| Size code | D | L | A | B | C | W | P |
|---|---|---|---|---|---|---|---|
| D60 | 4 | 5.7 | 4.3 | 4.3 | 5.1 | 0.5 to 0.8 | 1.0 |
| E60 | 5 | 5.7 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F60 | 6.3 | 5.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (surface mount type)"

## ◆MARKING

EX) 35V4.7μF

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Size code | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 10 | D60 | 0.35 | 14 | BMVK6R3ADA100MD60G |
| | 22 | E60 | 0.35 | 25 | BMVK6R3ADA220ME60G |
| | 47 | F60 | 0.35 | 39 | BMVK6R3ADA470MF60G |
| 10 | 33 | F60 | 0.26 | 35 | BMVK100ADA330MF60G |
| 16 | 4.7 | D60 | 0.24 | 12 | BMVK160ADA4R7MD60G |
| | 10 | E60 | 0.24 | 20 | BMVK160ADA100ME60G |
| | 22 | F60 | 0.24 | 32 | BMVK160ADA220MF60G |
| 25 | 3.3 | D60 | 0.20 | 10 | BMVK250ADA3R3MD60G |
| 35 | 2.2 | D60 | 0.18 | 8.8 | BMVK350ADA2R2MD60G |
| | 4.7 | E60 | 0.18 | 15 | BMVK350ADA4R7ME60G |
| | 10 | F60 | 0.18 | 23 | BMVK350ADA100MF60G |
| 50 | 1.0 | D60 | 0.18 | 5.5 | BMVK500ADA1R0MD60G |
| | 2.2 | E60 | 0.18 | 10 | BMVK500ADA2R2ME60G |
| | 3.3 | E60 | 0.18 | 13 | BMVK500ADA3R3ME60G |
| | 4.7 | F60 | 0.18 | 16 | BMVK500ADA4R7MF60G |

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CAT. No. E1001M

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

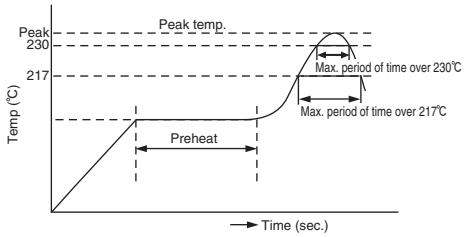
Surface Mount

# RECOMMENDED REFLOW SOLDERING CONDITIONS

## Alchip™ MVA/MVE/MZJ/MZA/MVY/MZF/MZE/MZK/MLA/MLF/MLE/MLK/ MVL/MVJ/MVH/MHB/MHJ/MKB/MV-BP/MVK-BP

The following conditions are recommended for air convection and infrared reflow soldering on the SMD products on to a glass epoxy circuit boards by cream solder. The dimensions of the glass epoxy boards with resist are 90×50×0.8mm for D55 to KG5 case code SMD capacitors and 180×90×0.8mm for LH0 to MN0 case codes SMD capacitors.
The temperatures shown are the surface temperature values on the top of the can and on the capacitor terminals.
Reflow should be performed twice or less.
Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.
Consult with us when performing reflow profile in IPC / JEDEC (J-STD-020)

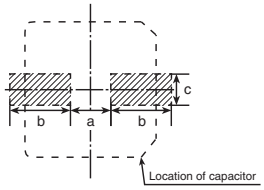
●Recommended soldering heat conditions (Except for Conductive Polymer Aluminum Solid Capacitors)




| SMD type | Size code | Voltage range ($V_{DC}$) | Preheat | Time maintained above 217℃ | Time maintained above 230℃ | Peak temp. | Reflow number |
|---|---|---|---|---|---|---|---|
| Vertical | D55 to F90 | 4 to 63V (Except 63V for MVH) | 150 to 180℃ 120sec. max. | 90sec. max | 60sec. max. | 260℃max. | 2 times or less |
| | | 63V(MVH), 80V | | 60sec. max. | 40sec. max. | 250℃max. | 2 times or less |
| | H63 to JA0 | 4 to 50V | | 60sec. max. | 30sec. max. | 245℃max. | 2 times or less |
| | | 63 to 100, 400V | | 30sec. max. | 20sec. max. | 240℃max. | 2 times or less |
| | KE0 to MN0 | 6.3 to 50V | | 30sec. max. | 20sec. max. | 240℃max. | 2 times or less |
| | | 63 to 450V | | 20sec. max. | — | 230℃max. | 2 times or less |

●Recommended Solder Land on PC Board

Series : MVA/MVE/MZJ/MZA/MVY/MZF/MZE/MZK/MLA/MLF/ MLE/MLK/MVL/MVJ/MVH/MHB/MHJ/MKB/MV-BP MVK-BP




: Solder land on PC board

[mm]

| Size code | Terminal code : A | | | Terminal code : G | | |
|---|---|---|---|---|---|---|
| | a | b | c | a | b | c |
| D55, D60, D61, D73 | 1.0 | 2.6 | 1.6 | | | |
| E55, E60, E61, E73 | 1.4 | 3.0 | 1.6 | | | |
| F55, F60, F61, F73, F80, F90 | 1.9 | 3.5 | 1.6 | | | |
| H63 | 2.3 | 4.5 | 1.6 | | | |
| HA0 | 3.1 | 4.2 | 2.2 | 3.1 | 4.2 | 3.5 |
| JA0 | 4.5 | 4.4 | 2.2 | 4.5 | 4.4 | 3.5 |
| KE0, KG5 | 4.0 | 5.7 | 2.5 | 3.4 | 6.3 | 9.3 |
| LH0, LN0 | 6.0 | 6.9 | 2.5 | 4.7 | 7.8 | 9.6 |
| MH0, MN0 | 6.0 | 7.9 | 2.5 | 4.7 | 8.8 | 9.6 |

## ◆PRECAUTIONS FOR USERS

### Soldering method
The capacitors of Alchip-series have no capability to withstand such dip or wave soldering as totally immerses components into a solder bath.

### Reflow soldering
Reflow the capacitors within recommended reflow soldering conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult us if other reflow conditions are employed.

1.Location of components : Temperature increases at the edge of PC board more than the center.
2.Population of PC board : The lower the component population is, the more temperature rises.
3.Material of PC board : A ceramic made board needs more heat than a glass epoxy made board. The heat increase may cause damage to the capacitors.
4.Thickness of PC board : A thicker board needs more heat than a thinner board. The heat increase may damage the capacitors.
5.Size of PC board : A larger board needs more heat than a smaller board. The heat increase may damage the capacitors.
6.Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7.Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8.Vapor phase soldering (VPS) is not used.

### Rework of soldering
Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

### Mechanical stress
Do not use the capacitors for lifting the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

### Cleaning assembly board
Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

### Coating on assembly board
1.Before curing coating material, remove the cleaning solvents from the assembly board.
2.Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

### Molding with resin
Internal chemical reaction gradually produces gas in the capacitor; then, increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine contained resin will penetrate into the end seal, reach the inside element, and cause damage of the capacitor.

### Others
Refer to PRECAUTIONS AND GUIDELINES.

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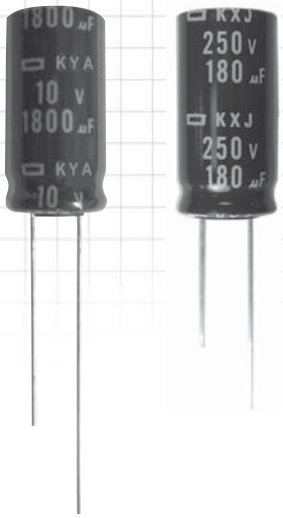
# Miniature Aluminum Electrolytic Capacitors



NIPPON CHEMI-CON

# PART NUMBERING SYSTEM

## Product code guide (Radial lead type)

**(Example : KMQ series, 450V-100μF, φ18×40L, Long lead with bulk)**

Please refer to the following table

| Contents | Code |
|---|---|
| Polar | E |
| Bi-polar | B |

| Series | Code |
|---|---|
| KMQ | KMQ |
| FL | FL- |

| Type | Code |
|---|---|
| Radial lead | E |

| Tol.(%) | Code |
|---|---|
| ±20 | M |
| ±10 | K |
| -10～+30 | Q |
| -10～+50 | T |

| Sleeve materia | Terminal plating material | Code |
|---|---|---|
| PET | Sn-Bi | D |
| | Sn | S |
| Sleeveless (Coating case) | Sn-Bi | G |
| | Sn | H |

| 1 | 2 3 4 | 5 6 7 | 8 | 9 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| E | KMQ | 451 | E | LL | 101 | M | M40 | S |
| Category | Series code | Voltage code | Terminal code | Lead forming/ Taping code | Capacitance code | Capacitance tolerance | Size code | Supplement code |

| Voltage(V) | Code |
|---|---|
| 4 | 4R0 |
| 6.3 | 6R3 |
| 10 | 100 |
| 25 | 250 |
| 100 | 101 |
| 250 | 251 |
| ⋮ | ⋮ |

| Type | Contents | Code |
|---|---|---|
| Lead forming (Bulk) | Long Lead | LL |
| | Cut(3.5mm) | C3 |
| | Cut(5.0mm) | C5 |
| | Forming Cut | FC |
| | Snap-in φD=5～8 | FM |
| | Snap-in φD=10～18 | MC |
| | Snap-in φD=20～22 | RC |
| | Horizontal | BC |
| Taping | Straight | TD |
| | Gradual forming | |
| | Straight (Skip a hole) | TE |
| | Forming (F=2.5mm) | TA |
| | Forming (F=3.5mm) | TB |
| | Forming (F=5.0mm) | TC |

Refer to product guide for lead forming and taping specifications.

| Cap.(μF) | Code |
|---|---|
| 1.0 | 1R0 |
| 4.7 | 4R7 |
| 10 | 100 |
| 47 | 470 |
| 100 | 101 |
| 470 | 471 |
| 1,000 | 102 |
| ⋮ | ⋮ |

| φD(mm) | Code |
|---|---|
| 4 | D |
| 5 | E |
| 6.3 | F |
| 8 | H |
| 10 | J |
| 12.5 | K |
| 14.5 | U |
| 16 | L |
| 18 | M |
| 20 | N |
| 22 | P |

| L(mm) | Code |
|---|---|
| 5 | 05 |
| 7 | 07 |
| 9 | 09 |
| 11 | 11 |
| 11.5 | B5 |
| 12.5 | C5 |
| 13 | 13 |
| 15 | 15 |
| 16 | 16 |
| 20 | 20 |
| 25 | 25 |
| 30 | 30 |
| 31.5 | N3 |
| 35 | 35 |
| 35.5 | P1 |
| 40 | 40 |
| 45 | 45 |
| 50 | 50 |
| 55 | 55 |
| 60 | 60 |

*Refer to the appendix (Part number) for codes not listed here.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 5mm height, 85℃

# SRM Series

- Downsized from current standard SRE series
- 5mm height
- Endurance : 1,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

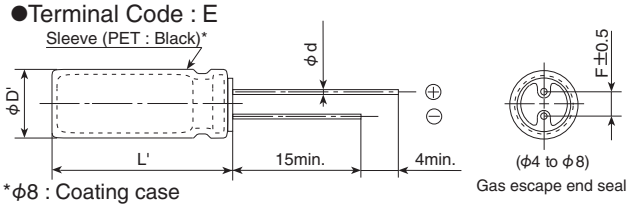
SRM
↑ Downsized
SRE

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃ | | | | | | | | |
| **Rated Voltage Range** | 4 to 50Vdc | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.40 | 0.38 | 0.30 | 0.23 | 0.17 | 0.15 | 0.13 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 7 | 4 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 15 | 8 | 8 | 6 | 4 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃. | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |

## ◆DIMENSIONS [mm]

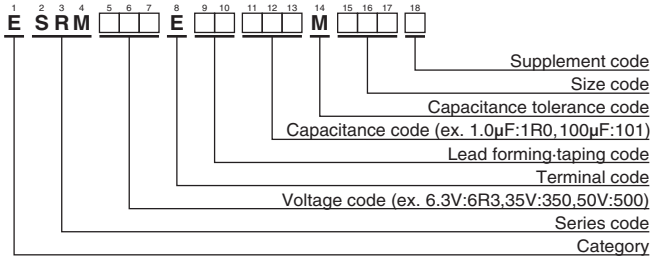
●Terminal Code : E




*φ8 : Coating case

| φD | 4 | 5 | 6.3 | 8 |
|---|---|---|---|---|
| φd | 0.45 | 0.45 | 0.45 | 0.45 |
| F | 1.5 | 2.0 | 2.5 | 2.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.0max. | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 4 | 100 | 5×5 | 0.40 | 55 | ESRM4R0E□□101ME05D |
| | 220 | 6.3×5 | 0.40 | 88 | ESRM4R0E□□221MF05D |
| 6.3 | 22 | 4×5 | 0.38 | 22 | ESRM6R3E□□220MD05D |
| | 47 | 4×5 | 0.38 | 40 | ESRM6R3E□□470MD05D |
| | 330 | 8×5 | 0.38 | 141 | ESRM6R3E□□331MH05G |
| 10 | 33 | 4×5 | 0.30 | 36 | ESRM100E□□330MD05D |
| | 100 | 6.3×5 | 0.30 | 78 | ESRM100E□□101MF05D |
| | 220 | 8×5 | 0.30 | 148 | ESRM100E□□221MH05G |
| 16 | 10 | 4×5 | 0.23 | 18 | ESRM160E□□100MD05D |
| | 22 | 4×5 | 0.23 | 33 | ESRM160E□□220MD05D |
| | 33 | 5×5 | 0.23 | 47 | ESRM160E□□330ME05D |
| | 47 | 5×5 | 0.23 | 55 | ESRM160E□□470ME05D |
| 25 | 4.7 | 4×5 | 0.17 | 13 | ESRM250E□□4R7MD05D |
| | 10 | 4×5 | 0.17 | 25 | ESRM250E□□100MD05D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 25 | 22 | 5×5 | 0.17 | 41 | ESRM250E□□220ME05D |
| | 47 | 6.3×5 | 0.17 | 63 | ESRM250E□□470MF05D |
| | 100 | 8×5 | 0.17 | 116 | ESRM250E□□101MH05G |
| 35 | 3.3 | 4×5 | 0.15 | 12 | ESRM350E□□3R3MD05D |
| | 33 | 6.3×5 | 0.15 | 56 | ESRM350E□□330MF05D |
| | 47 | 8×5 | 0.15 | 85 | ESRM350E□□470MH05G |
| 50 | 1.0 | 4×5 | 0.13 | 7.2 | ESRM500E□□1R0MD05D |
| | 2.2 | 4×5 | 0.13 | 10 | ESRM500E□□2R2MD05D |
| | 3.3 | 4×5 | 0.13 | 14 | ESRM500E□□3R3MD05D |
| | 4.7 | 4×5 | 0.13 | 19 | ESRM500E□□4R7MD05D |
| | 10 | 5×5 | 0.13 | 31 | ESRM500E□□100ME05D |
| | 22 | 6.3×5 | 0.13 | 49 | ESRM500E□□220MF05D |
| | 33 | 8×5 | 0.13 | 76 | ESRM500E□□330MH05G |

□□ : Enter the appropriate lead forming or taping code.

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 85℃

# SRE Series

SRM
Downsized
SRE

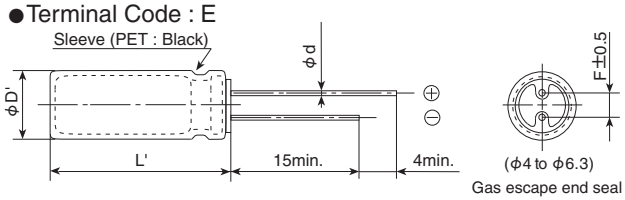
- ●5mm height
- ●Endurance : 1,000 hours at 85℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃ | | | | | | | | |
| **Rated Voltage Range** | 4 to 50Vdc | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.35 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 7 | 4 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 15 | 10 | 8 | 6 | 4 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃. | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |

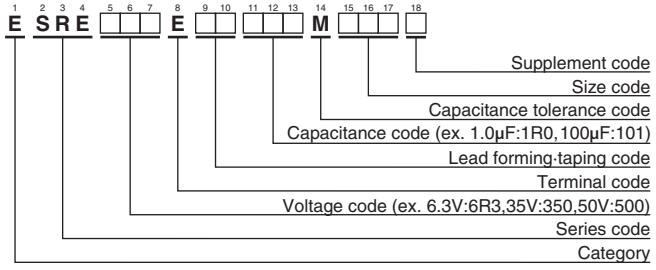
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 4 | 5 | 6.3 |
|---|---|---|---|
| φd | 0.45 | 0.45 | 0.45 |
| F | 1.5 | 2.0 | 2.5 |
| φD' | φD+0.5max. | | |
| L' | L+1.0max. | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 4 | 33 | 4×5 | 0.35 | 23 | ESRE4R0E□□330MD05D |
| 6.3 | 10 | 4×5 | 0.24 | 12 | ESRE6R3E□□100MD05D |
| | 22 | 4×5 | 0.24 | 23 | ESRE6R3E□□220MD05D |
| | 47 | 5×5 | 0.24 | 38 | ESRE6R3E□□470ME05D |
| | 100 | 6.3×5 | 0.24 | 60 | ESRE6R3E□□101MF05D |
| 10 | 33 | 5×5 | 0.20 | 35 | ESRE100E□□330ME05D |
| 16 | 4.7 | 4×5 | 0.16 | 10 | ESRE160E□□4R7MD05D |
| | 10 | 4×5 | 0.16 | 17 | ESRE160E□□100MD05D |
| | 22 | 5×5 | 0.16 | 32 | ESRE160E□□220ME05D |
| | 47 | 6.3×5 | 0.16 | 50 | ESRE160E□□470MF05D |
| 25 | 3.3 | 4×5 | 0.14 | 9.3 | ESRE250E□□3R3MD05D |
| | 4.7 | 4×5 | 0.14 | 12 | ESRE250E□□4R7MD05D |
| | 33 | 6.3×5 | 0.14 | 45 | ESRE250E□□330MF05D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 2.2 | 4×5 | 0.12 | 8.3 | ESRE350E□□2R2MD05D |
| | 3.3 | 4×5 | 0.12 | 11 | ESRE350E□□3R3MD05D |
| | 4.7 | 4×5 | 0.12 | 15 | ESRE350E□□4R7MD05D |
| | 10 | 5×5 | 0.12 | 25 | ESRE350E□□100ME05D |
| | 22 | 6.3×5 | 0.12 | 40 | ESRE350E□□220MF05D |
| 50 | 1.0 | 4×5 | 0.10 | 6.2 | ESRE500E□□1R0MD05D |
| | 2.2 | 4×5 | 0.10 | 10 | ESRE500E□□2R2MD05D |
| | 3.3 | 4×5 | 0.10 | 14 | ESRE500E□□3R3MD05D |
| | 4.7 | 5×5 | 0.10 | 19 | ESRE500E□□4R7ME05D |
| | 10 | 6.3×5 | 0.10 | 29 | ESRE500E□□100MF05D |

□□ : Enter the appropriate lead forming or taping code.

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CAT. No. E1001M

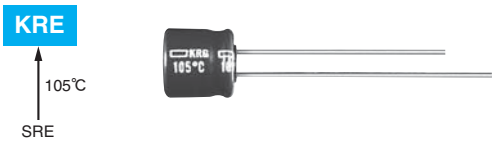
NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 105℃

## KRE Series

- 5mm height
- Endurance : 1,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

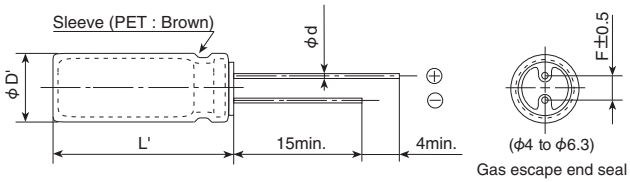



## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Category Temperature Range | −55 to +105℃ | | | | | | | |
| Rated Voltage Range | 6.3 to 50Vdc | | | | | | | |
| Capacitance Tolerance | ±20% (M) | | | | | | | (at 20℃, 120Hz) |
| Leakage Current | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃ after 2 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.27 | 0.23 | 0.19 | 0.15 | 0.13 | 0.11 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 3 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 9 | 7 | 5 | 3 | 3 | 3 | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃. | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

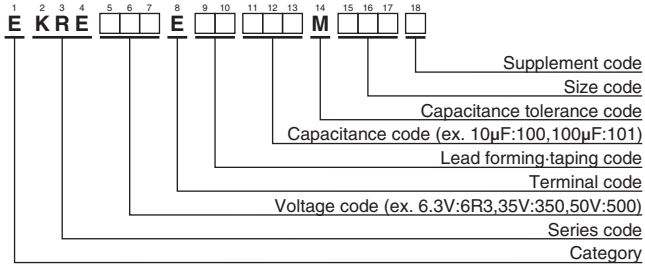
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 4 | 5 | 6.3 |
|---|---|---|---|
| φd | 0.45 | 0.45 | 0.45 |
| F | 1.5 | 2.0 | 2.5 |
| φD' | φD+0.5max. | | |
| L' | L+1.0max. | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 10 | 4×5 | 0.27 | 12 | EKRE6R3E□□100MD05D |
| | 22 | 4×5 | 0.27 | 21 | EKRE6R3E□□220MD05D |
| | 47 | 5×5 | 0.27 | 36 | EKRE6R3E□□470ME05D |
| | 100 | 6.3×5 | 0.27 | 56 | EKRE6R3E□□101MF05D |
| 10 | 33 | 5×5 | 0.23 | 34 | EKRE100E□□330ME05D |
| 16 | 4.7 | 4×5 | 0.19 | 9.4 | EKRE160E□□4R7MD05D |
| | 10 | 4×5 | 0.19 | 16 | EKRE160E□□100MD05D |
| | 22 | 5×5 | 0.19 | 30 | EKRE160E□□220ME05D |
| | 47 | 6.3×5 | 0.19 | 48 | EKRE160E□□470MF05D |
| 25 | 3.3 | 4×5 | 0.15 | 8.8 | EKRE250E□□3R3MD05D |
| | 4.7 | 4×5 | 0.15 | 12 | EKRE250E□□4R7MD05D |
| | 33 | 6.3×5 | 0.15 | 45 | EKRE250E□□330MF05D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 2.2 | 4×5 | 0.13 | 7.7 | EKRE350E□□2R2MD05D |
| | 3.3 | 4×5 | 0.13 | 11 | EKRE350E□□3R3MD05D |
| | 4.7 | 4×5 | 0.13 | 15 | EKRE350E□□4R7MD05D |
| | 10 | 5×5 | 0.13 | 25 | EKRE350E□□100ME05D |
| | 22 | 6.3×5 | 0.13 | 40 | EKRE350E□□220MF05D |
| 50 | 1.0 | 4×5 | 0.11 | 5.6 | EKRE500E□□1R0MD05D |
| | 2.2 | 4×5 | 0.11 | 10 | EKRE500E□□2R2MD05D |
| | 3.3 | 4×5 | 0.11 | 14 | EKRE500E□□3R3MD05D |
| | 4.7 | 5×5 | 0.11 | 19 | EKRE500E□□4R7ME05D |
| | 10 | 6.3×5 | 0.11 | 29 | EKRE500E□□100MF05D |

□□ : Enter the appropriate lead forming or taping code.

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 85℃

# SRA Series

SRG → Downsized → SRA

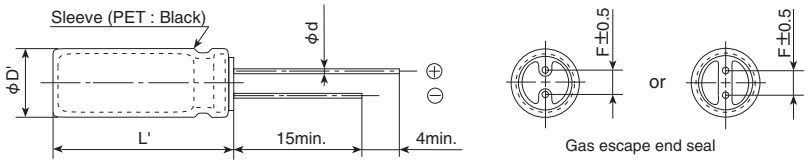
- ●7mm height
- ●Endurance : 1,000 hours at 85℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃ | | | | | | | | | |
| **Rated Voltage Range** | 4 to 63Vdc | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | |
| | tanδ (Max.) | 0.35 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | |
| | Z(−25℃)/Z(+20℃) | 4 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 10 | 10 | 8 | 6 | 4 | 3 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃. | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS **C 5101-4**. | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |

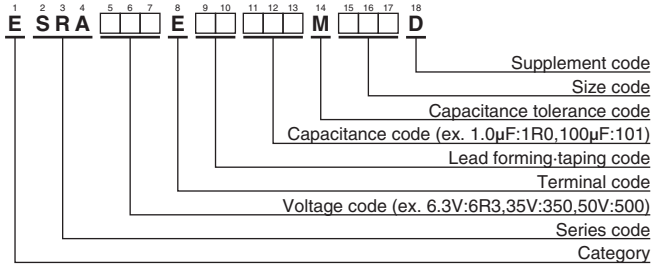
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 4 | 5 | 6.3 | 8 |
|---|---|---|---|---|
| φd | 0.45 | 0.45 | 0.45 | 0.45 |
| F | 1.5 | 2.0 | 2.5 | 3.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.0max. | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 4 | 33 | 4×7 | 0.35 | 26 | ESRA4R0E□□330MD07D |
| | 47 | 4×7 | 0.35 | 34 | ESRA4R0E□□470MD07D |
| | 100 | 5×7 | 0.35 | 61 | ESRA4R0E□□101ME07D |
| | 220 | 6.3×7 | 0.35 | 95 | ESRA4R0E□□221MF07D |
| | 470 | 8×7 | 0.35 | 154 | ESRA4R0E□□471MH07D |
| 6.3 | 22 | 4×7 | 0.24 | 31 | ESRA6R3E□□220MD07D |
| | 47 | 5×7 | 0.24 | 47 | ESRA6R3E□□470ME07D |
| | 330 | 8×7 | 0.24 | 156 | ESRA6R3E□□331MH07D |
| 10 | 33 | 5×7 | 0.20 | 43 | ESRA100E□□330ME07D |
| | 100 | 6.3×7 | 0.20 | 80 | ESRA100E□□101MF07D |
| | 220 | 8×7 | 0.20 | 140 | ESRA100E□□221MH07D |
| 16 | 10 | 4×7 | 0.16 | 25 | ESRA160E□□100MD07D |
| | 22 | 5×7 | 0.16 | 39 | ESRA160E□□220ME07D |
| | 47 | 6.3×7 | 0.16 | 59 | ESRA160E□□470MF07D |
| | 100 | 6.3×7 | 0.16 | 97 | ESRA160E□□101MF07D |
| 25 | 33 | 6.3×7 | 0.14 | 53 | ESRA250E□□330MF07D |
| | 47 | 6.3×7 | 0.14 | 71 | ESRA250E□□470MF07D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 4.7 | 4×7 | 0.12 | 20 | ESRA350E□□4R7MD07D |
| | 10 | 5×7 | 0.12 | 30 | ESRA350E□□100ME07D |
| | 22 | 6.3×7 | 0.12 | 47 | ESRA350E□□220MF07D |
| | 33 | 6.3×7 | 0.12 | 64 | ESRA350E□□330MF07D |
| | 47 | 8×7 | 0.12 | 83 | ESRA350E□□470MH07D |
| 50 | 1.0 | 4×7 | 0.10 | 10 | ESRA500E□□1R0MD07D |
| | 2.2 | 4×7 | 0.10 | 15 | ESRA500E□□2R2MD07D |
| | 3.3 | 4×7 | 0.10 | 18 | ESRA500E□□3R3MD07D |
| | 4.7 | 5×7 | 0.10 | 23 | ESRA500E□□4R7ME07D |
| | 10 | 6.3×7 | 0.10 | 34 | ESRA500E□□100MF07D |
| | 22 | 6.3×7 | 0.10 | 57 | ESRA500E□□220MF07D |
| | 33 | 8×7 | 0.10 | 76 | ESRA500E□□330MH07D |
| 63 | 1.0 | 4×7 | 0.08 | 11 | ESRA630E□□1R0MD07D |
| | 2.2 | 4×7 | 0.08 | 17 | ESRA630E□□2R2MD07D |
| | 3.3 | 5×7 | 0.08 | 21 | ESRA630E□□3R3ME07D |
| | 4.7 | 6.3×7 | 0.08 | 26 | ESRA630E□□4R7MF07D |
| | 10 | 6.3×7 | 0.08 | 47 | ESRA630E□□100MF07D |

□□ : Enter the appropriate lead forming or taping code.

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 105℃

# KMA Series

KMA
105℃
SRA

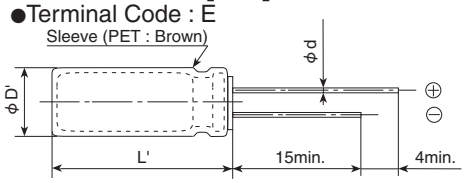
- 7mm height
- Endurance : 1,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

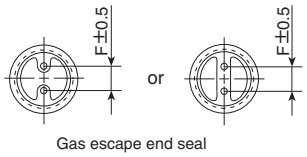
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ | | | | | | | | | |
| **Rated Voltage Range** | 4 to 63Vdc | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | |
| | tanδ (Max.) | 0.35 | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 10 | 6 | 5 | 3 | 3 | 3 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃. | | | | | | | | | |
| | Rated voltage | 4 to 16Vdc | | | | 25 to 63Vdc | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | |
| | Rated voltage | 4 to 16Vdc | | | | 25 to 63Vdc | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 4 | 5 | 6.3 |
|---|---|---|---|
| φd | 0.45 | 0.45 | 0.45 |
| F | 1.5 | 2.0 | 2.5 |
| φD' | φD+0.5max. | | |
| L' | L+1.0max. | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 3 4 | 5 6 7 | 8 | 9 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| E | KMA | | E | | | M | | D |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,50V:500)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 105℃

## KMA Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 4 | 33 | 4×7 | 0.35 | 26 | EKMA4R0E□□330MD07D |
| | 47 | 4×7 | 0.35 | 34 | EKMA4R0E□□470MD07D |
| | 100 | 5×7 | 0.35 | 61 | EKMA4R0E□□101ME07D |
| | 220 | 6.3×7 | 0.35 | 95 | EKMA4R0E□□221MF07D |
| 6.3 | 22 | 4×7 | 0.22 | 31 | EKMA6R3E□□220MD07D |
| | 47 | 5×7 | 0.22 | 47 | EKMA6R3E□□470ME07D |
| 10 | 33 | 5×7 | 0.19 | 43 | EKMA100E□□330ME07D |
| | 100 | 6.3×7 | 0.19 | 80 | EKMA100E□□101MF07D |
| 16 | 10 | 4×7 | 0.16 | 25 | EKMA160E□□100MD07D |
| | 22 | 5×7 | 0.16 | 39 | EKMA160E□□220ME07D |
| | 47 | 6.3×7 | 0.16 | 59 | EKMA160E□□470MF07D |
| | 100 | 6.3×7 | 0.16 | 97 | EKMA160E□□101MF07D |
| 25 | 33 | 6.3×7 | 0.14 | 53 | EKMA250E□□330MF07D |
| | 47 | 6.3×7 | 0.14 | 71 | EKMA250E□□470MF07D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 4.7 | 4×7 | 0.12 | 20 | EKMA350E□□4R7MD07D |
| | 10 | 5×7 | 0.12 | 30 | EKMA350E□□100ME07D |
| | 22 | 6.3×7 | 0.12 | 47 | EKMA350E□□220MF07D |
| | 33 | 6.3×7 | 0.12 | 64 | EKMA350E□□330MF07D |
| 50 | 1.0 | 4×7 | 0.10 | 10 | EKMA500E□□1R0MD07D |
| | 2.2 | 4×7 | 0.10 | 15 | EKMA500E□□2R2MD07D |
| | 3.3 | 4×7 | 0.10 | 18 | EKMA500E□□3R3MD07D |
| | 4.7 | 5×7 | 0.10 | 23 | EKMA500E□□4R7ME07D |
| | 10 | 6.3×7 | 0.10 | 34 | EKMA500E□□100MF07D |
| | 22 | 6.3×7 | 0.10 | 57 | EKMA500E□□220MF07D |
| 63 | 1.0 | 4×7 | 0.08 | 11 | EKMA630E□□1R0MD07D |
| | 2.2 | 4×7 | 0.08 | 17 | EKMA630E□□2R2MD07D |
| | 3.3 | 5×7 | 0.08 | 21 | EKMA630E□□3R3ME07D |
| | 4.7 | 6.3×7 | 0.08 | 26 | EKMA630E□□4R7MF07D |
| | 10 | 6.3×7 | 0.08 | 43 | EKMA630E□□100MF07D |

□□ : Enter the appropriate lead forming or taping code.

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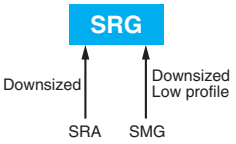
NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 85℃

# SRG Series

- Low profile : φ4×7mm to φ18×25mm
- Endurance : 1,000 to 2,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

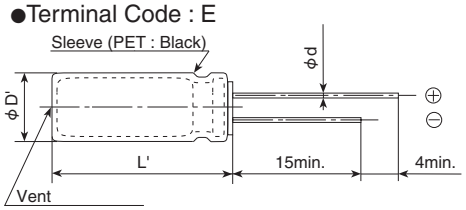


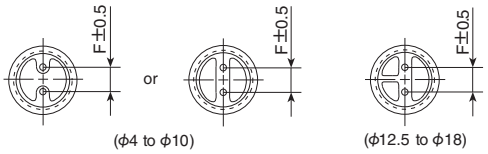
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃ | | | | | | | |
| **Rated Voltage Range** | 4 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) | | | | | | | |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) | | | | | | | |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | tanδ (Max.) | 0.38 | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 |
| | When nominal capacitance exceeds 1,000μF, add 0.03 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | | |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | Z(−25℃)/Z(+20℃) | 6 | 5 | 4 | 3 | 2 | 2 | 2 |
| | Z(−40℃)/Z(+20℃) | 12 | 12 | 10 | 8 | 5 | 4 | 3 |
| | (at 120Hz) | | | | | | | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (1,000 hours for φ8 and smaller) at 85℃. | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

## ◆DIMENSIONS [mm]

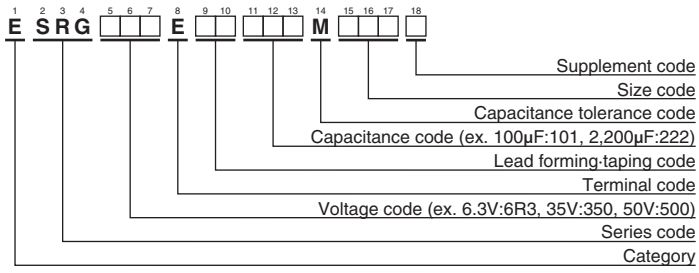
●Terminal Code : E




| φD | | 4 | 5 | 6.3 | 8 | 10 & 12.5 | 16 & 18 |
|---|---|---|---|---|---|---|---|
| φd | 7L | 0.45 | 0.45 | 0.45 | 0.45 | — | — |
| | ≧9L | – | 0.5 | 0.5 | 0.6 | 0.6 | 0.8 |
| F | | 1.5 | 2.0 | 2.5 | 3.5 | 5.0 | 7.5 |
| φD' | | φD+0.5max. | | | | | |
| L' | | L+1.5max. (7L : L+1.0max.) | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 85℃

## SRG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case code φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 4 | 470 | 8×7 | 0.38 | 154 | ESRG4R0E□□471MH07D |
| 6.3 | 47 | 4×7 | 0.28 | 50 | ESRG6R3E□□470MD07D |
| | 100 | 5×7 | 0.28 | 87 | ESRG6R3E□□101ME07D |
| | 220 | 6.3×7 | 0.28 | 133 | ESRG6R3E□□221MF07D |
| | 330 | 6.3×9 | 0.28 | 247 | ESRG6R3E□□331MF09D |
| | 330 | 8×7 | 0.28 | 191 | ESRG6R3E□□331MH07D |
| | 1,000 | 10×9 | 0.28 | 505 | ESRG6R3E□□102MJ09S |
| | 4,700 | 16×15 | 0.37 | 1,410 | ESRG6R3E□□472ML15S |
| | 6,800 | 18×15 | 0.43 | 1,660 | ESRG6R3E□□682MM15S |
| | 10,000 | 18×20 | 0.55 | 2,020 | ESRG6R3E□□103MM20S |
| 10 | 33 | 4×7 | 0.24 | 46 | ESRG100E□□330MD07D |
| | 100 | 5×9 | 0.24 | 132 | ESRG100E□□101ME09D |
| | 220 | 6.3×9 | 0.24 | 218 | ESRG100E□□221MF09D |
| | 220 | 8×7 | 0.24 | 171 | ESRG100E□□221MH07D |
| | 470 | 8×9 | 0.24 | 385 | ESRG100E□□471MH09D |
| | 1,000 | 10×12.5 | 0.24 | 625 | ESRG100E□□102MJC5S |
| | 2,200 | 12.5×15 | 0.27 | 970 | ESRG100E□□222MK15S |
| | 3,300 | 16×15 | 0.30 | 1,310 | ESRG100E□□332ML15S |
| | 4,700 | 18×15 | 0.33 | 1,560 | ESRG100E□□472MM15S |
| | 6,800 | 18×20 | 0.39 | 1,870 | ESRG100E□□682MM20S |
| | 10,000 | 18×25 | 0.51 | 2,370 | ESRG100E□□103MM25S |
| 16 | 22 | 4×7 | 0.20 | 42 | ESRG160E□□220MD07D |
| | 47 | 5×7 | 0.20 | 73 | ESRG160E□□470ME07D |
| | 100 | 6.3×7 | 0.20 | 110 | ESRG160E□□101MF07D |
| | 220 | 8×9 | 0.20 | 290 | ESRG160E□□221MH09D |
| | 330 | 8×9 | 0.20 | 355 | ESRG160E□□331MH09D |
| | 470 | 10×9 | 0.20 | 410 | ESRG160E□□471MJ09S |
| | 1,000 | 12.5×13 | 0.20 | 715 | ESRG160E□□102MK13S |
| | 2,200 | 16×15 | 0.23 | 1,160 | ESRG160E□□222ML15S |
| | 3,300 | 18×15 | 0.26 | 1,460 | ESRG160E□□332MM15S |
| | 4,700 | 18×20 | 0.29 | 1,770 | ESRG160E□□472MM20S |
| | 6,800 | 18×25 | 0.35 | 2,170 | ESRG160E□□682MM25S |
| 25 | 33 | 5×7 | 0.16 | 66 | ESRG250E□□330ME07D |
| | 47 | 5×9 | 0.16 | 105 | ESRG250E□□470ME09D |
| | 47 | 6.3×7 | 0.16 | 80 | ESRG250E□□470MF07D |
| | 100 | 6.3×9 | 0.16 | 172 | ESRG250E□□101MF09D |
| | 330 | 10×9 | 0.16 | 380 | ESRG250E□□331MJ09S |
| 25 | 470 | 10×12.5 | 0.16 | 525 | ESRG250E□□471MJC5S |
| | 1,000 | 12.5×15 | 0.16 | 830 | ESRG250E□□102MK15S |
| | 2,200 | 18×15 | 0.19 | 1,360 | ESRG250E□□222MM15S |
| | 3,300 | 18×20 | 0.22 | 1,720 | ESRG250E□□332MM20S |
| | 4,700 | 18×25 | 0.25 | 2,070 | ESRG250E□□472MM25S |
| 35 | 10 | 4×7 | 0.14 | 32 | ESRG350E□□100MD07D |
| | 22 | 5×7 | 0.14 | 57 | ESRG350E□□220ME07D |
| | 33 | 5×9 | 0.14 | 94 | ESRG350E□□330ME09D |
| | 33 | 6.3×7 | 0.14 | 73 | ESRG350E□□330MF07D |
| | 47 | 8×7 | 0.14 | 101 | ESRG350E□□470MH07D |
| | 100 | 8×9 | 0.14 | 220 | ESRG350E□□101MH09D |
| | 220 | 10×9 | 0.14 | 335 | ESRG350E□□221MJ09S |
| | 330 | 10×12.5 | 0.14 | 475 | ESRG350E□□331MJC5S |
| | 470 | 12.5×13 | 0.14 | 585 | ESRG350E□□471MK13S |
| | 1,000 | 16×15 | 0.14 | 1,010 | ESRG350E□□102ML15S |
| | 2,200 | 18×20 | 0.17 | 1,560 | ESRG350E□□222MM20S |
| 50 | 1.0 | 4×7 | 0.12 | 10 | ESRG500E□□1R0MD07D |
| | 1.0 | 5×9 | 0.12 | 13 | ESRG500E□□1R0ME09D |
| | 2.2 | 4×7 | 0.12 | 15 | ESRG500E□□2R2MD07D |
| | 2.2 | 5×9 | 0.12 | 26 | ESRG500E□□2R2ME09D |
| | 3.3 | 4×7 | 0.12 | 19 | ESRG500E□□3R3MD07D |
| | 3.3 | 5×9 | 0.12 | 32 | ESRG500E□□3R3ME09D |
| | 4.7 | 4×7 | 0.12 | 24 | ESRG500E□□4R7MD07D |
| | 4.7 | 5×9 | 0.12 | 38 | ESRG500E□□4R7ME09D |
| | 10 | 5×7 | 0.12 | 42 | ESRG500E□□100ME07D |
| | 10 | 5×9 | 0.12 | 64 | ESRG500E□□100ME09D |
| | 22 | 5×9 | 0.12 | 86 | ESRG500E□□220ME09D |
| | 22 | 6.3×7 | 0.12 | 64 | ESRG500E□□220MF07D |
| | 33 | 6.3×9 | 0.12 | 113 | ESRG500E□□330MF09D |
| | 33 | 8×7 | 0.12 | 93 | ESRG500E□□330MH07D |
| | 47 | 6.3×9 | 0.12 | 135 | ESRG500E□□470MF09D |
| | 100 | 10×9 | 0.12 | 240 | ESRG500E□□101MJ09S |
| | 220 | 10×12.5 | 0.12 | 415 | ESRG500E□□221MJC5S |
| | 330 | 12.5×13 | 0.12 | 525 | ESRG500E□□331MK13S |
| | 470 | 16×15 | 0.12 | 745 | ESRG500E□□471ML15S |
| | 1,000 | 18×20 | 0.12 | 1,160 | ESRG500E□□102MM20S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

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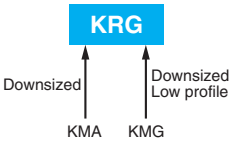
NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 105℃

## KRG Series

- Low profile : φ4×7mm to φ18×25mm
- Endurance : 1,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

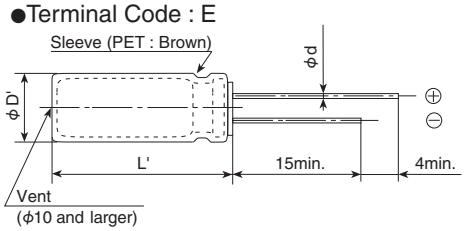


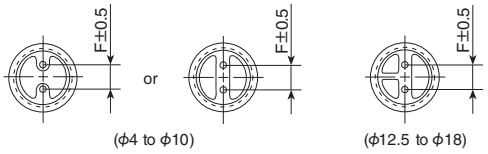
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| Category Temperature Range | −55 to +105℃ | | | | | | |
| Rated Voltage Range | 6.3 to 50Vdc | | | | | | |
| Capacitance Tolerance | ±20% (M) | | | | | | (at 20℃, 120Hz) |
| Leakage Current | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃ after 2 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | tanδ (Max.) | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 |
| | When nominal capacitance exceeds 1,000μF, add 0.03 to the value above for each 1,000μF increase. | | | | | | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | Z(−25℃)/Z(+20℃) | 5 | 4 | 3 | 2 | 2 | 2 |
| | Z(−40℃)/Z(+20℃) | 10 | 8 | 6 | 4 | 3 | 3 (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃. | | | | | | |
| | Rated voltage | 6.3 to 16Vdc | | | | 25 to 50Vdc | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | | | | ≦The initial specified value | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Rated voltage | 6.3 to 16Vdc | | | | 25 to 50Vdc | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | | | | ≦The initial specified value | |

## ◆DIMENSIONS [mm]

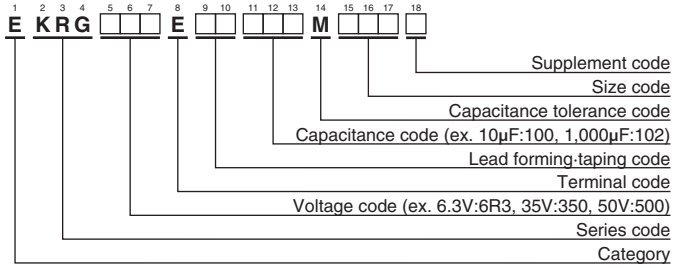
●Terminal Code : E




| φD | | 4 | 5 | 6.3 | 8 | 10 & 12.5 | 16 & 18 |
|---|---|---|---|---|---|---|---|
| φd | 7L | 0.45 | 0.45 | 0.45 | – | — | — |
| | ≧9L | – | 0.5 | 0.5 | 0.6 | 0.6 | 0.8 |
| F | | 1.5 | 2.0 | 2.5 | 3.5 | 5.0 | 7.5 |
| φD' | | φD+0.5max. | | | | | |
| L' | | L+1.5max. (7L : L+1.0max.) | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 105℃

## KRG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 47 | 5×7 | 0.28 | 50 | EKRG6R3E□□470ME07D |
| | 330 | 6.3×9 | 0.28 | 175 | EKRG6R3E□□331MF09D |
| | 1,000 | 10×9 | 0.28 | 365 | EKRG6R3E□□102MJ09S |
| | 4,700 | 16×15 | 0.37 | 1,010 | EKRG6R3E□□472ML15S |
| | 6,800 | 18×15 | 0.43 | 1,190 | EKRG6R3E□□682MM15S |
| | 10,000 | 18×20 | 0.55 | 1,440 | EKRG6R3E□□103MM20S |
| 10 | 22 | 4×7 | 0.24 | 35 | EKRG100E□□220MD07D |
| | 100 | 5×9 | 0.24 | 93 | EKRG100E□□101ME09D |
| | 100 | 6.3×7 | 0.24 | 80 | EKRG100E□□101MF07D |
| | 220 | 6.3×9 | 0.24 | 154 | EKRG100E□□221MF09D |
| | 470 | 8×9 | 0.24 | 272 | EKRG100E□□471MH09D |
| | 1,000 | 10×12.5 | 0.24 | 445 | EKRG100E□□102MJC5S |
| | 2,200 | 12.5×15 | 0.27 | 690 | EKRG100E□□222MK15S |
| | 3,300 | 16×15 | 0.30 | 940 | EKRG100E□□332ML15S |
| | 4,700 | 18×15 | 0.33 | 1,120 | EKRG100E□□472MM15S |
| | 6,800 | 18×20 | 0.39 | 1,330 | EKRG100E□□682MM20S |
| | 10,000 | 18×25 | 0.51 | 1,700 | EKRG100E□□103MM25S |
| 16 | 33 | 5×7 | 0.20 | 53 | EKRG160E□□330ME07D |
| | 47 | 6.3×7 | 0.20 | 68 | EKRG160E□□470MF07D |
| | 100 | 6.3×7 | 0.20 | 97 | EKRG160E□□101MF07D |
| | 220 | 8×9 | 0.20 | 205 | EKRG160E□□221MH09D |
| | 330 | 8×9 | 0.20 | 251 | EKRG160E□□331MH09D |
| | 470 | 10×9 | 0.20 | 290 | EKRG160E□□471MJ09S |
| | 1,000 | 12.5×13 | 0.20 | 515 | EKRG160E□□102MK13S |
| | 2,200 | 16×15 | 0.23 | 830 | EKRG160E□□222ML15S |
| | 3,300 | 18×15 | 0.26 | 1,050 | EKRG160E□□332MM15S |
| | 4,700 | 18×20 | 0.29 | 1,260 | EKRG160E□□472MM20S |
| | 6,800 | 18×25 | 0.35 | 1,560 | EKRG160E□□682MM25S |
| 25 | 10 | 4×7 | 0.16 | 30 | EKRG250E□□100MD07D |
| | 22 | 5×7 | 0.16 | 46 | EKRG250E□□220ME07D |
| | 33 | 6.3×7 | 0.16 | 63 | EKRG250E□□330MF07D |
| | 47 | 5×9 | 0.16 | 75 | EKRG250E□□470ME09D |
| | 47 | 6.3×7 | 0.16 | 71 | EKRG250E□□470MF07D |
| | 100 | 6.3×9 | 0.16 | 121 | EKRG250E□□101MF09D |
| | 330 | 10×9 | 0.16 | 270 | EKRG250E□□331MJ09S |
| 25 | 470 | 10×12.5 | 0.16 | 370 | EKRG250E□□471MJC5S |
| | 1,000 | 12.5×15 | 0.16 | 590 | EKRG250E□□102MK15S |
| | 2,200 | 18×15 | 0.19 | 970 | EKRG250E□□222MM15S |
| | 3,300 | 18×20 | 0.22 | 1,220 | EKRG250E□□332MM20S |
| | 4,700 | 18×25 | 0.25 | 1,470 | EKRG250E□□472MM25S |
| 35 | 10 | 5×7 | 0.14 | 36 | EKRG350E□□100ME07D |
| | 22 | 6.3×7 | 0.14 | 57 | EKRG350E□□220MF07D |
| | 33 | 5×9 | 0.14 | 67 | EKRG350E□□330ME09D |
| | 33 | 6.3×7 | 0.14 | 64 | EKRG350E□□330MF07D |
| | 100 | 8×9 | 0.14 | 155 | EKRG350E□□101MH09D |
| | 220 | 10×9 | 0.14 | 235 | EKRG350E□□221MJ09S |
| | 330 | 10×12.5 | 0.14 | 340 | EKRG350E□□331MJC5S |
| | 470 | 12.5×13 | 0.14 | 415 | EKRG350E□□471MK13S |
| | 1,000 | 16×15 | 0.14 | 720 | EKRG350E□□102ML15S |
| | 2,200 | 18×20 | 0.17 | 1,110 | EKRG350E□□222MM20S |
| 50 | 1.0 | 4×7 | 0.12 | 10 | EKRG500E□□1R0MD07D |
| | 1.0 | 5×9 | 0.12 | 12 | EKRG500E□□1R0ME09D |
| | 2.2 | 4×7 | 0.12 | 15 | EKRG500E□□2R2MD07D |
| | 2.2 | 5×9 | 0.12 | 18 | EKRG500E□□2R2ME09D |
| | 3.3 | 4×7 | 0.12 | 18 | EKRG500E□□3R3MD07D |
| | 3.3 | 5×9 | 0.12 | 22 | EKRG500E□□3R3ME09D |
| | 4.7 | 4×7 | 0.12 | 25 | EKRG500E□□4R7MD07D |
| | 4.7 | 5×9 | 0.12 | 27 | EKRG500E□□4R7ME09D |
| | 10 | 5×9 | 0.12 | 46 | EKRG500E□□100ME09D |
| | 10 | 6.3×7 | 0.12 | 44 | EKRG500E□□100MF07D |
| | 22 | 5×9 | 0.12 | 61 | EKRG500E□□220ME09D |
| | 22 | 6.3×7 | 0.12 | 57 | EKRG500E□□220MF07D |
| | 33 | 6.3×9 | 0.12 | 80 | EKRG500E□□330MF09D |
| | 47 | 6.3×9 | 0.12 | 95 | EKRG500E□□470MF09D |
| | 100 | 10×9 | 0.12 | 170 | EKRG500E□□101MJ09S |
| | 220 | 10×12.5 | 0.12 | 290 | EKRG500E□□221MJC5S |
| | 330 | 12.5×13 | 0.12 | 370 | EKRG500E□□331MK13S |
| | 470 | 16×15 | 0.12 | 535 | EKRG500E□□471ML15S |
| | 1,000 | 18×20 | 0.12 | 830 | EKRG500E□□102MM20S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

# SMQ Series

- Downsized from current standard SMG series
- Endurance : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

SMQ
↑ Downsized
SMG

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +85℃(6.3 to 400Vdc)　−25 to +85℃(450Vdc) |
| **Rated Voltage Range** | 6.3 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | 6.3 to 100Vdc / 160 to 450Vdc<br>≦φ18: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute)<br>CV \ Time: CV≦1,000 → I=0.1CV+40 max.; CV>1,000 → I=0.04CV+100 max. After 1minute (at 20℃)<br>≧φ20: I=0.03CV (at 20℃ after 3 minutes)<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) |

**Dissipation Factor (tanδ)**

| Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V | 160 to 250V | 315 to 400V | 450V |
|---|---|---|---|---|---|---|---|---|---|---|---|
| tanδ (Max.) | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.09 | 0.08 | 0.20 | 0.24 | 0.24 |

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

**Low Temperature Characteristics (Max. Impedance Ratio)**

| Rated voltage (Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V | 160 to 200V | 250V | 350V | 400V | 450V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z(−25℃)/Z(+20℃) | ≦φ8 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 6 |
| | ≧φ10 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 6 |
| Z(−40℃)/Z(+20℃) | ≦φ8 | 12 | 10 | 8 | 5 | 4 | 3 | 3 | 3 | 8 | 10 | 8 | 8 | — |
| | ≧φ10 | 12 | 10 | 8 | 5 | 4 | 3 | 3 | 3 | 4 | 4 | 6 | 6 | — |

(at 120Hz)

**Endurance**

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.

| | |
|---|---|
| Capacitance change | ≦±20% of the initial value |
| D.F. (tanδ) | ≦200% of the initial specified value |
| Leakage current | ≦The initial specified value |

**Shelf Life**

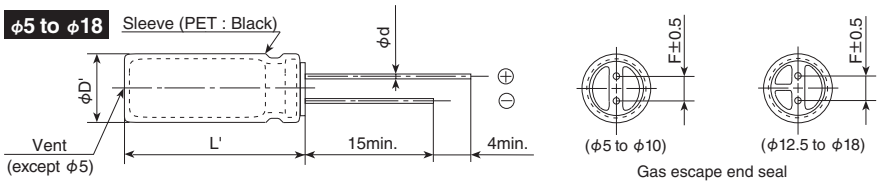
The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

| Rated voltage | 6.3 to 100Vdc | 160 to 450Vdc |
|---|---|---|
| Capacitance change | ≦±20% of the initial value | ≦±20% of the initial value |
| D.F. (tanδ) | ≦200% of the initial specified value | ≦200% of the initial specified value |
| Leakage current | ≦The initial specified value | ≦500% of the initial specified value |

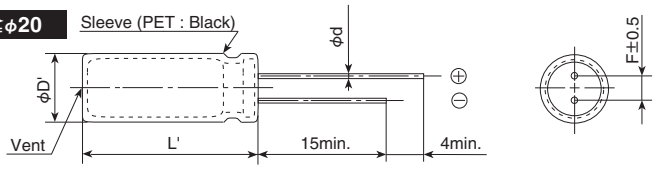
## ◆DIMENSIONS [mm]

● Terminal Code : E

**φ5 to φ18** Sleeve (PET : Black)




**≧φ20** Sleeve (PET : Black)




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 20 | 22 |
|---|---|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 1.0 | 1.0 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 | 10.0 |
| φD' | φD+0.5max. | | | | | | | φD+0.5max. | |
| L' | L+1.5max. | | | | | | | L+2.0max. | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 3 4 | 5 6 7 | 8 | 9 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| E | SMQ | □□□ | E | □□ | □□□ | M | □□□ | □ |

- 18: Supplement code
- 15 16 17: Size code
- 14: Capacitance tolerance code
- 11 12 13: Capacitance code (ex. 1.0μF:1R0,10μF:100,100μF:101)
- 9 10: Lead forming·taping code
- 8: Terminal code
- 5 6 7: Voltage code (ex. 6.3V:6R3,50V:500,100V:101)
- 2 3 4: Series code
- 1: Category

Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

## SMQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 1,000 | 8×11.5 | 0.28 | 540 | ESMQ6R3E□□102MHB5D |
| | 2,200 | 10×16 | 0.30 | 890 | ESMQ6R3E□□222MJ16S |
| | 3,300 | 10×20 | 0.32 | 1,190 | ESMQ6R3E□□332MJ20S |
| | 4,700 | 12.5×20 | 0.34 | 1,550 | ESMQ6R3E□□472MK20S |
| | 6,800 | 12.5×25 | 0.38 | 1,920 | ESMQ6R3E□□682MK25S |
| | 10,000 | 16×25 | 0.46 | 2,350 | ESMQ6R3E□□103ML25S |
| | 15,000 | 16×31.5 | 0.56 | 2,550 | ESMQ6R3E□□153MLN3S |
| | 22,000 | 18×35.5 | 0.70 | 3,200 | ESMQ6R3E□□223MMP1S |
| | 33,000 | 20×40 | 0.92 | 3,500 | ESMQ6R3E□□333MN40S |
| | 47,000 | 20×50 | 1.20 | 3,900 | ESMQ6R3E□□473MP50S |
| 10 | 220 | 5×11 | 0.24 | 240 | ESMQ100E□□221ME11D |
| | 330 | 6.3×11 | 0.24 | 290 | ESMQ100E□□331MF11D |
| | 470 | 6.3×11 | 0.24 | 350 | ESMQ100E□□471MF11D |
| | 1,000 | 10×12.5 | 0.24 | 650 | ESMQ100E□□102MJC5S |
| | 2,200 | 10×16 | 0.26 | 990 | ESMQ100E□□222MJ16S |
| | 3,300 | 12.5×20 | 0.28 | 1,450 | ESMQ100E□□332MK20S |
| | 4,700 | 12.5×25 | 0.30 | 1,800 | ESMQ100E□□472MK25S |
| | 6,800 | 16×25 | 0.34 | 2,250 | ESMQ100E□□682ML25S |
| | 10,000 | 16×31.5 | 0.42 | 2,550 | ESMQ100E□□103MLN3S |
| | 15,000 | 16×35.5 | 0.52 | 2,880 | ESMQ100E□□153MLP1S |
| | 22,000 | 18×40 | 0.66 | 3,400 | ESMQ100E□□223MM40S |
| | 33,000 | 22×50 | 0.88 | 4,500 | ESMQ100E□□333MP50S |
| 16 | 220 | 6.3×11 | 0.20 | 260 | ESMQ160E□□221MF11D |
| | 330 | 6.3×11 | 0.20 | 320 | ESMQ160E□□331MF11D |
| | 470 | 8×11.5 | 0.20 | 440 | ESMQ160E□□471MHB5D |
| | 1,000 | 10×12.5 | 0.20 | 700 | ESMQ160E□□102MJC5S |
| | 2,200 | 10×20 | 0.22 | 1,000 | ESMQ160E□□222MJ20S |
| | 3,300 | 12.5×25 | 0.24 | 1,700 | ESMQ160E□□332MK25S |
| | 4,700 | 16×25 | 0.26 | 2,100 | ESMQ160E□□472ML25S |
| | 6,800 | 16×25 | 0.30 | 2,250 | ESMQ160E□□682ML25S |
| | 10,000 | 16×35.5 | 0.38 | 2,710 | ESMQ160E□□103MLP1S |
| | 15,000 | 18×40 | 0.48 | 3,100 | ESMQ160E□□153MM40S |
| | 22,000 | 22×40 | 0.62 | 3,800 | ESMQ160E□□223MP40S |
| 25 | 100 | 5×11 | 0.16 | 180 | ESMQ250E□□101ME11D |
| | 220 | 6.3×11 | 0.16 | 280 | ESMQ250E□□221MF11D |
| | 330 | 8×11.5 | 0.16 | 440 | ESMQ250E□□331MHB5D |
| | 470 | 10×12.5 | 0.16 | 550 | ESMQ250E□□471MJC5S |
| | 1,000 | 10×16 | 0.16 | 860 | ESMQ250E□□102MJ16S |
| | 2,200 | 12.5×25 | 0.18 | 1,550 | ESMQ250E□□222MK25S |
| | 3,300 | 16×25 | 0.20 | 1,980 | ESMQ250E□□332ML25S |
| | 4,700 | 16×25 | 0.22 | 2,200 | ESMQ250E□□472ML25S |
| | 6,800 | 16×35.5 | 0.26 | 2,600 | ESMQ250E□□682MLP1S |
| | 10,000 | 18×40 | 0.34 | 2,800 | ESMQ250E□□103MM40S |
| | 15,000 | 22×50 | 0.44 | 3,800 | ESMQ250E□□153MP50S |
| 35 | 47 | 5×11 | 0.14 | 130 | ESMQ350E□□470ME11D |
| | 68 | 6.3×11 | 0.14 | 160 | ESMQ350E□□680MF11D |
| | 100 | 6.3×11 | 0.14 | 210 | ESMQ350E□□101MF11D |
| | 220 | 8×11.5 | 0.14 | 385 | ESMQ350E□□221MHB5D |
| | 330 | 10×12.5 | 0.14 | 490 | ESMQ350E□□331MJC5S |
| | 470 | 10×16 | 0.14 | 650 | ESMQ350E□□471MJ16S |
| | 1,000 | 12.5×20 | 0.14 | 1,150 | ESMQ350E□□102MK20S |
| | 2,200 | 16×25 | 0.16 | 1,800 | ESMQ350E□□222ML25S |
| | 3,300 | 16×31.5 | 0.18 | 2,100 | ESMQ350E□□332MLN3S |
| | 4,700 | 16×35.5 | 0.20 | 2,500 | ESMQ350E□□472MLP1S |
| | 6,800 | 18×40 | 0.24 | 2,800 | ESMQ350E□□682MM40S |
| | 10,000 | 22×50 | 0.32 | 3,700 | ESMQ350E□□103MP50S |
| 50 | 1.0 | 5×11 | 0.12 | 17 | ESMQ500E□□1R0ME11D |
| | 2.2 | 5×11 | 0.12 | 28 | ESMQ500E□□2R2ME11D |
| | 3.3 | 5×11 | 0.12 | 35 | ESMQ500E□□3R3ME11D |
| | 4.7 | 5×11 | 0.12 | 41 | ESMQ500E□□4R7ME11D |
| | 10 | 5×11 | 0.12 | 60 | ESMQ500E□□100ME11D |
| | 22 | 5×11 | 0.12 | 95 | ESMQ500E□□220ME11D |
| | 33 | 5×11 | 0.12 | 125 | ESMQ500E□□330ME11D |
| | 47 | 6.3×11 | 0.12 | 155 | ESMQ500E□□470MF11D |
| | 68 | 6.3×11 | 0.12 | 210 | ESMQ500E□□680MF11D |
| | 100 | 8×11.5 | 0.12 | 260 | ESMQ500E□□101MHB5D |
| | 220 | 10×12.5 | 0.12 | 430 | ESMQ500E□□221MJC5S |
| 50 | 330 | 10×16 | 0.12 | 590 | ESMQ500E□□331MJ16S |
| | 470 | 10×20 | 0.12 | 760 | ESMQ500E□□471MJ20S |
| | 1,000 | 12.5×25 | 0.12 | 1,350 | ESMQ500E□□102MK25S |
| | 2,200 | 16×31.5 | 0.14 | 1,980 | ESMQ500E□□222MLN3S |
| | 3,300 | 18×35.5 | 0.16 | 2,500 | ESMQ500E□□332MMP1S |
| | 4,700 | 20×40 | 0.18 | 2,900 | ESMQ500E□□472MN40S |
| | 6,800 | 22×50 | 0.22 | 3,500 | ESMQ500E□□682MP50S |
| 63 | 22 | 5×11 | 0.09 | 100 | ESMQ630E□□220ME11D |
| | 33 | 6.3×11 | 0.09 | 140 | ESMQ630E□□330MF11D |
| | 47 | 6.3×11 | 0.09 | 170 | ESMQ630E□□470MF11D |
| | 68 | 8×11.5 | 0.09 | 220 | ESMQ630E□□680MHB5D |
| | 100 | 8×11.5 | 0.09 | 280 | ESMQ630E□□101MHB5D |
| | 220 | 10×16 | 0.09 | 490 | ESMQ630E□□221MJ16S |
| | 330 | 10×20 | 0.09 | 710 | ESMQ630E□□331MJ20S |
| | 470 | 12.5×20 | 0.09 | 900 | ESMQ630E□□471MK20S |
| | 1,000 | 16×25 | 0.09 | 1,300 | ESMQ630E□□102ML25S |
| | 2,200 | 18×35.5 | 0.11 | 2,300 | ESMQ630E□□222MMP1S |
| | 3,300 | 20×40 | 0.13 | 2,700 | ESMQ630E□□332MN40S |
| | 4,700 | 22×50 | 0.15 | 3,400 | ESMQ630E□□472MP50S |
| 100 | 1.0 | 5×11 | 0.08 | 21 | ESMQ101E□□1R0ME11D |
| | 2.2 | 5×11 | 0.08 | 30 | ESMQ101E□□2R2ME11D |
| | 3.3 | 5×11 | 0.08 | 40 | ESMQ101E□□3R3ME11D |
| | 4.7 | 5×11 | 0.08 | 45 | ESMQ101E□□4R7ME11D |
| | 10 | 5×11 | 0.08 | 70 | ESMQ101E□□100ME11D |
| | 22 | 6.3×11 | 0.08 | 130 | ESMQ101E□□220MF11D |
| | 33 | 8×11.5 | 0.08 | 180 | ESMQ101E□□330MHB5D |
| | 47 | 8×11.5 | 0.08 | 200 | ESMQ101E□□470MHB5D |
| | 68 | 10×12.5 | 0.08 | 270 | ESMQ101E□□680MJC5S |
| | 100 | 10×16 | 0.08 | 340 | ESMQ101E□□101MJ16S |
| | 220 | 12.5×20 | 0.08 | 550 | ESMQ101E□□221MK20S |
| | 330 | 12.5×25 | 0.08 | 760 | ESMQ101E□□331MK25S |
| | 470 | 16×25 | 0.08 | 1,000 | ESMQ101E□□471ML25S |
| | 1,000 | 18×35.5 | 0.08 | 1,350 | ESMQ101E□□102MMP1S |
| | 2,200 | 22×50 | 0.10 | 2,400 | ESMQ101E□□222MP50S |
| 160 | 10 | 8×11.5 | 0.20 | 80 | ESMQ161E□□100MHB5D |
| | 22 | 10×12.5 | 0.20 | 130 | ESMQ161E□□220MJC5S |
| | 33 | 10×16 | 0.20 | 180 | ESMQ161E□□330MJ16S |
| | 47 | 10×20 | 0.20 | 210 | ESMQ161E□□470MJ20S |
| | 68 | 12.5×20 | 0.20 | 350 | ESMQ161E□□680MK20S |
| | 100 | 12.5×25 | 0.20 | 430 | ESMQ161E□□101MK25S |
| | 220 | 16×31.5 | 0.20 | 760 | ESMQ161E□□221MLN3S |
| | 330 | 18×35.5 | 0.20 | 995 | ESMQ161E□□331MMP1S |
| | 470 | 18×40 | 0.20 | 1,200 | ESMQ161E□□471MM40S |
| 200 | 1.0 | 6.3×11 | 0.20 | 22 | ESMQ201E□□1R0MF11D |
| | 2.2 | 6.3×11 | 0.20 | 33 | ESMQ201E□□2R2MF11D |
| | 3.3 | 6.3×11 | 0.20 | 40 | ESMQ201E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.20 | 50 | ESMQ201E□□4R7MF11D |
| | 10 | 8×11.5 | 0.20 | 80 | ESMQ201E□□100MHB5D |
| | 22 | 10×16 | 0.20 | 150 | ESMQ201E□□220MJ16S |
| | 33 | 10×20 | 0.20 | 205 | ESMQ201E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 270 | ESMQ201E□□470MK20S |
| | 68 | 12.5×25 | 0.20 | 350 | ESMQ201E□□680MK25S |
| | 100 | 16×25 | 0.20 | 475 | ESMQ201E□□101ML25S |
| | 220 | 16×35.5 | 0.20 | 700 | ESMQ201E□□221MLP1S |
| | 330 | 18×40 | 0.20 | 950 | ESMQ201E□□331MM40S |
| 250 | 3.3 | 6.3×11 | 0.20 | 40 | ESMQ251E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.20 | 50 | ESMQ251E□□4R7MF11D |
| | 10 | 10×12.5 | 0.20 | 100 | ESMQ251E□□100MJC5S |
| | 22 | 10×20 | 0.20 | 170 | ESMQ251E□□220MJ20S |
| | 33 | 10×20 | 0.20 | 200 | ESMQ251E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 270 | ESMQ251E□□470MK20S |
| | 68 | 16×25 | 0.20 | 380 | ESMQ251E□□680ML25S |
| | 100 | 16×25 | 0.20 | 440 | ESMQ251E□□101ML25S |
| | 220 | 18×35.5 | 0.20 | 680 | ESMQ251E□□221MMP1S |
| 350 | 2.2 | 6.3×11 | 0.24 | 30 | ESMQ351E□□2R2MF11D |
| | 3.3 | 8×11.5 | 0.24 | 46 | ESMQ351E□□3R3MHB5D |
| | 4.7 | 8×11.5 | 0.24 | 55 | ESMQ351E□□4R7MHB5D |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

## SMQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 10 | 10×12.5 | 0.24 | 90 | ESMQ351E□□100MJC5S |
| | 22 | 12.5×20 | 0.24 | 185 | ESMQ351E□□220MK20S |
| | 33 | 12.5×25 | 0.24 | 240 | ESMQ351E□□330MK25S |
| | 47 | 16×25 | 0.24 | 325 | ESMQ351E□□470ML25S |
| | 68 | 16×25 | 0.24 | 400 | ESMQ351E□□680ML25S |
| | 100 | 18×31.5 | 0.24 | 530 | ESMQ351E□□101MMN3S |
| 400 | 1.0 | 6.3×11 | 0.24 | 22 | ESMQ401E□□1R0MF11D |
| | 2.2 | 8×11.5 | 0.24 | 38 | ESMQ401E□□2R2MHB5D |
| | 3.3 | 8×11.5 | 0.24 | 48 | ESMQ401E□□3R3MHB5D |
| | 4.7 | 10×12.5 | 0.24 | 60 | ESMQ401E□□4R7MJC5S |
| | 10 | 10×16 | 0.24 | 90 | ESMQ401E□□100MJ16S |
| | 22 | 12.5×25 | 0.24 | 205 | ESMQ401E□□220MK25S |
| | 33 | 16×25 | 0.24 | 275 | ESMQ401E□□330ML25S |
| | 47 | 16×25 | 0.24 | 280 | ESMQ401E□□470ML25S |
| | 68 | 16×31.5 | 0.24 | 340 | ESMQ401E□□680MLN3S |
| | 100 | 18×35.5 | 0.24 | 440 | ESMQ401E□□101MMP1S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 2.2 | 8×11.5 | 0.24 | 28 | ESMQ451E□□2R2MHB5D |
| | 3.3 | 10×12.5 | 0.24 | 40 | ESMQ451E□□3R3MJC5S |
| | 4.7 | 10×12.5 | 0.24 | 46 | ESMQ451E□□4R7MJC5S |
| | 10 | 10×20 | 0.24 | 80 | ESMQ451E□□100MJ20S |
| | 22 | 12.5×25 | 0.24 | 140 | ESMQ451E□□220MK25S |
| | 33 | 16×25 | 0.24 | 180 | ESMQ451E□□330ML25S |
| | 47 | 16×31.5 | 0.24 | 220 | ESMQ451E□□470MLN3S |
| | 68 | 18×35.5 | 0.24 | 260 | ESMQ451E□□680MMP1S |
| | 100 | 18×40 | 0.24 | 280 | ESMQ451E□□101MM40S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 toφ18)

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 1.0 to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 68 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

(φ20 toφ22)

| Rated Voltage (Vdc) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 6.3 to 50 | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| 63 to 100 | 0.92 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

## KMQ Series

- Downsized from current standard KMG series
- Solvent resistant type except 160 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

KMQ ↑ Downsized KMG

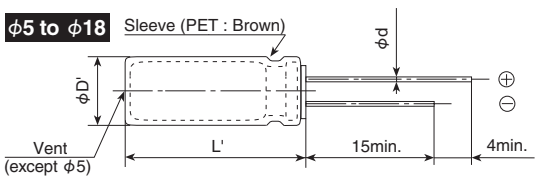
## ◆SPECIFICATIONS

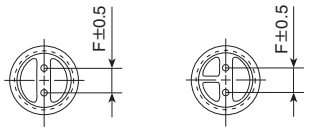
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃(6.3 to 100Vdc) −40 to +105℃(160 to 400Vdc) -25 to +105℃(450Vdc) |
| **Rated Voltage Range** | 6.3 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | 6.3 to 100Vdc: ≦φ18: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute); ≧φ20: I=0.03CV max. (at 20℃ after 3 minutes). 160 to 450Vdc: CV≦1,000: I=0.1CV+40 max.; CV>1,000: I=0.04CV+100 max. (at 20℃). Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 100V / 160 to 250V / 350 to 400V / 450V<br>tanδ (Max.): 0.28 / 0.24 / 0.20 / 0.16 / 0.14 / 0.12 / 0.10 / 0.08 / 0.20 / 0.24 / 0.24<br>When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63 to 100V / 160 to 200V / 250V / 350V / 400V / 450V<br>Z(-25℃)/Z(+20℃): ≦φ8: 5 4 3 2 2 2 2 3 3 4 4 6; ≧φ10: 5 4 3 2 2 2 2 3 3 4 4 6<br>Z(-40℃)/Z(+20℃): ≦φ8: 10 8 6 4 3 3 3 8 10 8 8 —; ≧φ10: 10 8 6 4 3 3 3 4 4 6 6 — (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 1,000 hours (2,000 hours for φ10 and more at 105℃).<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Rated voltage: 6.3 to 100Vdc / 160 to 450Vdc<br>Capacitance change: ≦±20% of the initial value / ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value / ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value / ≦500% of the initial specified value |

## ◆DIMENSIONS [mm]

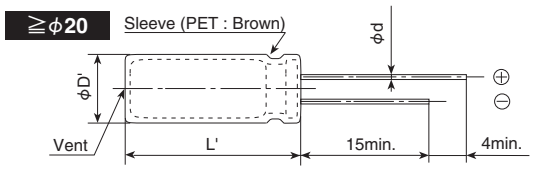
- Terminal Code : E

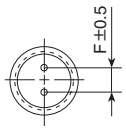
**φ5 to φ18** Sleeve (PET : Brown)



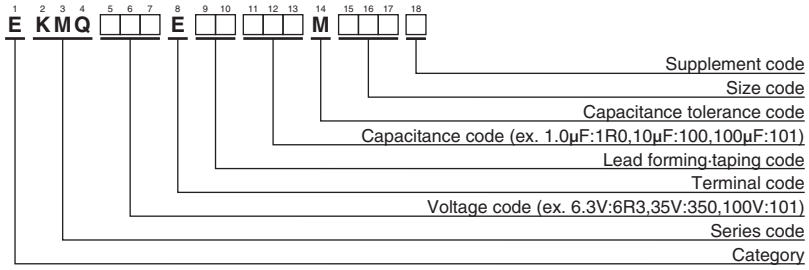

**≧φ20** Sleeve (PET : Brown)




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 20 | 22 |
|---|---|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 1.0 | 1.0 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 | 10.0 |
| φD' | φD+0.5max. | | | | | | | φD+0.5max. | |
| L' | L+1.5max. | | | | | | | L+2.0max. | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

## KMQ Series

### ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 1,000 | 8×11.5 | 0.28 | 390 | EKMQ6R3E□□102MHB5D |
| | 2,200 | 10×16 | 0.30 | 635 | EKMQ6R3E□□222MJ16S |
| | 3,300 | 10×20 | 0.32 | 840 | EKMQ6R3E□□332MJ20S |
| | 4,700 | 12.5×20 | 0.34 | 1,090 | EKMQ6R3E□□472MK20S |
| | 6,800 | 12.5×25 | 0.38 | 1,350 | EKMQ6R3E□□682MK25S |
| | 10,000 | 16×25 | 0.46 | 1,650 | EKMQ6R3E□□103ML25S |
| | 15,000 | 16×31.5 | 0.56 | 1,820 | EKMQ6R3E□□153MLN3S |
| | 22,000 | 18×35.5 | 0.70 | 2,280 | EKMQ6R3E□□223MMP1S |
| | 33,000 | 20×40 | 0.92 | 2,500 | EKMQ6R3E□□333MN40S |
| | 47,000 | 22×50 | 1.20 | 2,780 | EKMQ6R3E□□473MP50S |
| 10 | 220 | 5×11 | 0.24 | 155 | EKMQ100E□□221ME11D |
| | 330 | 6.3×11 | 0.24 | 210 | EKMQ100E□□331MF11D |
| | 470 | 6.3×11 | 0.24 | 250 | EKMQ100E□□471MF11D |
| | 1,000 | 10×12.5 | 0.24 | 460 | EKMQ100E□□102MJC5S |
| | 2,200 | 10×16 | 0.26 | 705 | EKMQ100E□□222MJ16S |
| | 3,300 | 12.5×20 | 0.28 | 1,000 | EKMQ100E□□332MK20S |
| | 4,700 | 12.5×25 | 0.30 | 1,260 | EKMQ100E□□472MK25S |
| | 6,800 | 16×25 | 0.34 | 1,570 | EKMQ100E□□682ML25S |
| | 10,000 | 16×31.5 | 0.42 | 1,820 | EKMQ100E□□103MLN3S |
| | 15,000 | 16×35.5 | 0.52 | 2,050 | EKMQ100E□□153MLP1S |
| | 22,000 | 18×40 | 0.66 | 2,420 | EKMQ100E□□223MM40S |
| | 33,000 | 22×50 | 0.88 | 3,210 | EKMQ100E□□333MP50S |
| 16 | 220 | 6.3×11 | 0.20 | 190 | EKMQ160E□□221MF11D |
| | 330 | 6.3×11 | 0.20 | 225 | EKMQ160E□□331MF11D |
| | 470 | 8×11.5 | 0.20 | 315 | EKMQ160E□□471MHB5D |
| | 1,000 | 10×12.5 | 0.20 | 500 | EKMQ160E□□102MJC5S |
| | 2,200 | 10×20 | 0.22 | 710 | EKMQ160E□□222MJ20S |
| | 3,300 | 12.5×25 | 0.24 | 1,170 | EKMQ160E□□332MK25S |
| | 4,700 | 16×25 | 0.26 | 1,500 | EKMQ160E□□472ML25S |
| | 6,800 | 16×25 | 0.30 | 1,600 | EKMQ160E□□682ML25S |
| | 10,000 | 16×35.5 | 0.38 | 1,930 | EKMQ160E□□103MLP1S |
| | 15,000 | 18×40 | 0.48 | 2,210 | EKMQ160E□□153MM40S |
| | 22,000 | 22×40 | 0.62 | 2,710 | EKMQ160E□□223MP40S |
| 25 | 100 | 5×11 | 0.16 | 125 | EKMQ250E□□101ME11D |
| | 220 | 6.3×11 | 0.16 | 200 | EKMQ250E□□221MF11D |
| | 330 | 8×11.5 | 0.16 | 310 | EKMQ250E□□331MHB5D |
| | 470 | 10×12.5 | 0.16 | 380 | EKMQ250E□□471MJC5S |
| | 1,000 | 10×16 | 0.16 | 610 | EKMQ250E□□102MJ16S |
| | 2,200 | 12.5×25 | 0.18 | 1,090 | EKMQ250E□□222MK25S |
| | 3,300 | 16×25 | 0.20 | 1,400 | EKMQ250E□□332ML25S |
| | 4,700 | 16×25 | 0.22 | 1,570 | EKMQ250E□□472ML25S |
| | 6,800 | 16×35.5 | 0.26 | 1,850 | EKMQ250E□□682MLP1S |
| | 10,000 | 18×40 | 0.34 | 2,000 | EKMQ250E□□103MM40S |
| | 15,000 | 22×50 | 0.44 | 2,750 | EKMQ250E□□153MP50S |
| 35 | 47 | 5×11 | 0.14 | 93 | EKMQ350E□□470ME11D |
| | 68 | 6.3×11 | 0.14 | 110 | EKMQ350E□□680MF11D |
| | 100 | 6.3×11 | 0.14 | 150 | EKMQ350E□□101MF11D |
| | 220 | 8×11.5 | 0.14 | 270 | EKMQ350E□□221MHB5D |
| | 330 | 10×12.5 | 0.14 | 350 | EKMQ350E□□331MJC5S |
| | 470 | 10×16 | 0.14 | 460 | EKMQ350E□□471MJ16S |
| | 1,000 | 12.5×20 | 0.14 | 810 | EKMQ350E□□102MK20S |
| | 2,200 | 16×25 | 0.16 | 1,260 | EKMQ350E□□222ML25S |
| | 3,300 | 16×31.5 | 0.18 | 1,500 | EKMQ350E□□332MLN3S |
| | 4,700 | 16×35.5 | 0.20 | 1,780 | EKMQ350E□□472MLP1S |
| | 6,800 | 18×40 | 0.24 | 2,000 | EKMQ350E□□682MM40S |
| | 10,000 | 22×50 | 0.32 | 2,650 | EKMQ350E□□103MP50S |
| 50 | 1.0 | 5×11 | 0.12 | 13 | EKMQ500E□□1R0ME11D |
| | 2.2 | 5×11 | 0.12 | 20 | EKMQ500E□□2R2ME11D |
| | 3.3 | 5×11 | 0.12 | 25 | EKMQ500E□□3R3ME11D |
| | 4.7 | 5×11 | 0.12 | 30 | EKMQ500E□□4R7ME11D |
| | 10 | 5×11 | 0.12 | 46 | EKMQ500E□□100ME11D |
| | 22 | 5×11 | 0.12 | 68 | EKMQ500E□□220ME11D |
| | 33 | 5×11 | 0.12 | 90 | EKMQ500E□□330ME11D |
| | 47 | 6.3×11 | 0.12 | 115 | EKMQ500E□□470MF11D |
| | 68 | 6.3×11 | 0.12 | 150 | EKMQ500E□□680MF11D |
| | 100 | 8×11.5 | 0.12 | 190 | EKMQ500E□□101MHB5D |
| | 220 | 10×12.5 | 0.12 | 300 | EKMQ500E□□221MJC5S |
| 50 | 330 | 10×16 | 0.12 | 410 | EKMQ500E□□331MJ16S |
| | 470 | 10×20 | 0.12 | 540 | EKMQ500E□□471MJ20S |
| | 1,000 | 12.5×25 | 0.12 | 950 | EKMQ500E□□102MK25S |
| | 2,200 | 16×31.5 | 0.14 | 1,410 | EKMQ500E□□222MLN3S |
| | 3,300 | 18×35.5 | 0.16 | 1,770 | EKMQ500E□□332MMP1S |
| | 4,700 | 20×40 | 0.18 | 2,100 | EKMQ500E□□472MN40S |
| | 6,800 | 22×50 | 0.22 | 2,500 | EKMQ500E□□682MP50S |
| 63 | 22 | 5×11 | 0.10 | 71 | EKMQ630E□□220ME11D |
| | 33 | 6.3×11 | 0.10 | 100 | EKMQ630E□□330MF11D |
| | 47 | 6.3×11 | 0.10 | 120 | EKMQ630E□□470MF11D |
| | 68 | 8×11.5 | 0.10 | 155 | EKMQ630E□□680MHB5D |
| | 100 | 8×11.5 | 0.10 | 200 | EKMQ630E□□101MHB5D |
| | 220 | 10×16 | 0.10 | 335 | EKMQ630E□□221MJ16S |
| | 330 | 10×20 | 0.10 | 510 | EKMQ630E□□331MJ20S |
| | 470 | 12.5×20 | 0.10 | 640 | EKMQ630E□□471MK20S |
| | 1,000 | 16×25 | 0.10 | 930 | EKMQ630E□□102ML25S |
| | 2,200 | 18×35.5 | 0.12 | 1,650 | EKMQ630E□□222MMP1S |
| | 3,300 | 20×40 | 0.14 | 1,950 | EKMQ630E□□332MN40S |
| | 4,700 | 22×50 | 0.16 | 2,450 | EKMQ630E□□472MP50S |
| 100 | 1.0 | 5×11 | 0.08 | 15 | EKMQ101E□□1R0ME11D |
| | 2.2 | 5×11 | 0.08 | 21 | EKMQ101E□□2R2ME11D |
| | 3.3 | 5×11 | 0.08 | 29 | EKMQ101E□□3R3ME11D |
| | 4.7 | 5×11 | 0.08 | 32 | EKMQ101E□□4R7ME11D |
| | 10 | 5×11 | 0.08 | 50 | EKMQ101E□□100ME11D |
| | 22 | 6.3×11 | 0.08 | 93 | EKMQ101E□□220MF11D |
| | 33 | 8×11.5 | 0.08 | 130 | EKMQ101E□□330MHB5D |
| | 47 | 8×11.5 | 0.08 | 140 | EKMQ101E□□470MHB5D |
| | 68 | 10×12.5 | 0.08 | 190 | EKMQ101E□□680MJC5S |
| | 100 | 10×16 | 0.08 | 240 | EKMQ101E□□101MJ16S |
| | 220 | 12.5×20 | 0.08 | 390 | EKMQ101E□□221MK20S |
| | 330 | 12.5×25 | 0.08 | 540 | EKMQ101E□□331MK25S |
| | 470 | 16×25 | 0.08 | 715 | EKMQ101E□□471ML25S |
| | 1,000 | 18×35.5 | 0.08 | 960 | EKMQ101E□□102MMP1S |
| | 2,200 | 22×50 | 0.10 | 1,750 | EKMQ101E□□222MP50S |
| 160 | 10 | 8×11.5 | 0.20 | 41 | EKMQ161E□□100MHB5D |
| | 22 | 10×12.5 | 0.20 | 92 | EKMQ161E□□220MJC5S |
| | 33 | 10×16 | 0.20 | 125 | EKMQ161E□□330MJ16S |
| | 47 | 10×20 | 0.20 | 150 | EKMQ161E□□470MJ20S |
| | 68 | 12.5×20 | 0.20 | 250 | EKMQ161E□□680MK20S |
| | 100 | 12.5×25 | 0.20 | 310 | EKMQ161E□□101MK25S |
| | 220 | 16×31.5 | 0.20 | 540 | EKMQ161E□□221MLN3S |
| | 330 | 18×35.5 | 0.20 | 705 | EKMQ161E□□331MMP1S |
| | 470 | 18×40 | 0.20 | 855 | EKMQ161E□□471MM40S |
| 200 | 1.0 | 6.3×11 | 0.20 | 16 | EKMQ201E□□1R0MF11D |
| | 2.2 | 6.3×11 | 0.20 | 25 | EKMQ201E□□2R2MF11D |
| | 3.3 | 6.3×11 | 0.20 | 30 | EKMQ201E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.20 | 35 | EKMQ201E□□4R7MF11D |
| | 10 | 8×11.5 | 0.20 | 57 | EKMQ201E□□100MHB5D |
| | 22 | 10×16 | 0.20 | 105 | EKMQ201E□□220MJ16S |
| | 33 | 10×20 | 0.20 | 140 | EKMQ201E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 195 | EKMQ201E□□470MK20S |
| | 68 | 12.5×25 | 0.20 | 250 | EKMQ201E□□680MK25S |
| | 100 | 16×25 | 0.20 | 335 | EKMQ201E□□101ML25S |
| | 220 | 16×35.5 | 0.20 | 500 | EKMQ201E□□221MLP1S |
| | 330 | 18×40 | 0.20 | 675 | EKMQ201E□□331MM40S |
| 250 | 3.3 | 6.3×11 | 0.20 | 28 | EKMQ251E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.20 | 35 | EKMQ251E□□4R7MF11D |
| | 10 | 10×12.5 | 0.20 | 71 | EKMQ251E□□100MJC5S |
| | 22 | 10×20 | 0.20 | 105 | EKMQ251E□□220MJ20S |
| | 33 | 10×20 | 0.20 | 140 | EKMQ251E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 190 | EKMQ251E□□470MK20S |
| | 68 | 16×25 | 0.20 | 270 | EKMQ251E□□680ML25S |
| | 100 | 16×25 | 0.20 | 310 | EKMQ251E□□101ML25S |
| | 220 | 18×35.5 | 0.20 | 485 | EKMQ251E□□221MMP1S |
| 350 | 2.2 | 6.3×11 | 0.24 | 21 | EKMQ351E□□2R2MF11D |
| | 3.3 | 8×11.5 | 0.24 | 30 | EKMQ351E□□3R3MHB5D |
| | 4.7 | 8×11.5 | 0.24 | 39 | EKMQ351E□□4R7MHB5D |

□□: Enter the appropriate lead forming or taping code.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

## KMQ Series

### ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 10 | 10×12.5 | 0.24 | 64 | EKMQ351E□□100MJC5S |
| | 22 | 12.5×20 | 0.24 | 130 | EKMQ351E□□220MK20S |
| | 33 | 12.5×25 | 0.24 | 170 | EKMQ351E□□330MK25S |
| | 47 | 16×25 | 0.24 | 230 | EKMQ351E□□470ML25S |
| | 68 | 16×25 | 0.24 | 285 | EKMQ351E□□680ML25S |
| | 100 | 18×31.5 | 0.24 | 375 | EKMQ351E□□101MMN3S |
| 400 | 1.0 | 6.3×11 | 0.24 | 15 | EKMQ401E□□1R0MF11D |
| | 2.2 | 8×11.5 | 0.24 | 27 | EKMQ401E□□2R2MHB5D |
| | 3.3 | 8×11.5 | 0.24 | 34 | EKMQ401E□□3R3MHB5D |
| | 4.7 | 10×12.5 | 0.24 | 42 | EKMQ401E□□4R7MJC5S |
| | 10 | 10×16 | 0.24 | 64 | EKMQ401E□□100MJ16S |
| | 22 | 12.5×25 | 0.24 | 145 | EKMQ401E□□220MK25S |
| | 33 | 16×25 | 0.24 | 195 | EKMQ401E□□330ML25S |
| | 47 | 16×25 | 0.24 | 200 | EKMQ401E□□470ML25S |
| | 68 | 16×31.5 | 0.24 | 240 | EKMQ401E□□680MLN3S |
| | 100 | 18×35.5 | 0.24 | 310 | EKMQ401E□□101MMP1S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 2.2 | 8×11.5 | 0.24 | 20 | EKMQ451E□□2R2MHB5D |
| | 3.3 | 10×12.5 | 0.24 | 28 | EKMQ451E□□3R3MJC5S |
| | 4.7 | 10×12.5 | 0.24 | 32 | EKMQ451E□□4R7MJC5S |
| | 10 | 10×20 | 0.24 | 56 | EKMQ451E□□100MJ20S |
| | 22 | 12.5×25 | 0.24 | 100 | EKMQ451E□□220MK25S |
| | 33 | 16×25 | 0.24 | 125 | EKMQ451E□□330ML25S |
| | 47 | 16×31.5 | 0.24 | 155 | EKMQ451E□□470MLN3S |
| | 68 | 18×35.5 | 0.24 | 185 | EKMQ451E□□680MMP1S |
| | 100 | 18×40 | 0.24 | 200 | EKMQ451E□□101MM40S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 to φ18)

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 1.0 to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 68 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

(φ20 to φ22)

| Rated Voltage (Vdc) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 6.3 to 50 | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| 63 to 100 | 0.92 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

# SMG Series

- Endurance : 2,000 hours at 85℃
- Solvent resistant type except 315 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

SMQ
↑ Downsized
**SMG**

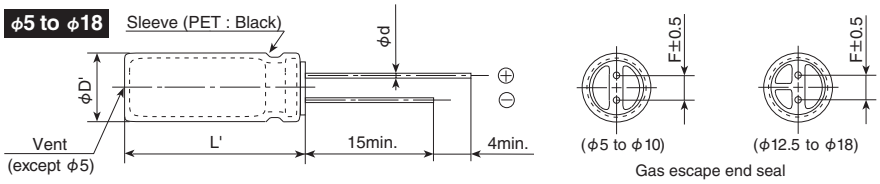
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃(6.3 to 400Vdc)　−25 to +85℃(450Vdc) | | | | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 450Vdc | | | | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) | | | | | | | | | | | | |
| **Leakage Current** | | 6.3 to 100Vdc | | | | | 160 to 450Vdc | | | | | | |
| | ≦φ18 | I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute) | | | | | CV \ Time | After 1minute | | After 5minute | | | |
| | | | | | | | CV≦1,000 | I=0.1CV+40 max. | | I=0.03CV+15 max. | | | |
| | | | | | | | CV>1,000 | I=0.04CV+100 max. | | I=0.02CV+25 max. | | | |
| | | | | | | | (at 20℃) | | | | | | |
| | ≧φ20 | I=0.03CV (at 20℃ after 3 minutes) | | | | | | | | | | | |
| | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | | | | |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V | 160 to 250V | 315 to 400V | 450V |
| | tanδ (Max.) | ≦φ18 | 0.34 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.09 | 0.08 | 0.20 | 0.24 | 0.24 |
| | | ≧φ20 | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.09 | 0.08 | 0.15 | 0.15 | 0.20 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | | | | | | | |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V | 160 to 250V | 315 to 400V | 450V |
| | Z(−25℃)/Z(+20℃) | ≦φ18 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 6 | 6 |
| | | ≧φ20 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 4 | 6 | 6 |
| | Z(−40℃)/Z(+20℃) | ≦φ18 | 12 | 10 | 8 | 5 | 4 | 3 | 3 | 3 | 4 | 6 | — (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃. | | | | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | | | | |
| | Rated voltage | 6.3 to 100Vdc | 160 to 450Vdc | | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | ≦±20% of the initial value | | | | | | | | | | |
| | D.F. (tanδ ) | ≦200% of the initial specified value | ≦200% of the initial specified value | | | | | | | | | | |
| | Leakage current | ≦The initial specified value | ≦500% of the initial specified value | | | | | | | | | | |

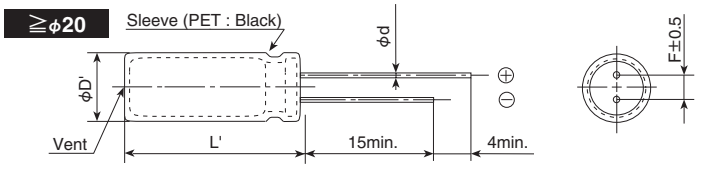
## ◆DIMENSIONS [mm]

● Terminal Code : E

**φ5 to φ18** Sleeve (PET : Black)




**≧φ20** Sleeve (PET : Black)




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 20 | 22 |
|---|---|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 1.0 | 1.0 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 | 10.0 |
| φD' | φD+0.5max. | | | | | | | φD+0.5max. | |
| L' | L+1.5max. | | | | | | | L+2.0max. | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | S | M | G | | | | E | | | | | | M | | | | |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 1.0μF:1R0,10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,100V:101,315V:3B1)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

## SMG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 220 | 5×11 | 0.34 | 200 | ESMG6R3E□□221ME11D |
| | 330 | 6.3×11 | 0.34 | 270 | ESMG6R3E□□331MF11D |
| | 470 | 6.3×11 | 0.34 | 320 | ESMG6R3E□□471MF11D |
| | 1,000 | 8×11.5 | 0.34 | 540 | ESMG6R3E□□102MHB5D |
| | 2,200 | 10×20 | 0.36 | 1,000 | ESMG6R3E□□222MJ20S |
| | 3,300 | 10×20 | 0.38 | 1,185 | ESMG6R3E□□332MJ20S |
| | 4,700 | 12.5×20 | 0.40 | 1,545 | ESMG6R3E□□472MK20S |
| | 6,800 | 12.5×25 | 0.44 | 1,915 | ESMG6R3E□□682MK25S |
| | 10,000 | 16×25 | 0.52 | 2,330 | ESMG6R3E□□103ML25S |
| | 10,000 | 20×25 | 0.46 | 2,310 | ESMG6R3E□□103MN25S |
| | 15,000 | 16×35.5 | 0.62 | 2,845 | ESMG6R3E□□153MLP1S |
| | 15,000 | 20×30 | 0.56 | 2,660 | ESMG6R3E□□153MN30S |
| | 18,000 | 20×35 | 0.62 | 2,890 | ESMG6R3E□□183MN35S |
| | 18,000 | 22×30 | 0.62 | 2,860 | ESMG6R3E□□183MP30S |
| | 22,000 | 18×40 | 0.76 | 3,320 | ESMG6R3E□□223MM40S |
| | 22,000 | 20×40 | 0.70 | 3,130 | ESMG6R3E□□223MN40S |
| | 22,000 | 22×35 | 0.70 | 3,130 | ESMG6R3E□□223MP35S |
| | 27,000 | 22×40 | 0.80 | 3,280 | ESMG6R3E□□273MP40S |
| 10 | 220 | 5×11 | 0.24 | 240 | ESMG100E□□221ME11D |
| | 330 | 6.3×11 | 0.24 | 290 | ESMG100E□□331MF11D |
| | 470 | 6.3×11 | 0.24 | 350 | ESMG100E□□471MF11D |
| | 1,000 | 10×12.5 | 0.24 | 650 | ESMG100E□□102MJC5S |
| | 2,200 | 10×20 | 0.26 | 1,070 | ESMG100E□□222MJ20S |
| | 3,300 | 12.5×20 | 0.28 | 1,420 | ESMG100E□□332MK20S |
| | 4,700 | 12.5×25 | 0.30 | 1,780 | ESMG100E□□472MK25S |
| | 6,800 | 16×25 | 0.34 | 2,220 | ESMG100E□□682ML25S |
| | 6,800 | 20×20 | 0.34 | 2,080 | ESMG100E□□682MN20S |
| | 10,000 | 16×35.5 | 0.42 | 2,670 | ESMG100E□□103MLP1S |
| | 10,000 | 20×25 | 0.42 | 2,410 | ESMG100E□□103MN25S |
| | 12,000 | 20×30 | 0.46 | 2,620 | ESMG100E□□123MN30S |
| | 15,000 | 18×35.5 | 0.52 | 3,080 | ESMG100E□□153MMP1S |
| | 15,000 | 20×35 | 0.52 | 2,870 | ESMG100E□□153MN35S |
| | 15,000 | 22×30 | 0.52 | 2,660 | ESMG100E□□153MP30S |
| | 18,000 | 22×35 | 0.58 | 3,050 | ESMG100E□□183MP35S |
| | 22,000 | 22×40 | 0.66 | 3,480 | ESMG100E□□223MP40S |
| 16 | 100 | 5×11 | 0.20 | 160 | ESMG160E□□101ME11D |
| | 220 | 6.3×11 | 0.20 | 260 | ESMG160E□□221MF11D |
| | 330 | 8×11.5 | 0.20 | 370 | ESMG160E□□331MHB5D |
| | 470 | 8×11.5 | 0.20 | 440 | ESMG160E□□471MHB5D |
| | 1,000 | 10×16 | 0.20 | 785 | ESMG160E□□102MJ16S |
| | 2,200 | 12.5×20 | 0.22 | 1,295 | ESMG160E□□222MK20S |
| | 3,300 | 12.5×25 | 0.24 | 1,655 | ESMG160E□□332MK25S |
| | 4,700 | 16×25 | 0.26 | 2,090 | ESMG160E□□472ML25S |
| | 4,700 | 20×20 | 0.26 | 1,960 | ESMG160E□□472MN20S |
| | 6,800 | 16×31.5 | 0.30 | 2,520 | ESMG160E□□682MLN3S |
| | 6,800 | 20×25 | 0.30 | 2,330 | ESMG160E□□682MN25S |
| | 8,200 | 20×30 | 0.34 | 2,500 | ESMG160E□□822MN30S |
| | 10,000 | 18×35.5 | 0.38 | 2,920 | ESMG160E□□103MMP1S |
| | 10,000 | 20×35 | 0.38 | 2,720 | ESMG160E□□103MN35S |
| | 10,000 | 22×30 | 0.38 | 2,660 | ESMG160E□□103MP30S |
| | 12,000 | 20×40 | 0.42 | 2,900 | ESMG160E□□123MN40S |
| | 12,000 | 22×35 | 0.42 | 2,900 | ESMG160E□□123MP35S |
| | 15,000 | 22×40 | 0.48 | 3,380 | ESMG160E□□153MP40S |
| 25 | 47 | 5×11 | 0.16 | 115 | ESMG250E□□470ME11D |
| | 100 | 6.3×11 | 0.16 | 190 | ESMG250E□□101MF11D |
| | 220 | 8×11.5 | 0.16 | 330 | ESMG250E□□221MHB5D |
| | 330 | 8×11.5 | 0.16 | 440 | ESMG250E□□331MHB5D |
| | 470 | 10×12.5 | 0.16 | 545 | ESMG250E□□471MJC5S |
| | 1,000 | 10×20 | 0.16 | 955 | ESMG250E□□102MJ20S |
| | 2,200 | 12.5×25 | 0.18 | 1,540 | ESMG250E□□222MK25S |
| | 3,300 | 16×25 | 0.20 | 1,975 | ESMG250E□□332ML25S |
| | 3,300 | 20×20 | 0.20 | 1,850 | ESMG250E□□332MN20S |
| | 4,700 | 16×31.5 | 0.22 | 2,420 | ESMG250E□□472MLN3S |
| | 4,700 | 20×25 | 0.22 | 2,420 | ESMG250E□□472MN25S |
| | 5,600 | 20×30 | 0.24 | 2,430 | ESMG250E□□562MN30S |
| | 6,800 | 18×35.5 | 0.26 | 2,880 | ESMG250E□□682MMP1S |
| | 6,800 | 20×35 | 0.26 | 2,680 | ESMG250E□□682MN35S |
| 25 | 6,800 | 22×30 | 0.26 | 2,510 | ESMG250E□□682MP30S |
| | 8,200 | 20×40 | 0.30 | 2,810 | ESMG250E□□822MN40S |
| | 8,200 | 22×35 | 0.30 | 2,810 | ESMG250E□□822MP35S |
| | 10,000 | 22×40 | 0.34 | 3,240 | ESMG250E□□103MP40S |
| | 12,000 | 22×40 | 0.38 | 3,240 | ESMG250E□□123MP40S |
| 35 | 47 | 5×11 | 0.14 | 130 | ESMG350E□□470ME11D |
| | 100 | 6.3×11 | 0.14 | 210 | ESMG350E□□101MF11D |
| | 220 | 8×11.5 | 0.14 | 385 | ESMG350E□□221MHB5D |
| | 330 | 10×12.5 | 0.14 | 490 | ESMG350E□□331MJC5S |
| | 470 | 10×16 | 0.14 | 645 | ESMG350E□□471MJ16S |
| | 1,000 | 12.5×20 | 0.14 | 1,145 | ESMG350E□□102MK20S |
| | 2,200 | 16×25 | 0.16 | 1,785 | ESMG350E□□222ML25S |
| | 2,200 | 20×20 | 0.16 | 1,670 | ESMG350E□□222MN20S |
| | 3,300 | 16×35.5 | 0.18 | 2,275 | ESMG350E□□332MLP1S |
| | 3,300 | 20×25 | 0.18 | 2,050 | ESMG350E□□332MN25S |
| | 3,900 | 20×30 | 0.18 | 2,310 | ESMG350E□□392MN30S |
| | 4,700 | 18×35.5 | 0.20 | 2,700 | ESMG350E□□472MMP1S |
| | 4,700 | 20×35 | 0.20 | 2,510 | ESMG350E□□472MN35S |
| | 4,700 | 22×30 | 0.20 | 2,380 | ESMG350E□□472MP30S |
| | 5,600 | 20×40 | 0.22 | 2,690 | ESMG350E□□562MN40S |
| | 5,600 | 22×35 | 0.22 | 2,690 | ESMG350E□□562MP35S |
| | 6,800 | 22×40 | 0.24 | 3,090 | ESMG350E□□682MP40S |
| 50 | 1.0 | 5×11 | 0.12 | 17 | ESMG500E□□1R0ME11D |
| | 2.2 | 5×11 | 0.12 | 28 | ESMG500E□□2R2ME11D |
| | 3.3 | 5×11 | 0.12 | 35 | ESMG500E□□3R3ME11D |
| | 4.7 | 5×11 | 0.12 | 41 | ESMG500E□□4R7ME11D |
| | 10 | 5×11 | 0.12 | 60 | ESMG500E□□100ME11D |
| | 22 | 5×11 | 0.12 | 95 | ESMG500E□□220ME11D |
| | 33 | 5×11 | 0.12 | 125 | ESMG500E□□330ME11D |
| | 47 | 6.3×11 | 0.12 | 155 | ESMG500E□□470MF11D |
| | 100 | 8×11.5 | 0.12 | 260 | ESMG500E□□101MHB5D |
| | 220 | 10×12.5 | 0.12 | 430 | ESMG500E□□221MJC5S |
| | 330 | 10×16 | 0.12 | 585 | ESMG500E□□331MJ16S |
| | 470 | 10×20 | 0.12 | 755 | ESMG500E□□471MJ20S |
| | 1,000 | 12.5×25 | 0.12 | 1,340 | ESMG500E□□102MK25S |
| | 1,500 | 20×20 | 0.12 | 1,570 | ESMG500E□□152MN20S |
| | 2,200 | 16×35.5 | 0.14 | 2,075 | ESMG500E□□222MLP1S |
| | 2,200 | 20×25 | 0.14 | 1,880 | ESMG500E□□222MN25S |
| | 2,700 | 20×30 | 0.14 | 2,150 | ESMG500E□□272MN30S |
| | 3,300 | 18×35.5 | 0.16 | 2,500 | ESMG500E□□332MMP1S |
| | 3,300 | 20×35 | 0.16 | 2,420 | ESMG500E□□332MN35S |
| | 3,300 | 22×30 | 0.16 | 2,420 | ESMG500E□□332MP30S |
| | 3,900 | 20×40 | 0.16 | 2,590 | ESMG500E□□392MN40S |
| | 3,900 | 22×35 | 0.16 | 2,590 | ESMG500E□□392MP35S |
| | 4,700 | 22×40 | 0.18 | 2,960 | ESMG500E□□472MP40S |
| 63 | 10 | 5×11 | 0.09 | 65 | ESMG630E□□100ME11D |
| | 22 | 5×11 | 0.09 | 100 | ESMG630E□□220ME11D |
| | 33 | 6.3×11 | 0.09 | 140 | ESMG630E□□330MF11D |
| | 47 | 6.3×11 | 0.09 | 170 | ESMG630E□□470MF11D |
| | 100 | 10×12.5 | 0.09 | 300 | ESMG630E□□101MJC5S |
| | 220 | 10×16 | 0.09 | 490 | ESMG630E□□221MJ16S |
| | 330 | 10×20 | 0.09 | 710 | ESMG630E□□331MJ20S |
| | 470 | 12.5×20 | 0.09 | 900 | ESMG630E□□471MK20S |
| | 820 | 20×20 | 0.09 | 1,370 | ESMG630E□□821MN20S |
| | 1,000 | 16×25 | 0.09 | 1,300 | ESMG630E□□102ML25S |
| | 1,000 | 20×25 | 0.09 | 1,600 | ESMG630E□□102MN25S |
| | 1,500 | 20×30 | 0.09 | 1,850 | ESMG630E□□152MN30S |
| | 2,200 | 20×35 | 0.11 | 2,330 | ESMG630E□□222MN35S |
| | 2,200 | 22×30 | 0.11 | 2,190 | ESMG630E□□222MP30S |
| | 2,700 | 20×40 | 0.11 | 2,640 | ESMG630E□□272MN40S |
| | 3,300 | 22×40 | 0.13 | 2,810 | ESMG630E□□332MP40S |
| 100 | 1.0 | 5×11 | 0.08 | 21 | ESMG101E□□1R0ME11D |
| | 2.2 | 5×11 | 0.08 | 30 | ESMG101E□□2R2ME11D |
| | 3.3 | 5×11 | 0.08 | 40 | ESMG101E□□3R3ME11D |
| | 4.7 | 5×11 | 0.08 | 45 | ESMG101E□□4R7ME11D |
| | 10 | 6.3×11 | 0.08 | 75 | ESMG101E□□100MF11D |
| | 22 | 8×11.5 | 0.08 | 130 | ESMG101E□□220MHB5D |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

## SMG Series

### ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 100 | 33 | 8×11.5 | 0.08 | 180 | ESMG101E□□330MHB5D |
| | 47 | 10×12.5 | 0.08 | 230 | ESMG101E□□470MJC5S |
| | 100 | 10×20 | 0.08 | 370 | ESMG101E□□101MJ20S |
| | 220 | 12.5×25 | 0.08 | 620 | ESMG101E□□221MK25S |
| | 330 | 12.5×25 | 0.08 | 760 | ESMG101E□□331MK25S |
| | 330 | 20×20 | 0.08 | 870 | ESMG101E□□331MN20S |
| | 470 | 16×25 | 0.08 | 1,000 | ESMG101E□□471ML25S |
| | 680 | 20×30 | 0.08 | 1,360 | ESMG101E□□681MN30S |
| | 820 | 22×30 | 0.08 | 1,540 | ESMG101E□□821MP30S |
| | 1,000 | 18×40 | 0.08 | 1,380 | ESMG101E□□102MM40S |
| | 1,000 | 20×35 | 0.08 | 1,720 | ESMG101E□□102MN35S |
| | 1,200 | 22×40 | 0.08 | 1,980 | ESMG101E□□122MP40S |
| 160 | 3.3 | 6.3×11 | 0.20 | 40 | ESMG161E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.20 | 48 | ESMG161E□□4R7MF11D |
| | 10 | 10×12.5 | 0.20 | 94 | ESMG161E□□100MJC5S |
| | 22 | 10×20 | 0.20 | 170 | ESMG161E□□220MJ20S |
| | 33 | 10×20 | 0.20 | 205 | ESMG161E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 270 | ESMG161E□□470MK20S |
| | 100 | 12.5×25 | 0.20 | 430 | ESMG161E□□101MK25S |
| | 220 | 16×31.5 | 0.20 | 760 | ESMG161E□□221MLN3S |
| | 220 | 20×25 | 0.15 | 730 | ESMG161E□□221MN25S |
| | 330 | 18×35.5 | 0.20 | 995 | ESMG161E□□331MMP1S |
| | 330 | 20×30 | 0.15 | 920 | ESMG161E□□331MN30S |
| | 390 | 20×35 | 0.15 | 1,160 | ESMG161E□□391MN35S |
| | 390 | 22×30 | 0.15 | 1,160 | ESMG161E□□391MP30S |
| | 470 | 20×40 | 0.15 | 1,340 | ESMG161E□□471MN40S |
| | 470 | 22×35 | 0.15 | 1,340 | ESMG161E□□471MP35S |
| | 560 | 22×40 | 0.15 | 1,470 | ESMG161E□□561MP40S |
| 200 | 3.3 | 6.3×11 | 0.20 | 40 | ESMG201E□□3R3MF11D |
| | 4.7 | 8×11.5 | 0.20 | 55 | ESMG201E□□4R7MHB5D |
| | 10 | 10×12.5 | 0.20 | 94 | ESMG201E□□100MJC5S |
| | 22 | 10×20 | 0.20 | 170 | ESMG201E□□220MJ20S |
| | 33 | 10×20 | 0.20 | 205 | ESMG201E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 270 | ESMG201E□□470MK20S |
| | 100 | 16×25 | 0.20 | 475 | ESMG201E□□101ML25S |
| | 100 | 20×20 | 0.15 | 460 | ESMG201E□□101MN20S |
| | 180 | 20×25 | 0.15 | 660 | ESMG201E□□181MN25S |
| | 220 | 18×35.5 | 0.20 | 810 | ESMG201E□□221MMP1S |
| | 220 | 20×30 | 0.15 | 750 | ESMG201E□□221MN30S |
| | 270 | 20×30 | 0.15 | 830 | ESMG201E□□271MN30S |
| | 330 | 20×35 | 0.15 | 1,070 | ESMG201E□□331MN35S |
| | 330 | 22×30 | 0.15 | 1,070 | ESMG201E□□331MP30S |
| | 390 | 20×40 | 0.15 | 1,190 | ESMG201E□□391MN40S |
| | 390 | 22×30 | 0.15 | 1,160 | ESMG201E□□391MP30S |
| | 470 | 22×40 | 0.15 | 1,350 | ESMG201E□□471MP40S |
| | 560 | 22×40 | 0.15 | 1,430 | ESMG201E□□561MP40S |
| 250 | 2.2 | 6.3×11 | 0.20 | 32 | ESMG251E□□2R2MF11D |
| | 3.3 | 8×11.5 | 0.20 | 46 | ESMG251E□□3R3MHB5D |
| | 4.7 | 8×11.5 | 0.20 | 55 | ESMG251E□□4R7MHB5D |
| | 10 | 10×16 | 0.20 | 105 | ESMG251E□□100MJ16S |
| | 22 | 10×20 | 0.20 | 170 | ESMG251E□□220MJ20S |
| | 33 | 12.5×20 | 0.20 | 230 | ESMG251E□□330MK20S |
| | 47 | 12.5×25 | 0.20 | 295 | ESMG251E□□470MK25S |
| | 82 | 20×20 | 0.15 | 420 | ESMG251E□□820MN20S |
| | 100 | 16×31.5 | 0.20 | 515 | ESMG251E□□101MLN3S |
| | 100 | 20×25 | 0.15 | 490 | ESMG251E□□101MN25S |
| | 120 | 20×25 | 0.15 | 530 | ESMG251E□□121MN25S |
| | 180 | 20×30 | 0.15 | 680 | ESMG251E□□181MN30S |
| | 220 | 18×40 | 0.20 | 825 | ESMG251E□□221MM40S |
| | 220 | 20×35 | 0.15 | 780 | ESMG251E□□221MN35S |
| | 220 | 22×30 | 0.15 | 820 | ESMG251E□□221MP30S |
| | 270 | 20×40 | 0.15 | 880 | ESMG251E□□271MN40S |
| | 270 | 22×35 | 0.15 | 880 | ESMG251E□□271MP35S |
| | 330 | 22×40 | 0.15 | 1,060 | ESMG251E□□331MP40S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 315 | 47 | 20×20 | 0.15 | 310 | ESMG3B1E□□470MN20S |
| | 68 | 20×25 | 0.15 | 400 | ESMG3B1E□□680MN25S |
| | 82 | 20×25 | 0.15 | 440 | ESMG3B1E□□820MN25S |
| | 100 | 20×30 | 0.15 | 500 | ESMG3B1E□□101MN30S |
| | 120 | 20×30 | 0.15 | 550 | ESMG3B1E□□121MN30S |
| | 180 | 20×40 | 0.15 | 720 | ESMG3B1E□□181MN40S |
| | 180 | 22×35 | 0.15 | 720 | ESMG3B1E□□181MP35S |
| | 220 | 22×40 | 0.15 | 810 | ESMG3B1E□□221MP40S |
| 350 | 1.0 | 6.3×11 | 0.24 | 22 | ESMG351E□□1R0MF11D |
| | 2.2 | 8×11.5 | 0.24 | 38 | ESMG351E□□2R2MHB5D |
| | 3.3 | 8×11.5 | 0.24 | 46 | ESMG351E□□3R3MHB5D |
| | 4.7 | 10×12.5 | 0.24 | 65 | ESMG351E□□4R7MJC5S |
| | 10 | 10×20 | 0.24 | 115 | ESMG351E□□100MJ20S |
| | 22 | 12.5×20 | 0.24 | 185 | ESMG351E□□220MK20S |
| | 33 | 16×25 | 0.24 | 275 | ESMG351E□□330ML25S |
| | 47 | 16×25 | 0.24 | 325 | ESMG351E□□470ML25S |
| | 47 | 20×20 | 0.15 | 310 | ESMG351E□□470MN20S |
| | 68 | 20×25 | 0.15 | 400 | ESMG351E□□680MN25S |
| | 100 | 18×31.5 | 0.24 | 530 | ESMG351E□□101MMN3S |
| | 100 | 20×30 | 0.15 | 500 | ESMG351E□□101MN30S |
| | 120 | 20×35 | 0.15 | 560 | ESMG351E□□121MN35S |
| 400 | 1.0 | 6.3×11 | 0.24 | 22 | ESMG401E□□1R0MF11D |
| | 2.2 | 8×11.5 | 0.24 | 38 | ESMG401E□□2R2MHB5D |
| | 3.3 | 10×12.5 | 0.24 | 54 | ESMG401E□□3R3MJC5S |
| | 4.7 | 10×16 | 0.24 | 71 | ESMG401E□□4R7MJ16S |
| | 10 | 10×20 | 0.24 | 115 | ESMG401E□□100MJ20S |
| | 22 | 12.5×25 | 0.24 | 205 | ESMG401E□□220MK25S |
| | 33 | 16×25 | 0.24 | 275 | ESMG401E□□330ML25S |
| | 33 | 20×20 | 0.15 | 260 | ESMG401E□□330MN20S |
| | 47 | 16×31.5 | 0.24 | 350 | ESMG401E□□470MLN3S |
| | 56 | 20×25 | 0.15 | 350 | ESMG401E□□560MN25S |
| | 68 | 20×30 | 0.15 | 420 | ESMG401E□□680MN30S |
| | 100 | 20×35 | 0.15 | 520 | ESMG401E□□101MN35S |
| | 100 | 22×30 | 0.15 | 520 | ESMG401E□□101MP30S |
| | 120 | 20×40 | 0.15 | 580 | ESMG401E□□121MN40S |
| | 120 | 22×35 | 0.15 | 580 | ESMG401E□□121MP35S |
| 450 | 2.2 | 10×12.5 | 0.24 | 32 | ESMG451E□□2R2MJC5S |
| | 3.3 | 10×16 | 0.24 | 44 | ESMG451E□□3R3MJ16S |
| | 4.7 | 10×20 | 0.24 | 56 | ESMG451E□□4R7MJ20S |
| | 10 | 12.5×20 | 0.24 | 91 | ESMG451E□□100MK20S |
| | 22 | 16×25 | 0.24 | 165 | ESMG451E□□220ML25S |
| | 22 | 20×20 | 0.20 | 180 | ESMG451E□□220MN20S |
| | 33 | 16×31.5 | 0.24 | 215 | ESMG451E□□330MLN3S |
| | 33 | 20×25 | 0.20 | 240 | ESMG451E□□330MN25S |
| | 47 | 16×35.5 | 0.24 | 265 | ESMG451E□□470MLP1S |
| | 47 | 20×25 | 0.20 | 290 | ESMG451E□□470MN25S |
| | 56 | 20×30 | 0.20 | 320 | ESMG451E□□560MN30S |
| | 68 | 20×35 | 0.20 | 370 | ESMG451E□□680MN35S |
| | 68 | 22×30 | 0.20 | 370 | ESMG451E□□680MP30S |
| | 82 | 20×40 | 0.20 | 420 | ESMG451E□□820MN40S |
| | 82 | 22×35 | 0.20 | 420 | ESMG451E□□820MP35S |
| | 100 | 22×40 | 0.20 | 470 | ESMG451E□□101MP40S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

## SMG Series

### ◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

(φ5 to φ18)

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 1.0 to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

(φ20, φ22)

| Rated Voltage ($V_{DC}$) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 6.3 to 50 | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| 63 to 100 | 0.92 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 |
| 160 to 250 | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450 | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

# KMG Series

- Endurance with ripple current : 1,000 to 2,000 hours at 105℃
- Solvent resistant type except 350 to 450Vdc
  (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

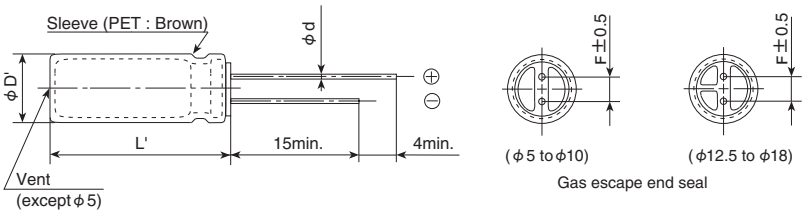
KMQ
↑ Downsized
**KMG**

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃(6.3 to 100Vdc) −40 to +105℃(160 to 400Vdc) -25 to +105℃(450Vdc) |
| **Rated Voltage Range** | 6.3 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | 6.3 to 100Vdc: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute)<br>160 to 450Vdc: CV \ Time: CV≦1,000 → After 1minute: I=0.1CV+40 max., After 5minutes: I=0.03CV+15 max.; CV>1,000 → After 1minute: I=0.04CV+100 max., After 5minutes: I=0.02CV+25 max. (at 20℃)<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 100V / 160 to 250V / 350 to 400V / 450V<br>tanδ (Max.): 0.34 / 0.24 / 0.20 / 0.16 / 0.14 / 0.12 / 0.10 / 0.08 / 0.20 / 0.24 / 0.24<br>When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 100V / 160 to 250V / 350 to 400V / 450V<br>Z(−25℃)/Z(+20℃): 5 / 4 / 3 / 2 / 2 / 2 / 2 / 2 / 3 / 6 / 6<br>Z(−40℃)/Z(+20℃): 12 / 10 / 8 / 5 / 4 / 3 / 3 / 3 / 4 / 6 / — (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 1,000 hours (2,000 hours to meet the following two conditions 1): 160Vdc and larger, 2) : φ12.5 and larger) at 105℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Rated voltage: 6.3 to 100Vcd / 160 to 450Vdc<br>Capacitance change: ≦±20% of the initial value / ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value / ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value / ≦500% of the initial specified value |

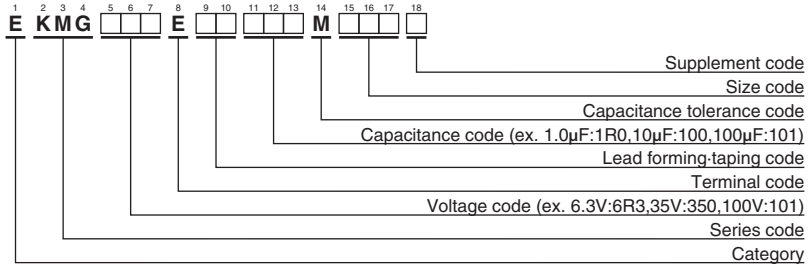
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max | | | | | | |
| L' | L+1.5max | | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

## KMG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 220 | 5×11 | 0.34 | 140 | EKMG6R3E□□221ME11D |
| | 330 | 6.3×11 | 0.34 | 190 | EKMG6R3E□□331MF11D |
| | 470 | 6.3×11 | 0.34 | 230 | EKMG6R3E□□471MF11D |
| | 1,000 | 8×11.5 | 0.34 | 380 | EKMG6R3E□□102MHB5D |
| | 2,200 | 10×20 | 0.36 | 710 | EKMG6R3E□□222MJ20S |
| | 3,300 | 10×20 | 0.38 | 840 | EKMG6R3E□□332MJ20S |
| | 4,700 | 12.5×20 | 0.40 | 1,090 | EKMG6R3E□□472MK20S |
| | 6,800 | 12.5×25 | 0.44 | 1,350 | EKMG6R3E□□682MK25S |
| | 10,000 | 16×25 | 0.52 | 1,650 | EKMG6R3E□□103ML25S |
| | 15,000 | 16×35.5 | 0.62 | 2,010 | EKMG6R3E□□153MLP1S |
| | 22,000 | 18×40 | 0.76 | 2,350 | EKMG6R3E□□223MM40S |
| 10 | 220 | 6.3×11 | 0.24 | 170 | EKMG100E□□221MF11D |
| | 330 | 6.3×11 | 0.24 | 200 | EKMG100E□□331MF11D |
| | 470 | 8×11.5 | 0.24 | 250 | EKMG100E□□471MHB5D |
| | 1,000 | 10×12.5 | 0.24 | 460 | EKMG100E□□102MJC5S |
| | 2,200 | 10×20 | 0.26 | 760 | EKMG100E□□222MJ20S |
| | 3,300 | 12.5×20 | 0.28 | 1,000 | EKMG100E□□332MK20S |
| | 4,700 | 12.5×25 | 0.30 | 1,260 | EKMG100E□□472MK25S |
| | 6,800 | 16×25 | 0.34 | 1,570 | EKMG100E□□682ML25S |
| | 10,000 | 16×35.5 | 0.42 | 1,890 | EKMG100E□□103MLP1S |
| | 15,000 | 18×35.5 | 0.52 | 2,180 | EKMG100E□□153MMP1S |
| 16 | 100 | 5×11 | 0.20 | 110 | EKMG160E□□101ME11D |
| | 220 | 6.3×11 | 0.20 | 180 | EKMG160E□□221MF11D |
| | 330 | 8×11.5 | 0.20 | 260 | EKMG160E□□331MHB5D |
| | 470 | 8×11.5 | 0.20 | 310 | EKMG160E□□471MHB5D |
| | 1,000 | 10×16 | 0.20 | 560 | EKMG160E□□102MJ16S |
| | 2,200 | 12.5×20 | 0.22 | 920 | EKMG160E□□222MK20S |
| | 3,300 | 12.5×25 | 0.24 | 1,170 | EKMG160E□□332MK25S |
| | 4,700 | 16×25 | 0.26 | 1,480 | EKMG160E□□472ML25S |
| | 6,800 | 16×31.5 | 0.30 | 1,780 | EKMG160E□□682MLN3S |
| | 10,000 | 18×35.5 | 0.38 | 2,060 | EKMG160E□□103MMP1S |
| 25 | 47 | 5×11 | 0.16 | 80 | EKMG250E□□470ME11D |
| | 100 | 6.3×11 | 0.16 | 130 | EKMG250E□□101MF11D |
| | 220 | 8×11.5 | 0.16 | 230 | EKMG250E□□221MHB5D |
| | 330 | 8×11.5 | 0.16 | 310 | EKMG250E□□331MHB5D |
| | 470 | 10×12.5 | 0.16 | 380 | EKMG250E□□471MJC5S |
| | 1,000 | 10×20 | 0.16 | 680 | EKMG250E□□102MJ20S |
| | 2,200 | 12.5×25 | 0.18 | 1,090 | EKMG250E□□222MK25S |
| | 3,300 | 16×25 | 0.20 | 1,400 | EKMG250E□□332ML25S |
| | 4,700 | 16×31.5 | 0.22 | 1,710 | EKMG250E□□472MLN3S |
| | 6,800 | 18×35.5 | 0.26 | 2,040 | EKMG250E□□682MMP1S |
| 35 | 47 | 5×11 | 0.14 | 90 | EKMG350E□□470ME11D |
| | 100 | 6.3×11 | 0.14 | 150 | EKMG350E□□101MF11D |
| | 220 | 8×11.5 | 0.14 | 270 | EKMG350E□□221MHB5D |
| | 330 | 10×12.5 | 0.14 | 350 | EKMG350E□□331MJC5S |
| | 470 | 10×16 | 0.14 | 460 | EKMG350E□□471MJ16S |
| | 1,000 | 12.5×20 | 0.14 | 810 | EKMG350E□□102MK20S |
| | 2,200 | 16×25 | 0.16 | 1,260 | EKMG350E□□222ML25S |
| | 3,300 | 16×35.5 | 0.18 | 1,610 | EKMG350E□□332MLP1S |
| | 4,700 | 18×35.5 | 0.20 | 1,910 | EKMG350E□□472MMP1S |
| 50 | 1.0 | 5×11 | 0.12 | 13 | EKMG500E□□1R0ME11D |
| | 2.2 | 5×11 | 0.12 | 20 | EKMG500E□□2R2ME11D |
| | 3.3 | 5×11 | 0.12 | 25 | EKMG500E□□3R3ME11D |
| | 4.7 | 5×11 | 0.12 | 30 | EKMG500E□□4R7ME11D |
| | 10 | 5×11 | 0.12 | 40 | EKMG500E□□100ME11D |
| | 22 | 5×11 | 0.12 | 65 | EKMG500E□□220ME11D |
| | 33 | 5×11 | 0.12 | 90 | EKMG500E□□330ME11D |
| | 47 | 6.3×11 | 0.12 | 110 | EKMG500E□□470MF11D |
| | 100 | 8×11.5 | 0.12 | 180 | EKMG500E□□101MHB5D |
| | 220 | 10×12.5 | 0.12 | 300 | EKMG500E□□221MJC5S |
| | 330 | 10×16 | 0.12 | 410 | EKMG500E□□331MJ16S |
| | 470 | 10×20 | 0.12 | 530 | EKMG500E□□471MJ20S |
| | 1,000 | 12.5×25 | 0.12 | 950 | EKMG500E□□102MK25S |
| | 2,200 | 16×35.5 | 0.14 | 1,470 | EKMG500E□□222MLP1S |
| | 3,300 | 18×35.5 | 0.16 | 1,770 | EKMG500E□□332MMP1S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 63 | 10 | 5×11 | 0.10 | 46 | EKMG630E□□100ME11D |
| | 22 | 5×11 | 0.10 | 71 | EKMG630E□□220ME11D |
| | 33 | 6.3×11 | 0.10 | 100 | EKMG630E□□330MF11D |
| | 47 | 6.3×11 | 0.10 | 120 | EKMG630E□□470MF11D |
| | 100 | 10×12.5 | 0.10 | 215 | EKMG630E□□101MJC5S |
| | 220 | 10×16 | 0.10 | 335 | EKMG630E□□221MJ16S |
| | 330 | 10×20 | 0.10 | 510 | EKMG630E□□331MJ20S |
| | 470 | 12.5×20 | 0.10 | 640 | EKMG630E□□471MK20S |
| | 1,000 | 16×25 | 0.10 | 930 | EKMG630E□□102ML25S |
| 100 | 1.0 | 5×11 | 0.08 | 15 | EKMG101E□□1R0ME11D |
| | 2.2 | 5×11 | 0.08 | 21 | EKMG101E□□2R2ME11D |
| | 3.3 | 5×11 | 0.08 | 29 | EKMG101E□□3R3ME11D |
| | 4.7 | 5×11 | 0.08 | 32 | EKMG101E□□4R7ME11D |
| | 10 | 6.3×11 | 0.08 | 54 | EKMG101E□□100MF11D |
| | 22 | 8×11.5 | 0.08 | 93 | EKMG101E□□220MHB5D |
| | 33 | 8×11.5 | 0.08 | 130 | EKMG101E□□330MHB5D |
| | 47 | 10×12.5 | 0.08 | 165 | EKMG101E□□470MJC5S |
| | 100 | 10×20 | 0.08 | 265 | EKMG101E□□101MJ20S |
| | 220 | 12.5×25 | 0.08 | 440 | EKMG101E□□221MK25S |
| | 330 | 16×25 | 0.08 | 540 | EKMG101E□□331ML25S |
| | 470 | 16×31.5 | 0.08 | 715 | EKMG101E□□471MLN3S |
| | 1,000 | 18×40 | 0.08 | 985 | EKMG101E□□102MM40S |
| 160 | 3.3 | 6.3×11 | 0.20 | 28 | EKMG161E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.20 | 34 | EKMG161E□□4R7MF11D |
| | 10 | 10×12.5 | 0.20 | 67 | EKMG161E□□100MJC5S |
| | 22 | 10×20 | 0.20 | 120 | EKMG161E□□220MJ20S |
| | 33 | 10×20 | 0.20 | 145 | EKMG161E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 195 | EKMG161E□□470MK20S |
| | 100 | 16×25 | 0.20 | 335 | EKMG161E□□101ML25S |
| | 220 | 16×31.5 | 0.20 | 540 | EKMG161E□□221MLN3S |
| | 330 | 18×35.5 | 0.20 | 705 | EKMG161E□□331MMP1S |
| 200 | 3.3 | 6.3×11 | 0.20 | 28 | EKMG201E□□3R3MF11D |
| | 4.7 | 8×11.5 | 0.20 | 39 | EKMG201E□□4R7MHB5D |
| | 10 | 10×16 | 0.20 | 74 | EKMG201E□□100MJ16S |
| | 22 | 10×20 | 0.20 | 120 | EKMG201E□□220MJ20S |
| | 33 | 12.5×20 | 0.20 | 160 | EKMG201E□□330MK20S |
| | 47 | 12.5×20 | 0.20 | 195 | EKMG201E□□470MK20S |
| | 100 | 16×25 | 0.20 | 335 | EKMG201E□□101ML25S |
| | 220 | 18×35.5 | 0.20 | 575 | EKMG201E□□221MMP1S |
| 250 | 2.2 | 6.3×11 | 0.20 | 23 | EKMG251E□□2R2MF11D |
| | 3.3 | 8×11.5 | 0.20 | 32 | EKMG251E□□3R3MHB5D |
| | 4.7 | 8×11.5 | 0.20 | 39 | EKMG251E□□4R7MHB5D |
| | 10 | 10×16 | 0.20 | 74 | EKMG251E□□100MJ16S |
| | 22 | 12.5×20 | 0.20 | 130 | EKMG251E□□220MK20S |
| | 33 | 12.5×20 | 0.20 | 160 | EKMG251E□□330MK20S |
| | 47 | 12.5×25 | 0.20 | 210 | EKMG251E□□470MK25S |
| | 100 | 16×31.5 | 0.20 | 365 | EKMG251E□□101MLN3S |
| | 220 | 18×40 | 0.20 | 585 | EKMG251E□□221MM40S |
| 350 | 1.0 | 6.3×11 | 0.24 | 15 | EKMG351E□□1R0MF11D |
| | 2.2 | 8×11.5 | 0.24 | 26 | EKMG351E□□2R2MHB5D |
| | 3.3 | 10×12.5 | 0.24 | 38 | EKMG351E□□3R3MJC5S |
| | 4.7 | 10×16 | 0.24 | 50 | EKMG351E□□4R7MJ16S |
| | 10 | 10×20 | 0.24 | 80 | EKMG351E□□100MJ20S |
| | 22 | 12.5×20 | 0.24 | 130 | EKMG351E□□220MK20S |
| | 33 | 16×25 | 0.24 | 195 | EKMG351E□□330ML25S |
| | 47 | 16×25 | 0.24 | 230 | EKMG351E□□470ML25S |
| | 100 | 18×31.5 | 0.24 | 375 | EKMG351E□□101MMN3S |
| 400 | 1.0 | 6.3×11 | 0.24 | 15 | EKMG401E□□1R0MF11D |
| | 2.2 | 8×11.5 | 0.24 | 26 | EKMG401E□□2R2MHB5D |
| | 3.3 | 10×12.5 | 0.24 | 38 | EKMG401E□□3R3MJC5S |
| | 4.7 | 10×16 | 0.24 | 50 | EKMG401E□□4R7MJ16S |
| | 10 | 10×20 | 0.24 | 80 | EKMG401E□□100MJ20S |
| | 22 | 12.5×25 | 0.24 | 145 | EKMG401E□□220MK25S |
| | 33 | 16×25 | 0.24 | 195 | EKMG401E□□330ML25S |
| | 47 | 16×31.5 | 0.24 | 250 | EKMG401E□□470MLN3S |
| | 100 | 16×40 | 0.24 | 350 | EKMG401E□□101ML40S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

## KMG Series

### ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 2.2 | 10×12.5 | 0.24 | 23 | EKMG451E□□2R2MJC5S |
| | 3.3 | 10×16 | 0.24 | 31 | EKMG451E□□3R3MJ16S |
| | 4.7 | 10×20 | 0.24 | 40 | EKMG451E□□4R7MJ20S |
| | 10 | 12.5×20 | 0.24 | 65 | EKMG451E□□100MK20S |
| | 22 | 16×25 | 0.24 | 115 | EKMG451E□□220ML25S |
| | 33 | 16×31.5 | 0.24 | 155 | EKMG451E□□330MLN3S |
| | 47 | 16×35.5 | 0.24 | 185 | EKMG451E□□470MLP1S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 1.0 to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

# SME-BP Series

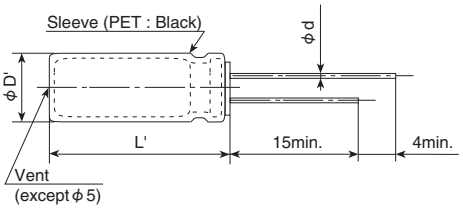
- ●Standard Bi-polar type
- ●Endurance : 2,000 hours at 85℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

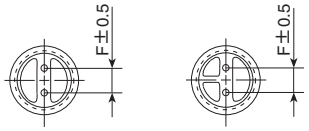
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃ | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 100Vdc | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) | | | | | | | | | |
| **Leakage Current** | I=0.06CV or 10μA, whichever is greater. (at 20℃ after 2 minutes)<br>I=0.03CV or 3μA, whichever is greater. (at 20℃ after 5 minutes)<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
| | tanδ (Max.) | 0.24 | 0.24 | 0.20 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.10 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | | | | |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z(−40℃)/Z(+20℃) | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 3 (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃, however the polarization shall be reversed every 250 hours. | | | | | | | | | |
| | Rated voltage | 6.3 to 16Vdc | | | | 25 to 100Vdc | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | |
| | Rated voltage | 6.3 to 16Vdc | | | | 25 to 100Vdc | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : E



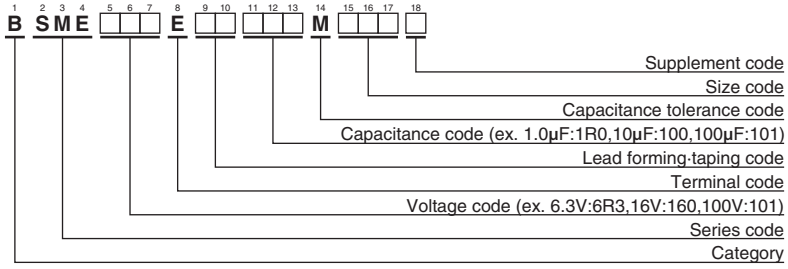




(φ5 to φ10) (φ12.5 to φ18)

Gas escape end seal

| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | | | | |
| L' | L+1.5max. | | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

# SME-BP Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 33 | 5×11 | 0.24 | 64 | BSME6R3E□□330ME11D |
| | 47 | 5×11 | 0.24 | 76 | BSME6R3E□□470ME11D |
| | 100 | 6.3×11 | 0.24 | 125 | BSME6R3E□□101MF11D |
| | 220 | 8×11.5 | 0.24 | 215 | BSME6R3E□□221MHB5D |
| | 330 | 8×11.5 | 0.24 | 265 | BSME6R3E□□331MHB5D |
| | 470 | 10×12.5 | 0.24 | 370 | BSME6R3E□□471MJC5S |
| | 1,000 | 10×20 | 0.24 | 650 | BSME6R3E□□102MJ20S |
| | 2,200 | 12.5×25 | 0.26 | 1,160 | BSME6R3E□□222MK25S |
| | 3,300 | 16×25 | 0.28 | 1,570 | BSME6R3E□□332ML25S |
| | 4,700 | 16×31.5 | 0.30 | 2,020 | BSME6R3E□□472MLN3S |
| | 6,800 | 18×35.5 | 0.34 | 2,600 | BSME6R3E□□682MMP1S |
| 10 | 22 | 5×11 | 0.24 | 57 | BSME100E□□220ME11D |
| | 33 | 5×11 | 0.24 | 64 | BSME100E□□330ME11D |
| | 47 | 5×11 | 0.24 | 76 | BSME100E□□470ME11D |
| | 100 | 6.3×11 | 0.24 | 125 | BSME100E□□101MF11D |
| | 220 | 8×11.5 | 0.24 | 215 | BSME100E□□221MHB5D |
| | 330 | 10×16 | 0.24 | 345 | BSME100E□□331MJ16S |
| | 470 | 10×16 | 0.24 | 410 | BSME100E□□471MJ16S |
| | 1,000 | 12.5×20 | 0.24 | 720 | BSME100E□□102MK20S |
| | 2,200 | 16×25 | 0.26 | 1,280 | BSME100E□□222ML25S |
| | 3,300 | 16×31.5 | 0.28 | 1,690 | BSME100E□□332MLN3S |
| | 4,700 | 18×35.5 | 0.30 | 2,160 | BSME100E□□472MMP1S |
| 16 | 10 | 5×11 | 0.20 | 42 | BSME160E□□100ME11D |
| | 22 | 5×11 | 0.20 | 57 | BSME160E□□220ME11D |
| | 33 | 5×11 | 0.20 | 70 | BSME160E□□330ME11D |
| | 47 | 6.3×11 | 0.20 | 95 | BSME160E□□470MF11D |
| | 100 | 8×11.5 | 0.20 | 160 | BSME160E□□101MHB5D |
| | 220 | 10×12.5 | 0.20 | 275 | BSME160E□□221MJC5S |
| | 330 | 10×16 | 0.20 | 375 | BSME160E□□331MJ16S |
| | 470 | 10×20 | 0.20 | 485 | BSME160E□□471MJ20S |
| | 1,000 | 12.5×25 | 0.20 | 855 | BSME160E□□102MK25S |
| | 2,200 | 16×31.5 | 0.22 | 1,510 | BSME160E□□222MLN3S |
| | 3,300 | 18×35.5 | 0.24 | 1,980 | BSME160E□□332MMP1S |
| 25 | 10 | 5×11 | 0.20 | 42 | BSME250E□□100ME11D |
| | 22 | 6.3×11 | 0.20 | 65 | BSME250E□□220MF11D |
| | 33 | 6.3×11 | 0.20 | 80 | BSME250E□□330MF11D |
| | 47 | 6.3×11 | 0.20 | 95 | BSME250E□□470MF11D |
| | 100 | 8×11.5 | 0.20 | 160 | BSME250E□□101MHB5D |
| | 220 | 10×16 | 0.20 | 305 | BSME250E□□221MJ16S |
| | 330 | 12.5×20 | 0.20 | 450 | BSME250E□□331MK20S |
| | 470 | 12.5×20 | 0.20 | 540 | BSME250E□□471MK20S |
| | 1,000 | 16×25 | 0.20 | 950 | BSME250E□□102ML25S |
| | 2,200 | 18×35.5 | 0.22 | 1,620 | BSME250E□□222MMP1S |
| 35 | 4.7 | 5×11 | 0.16 | 34 | BSME350E□□4R7ME11D |
| | 10 | 5×11 | 0.16 | 43 | BSME350E□□100ME11D |
| | 22 | 6.3×11 | 0.16 | 73 | BSME350E□□220MF11D |
| | 33 | 8×11.5 | 0.16 | 100 | BSME350E□□330MHB5D |
| | 47 | 8×11.5 | 0.16 | 120 | BSME350E□□470MHB5D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 100 | 10×16 | 0.16 | 230 | BSME350E□□101MJ16S |
| | 220 | 12.5×20 | 0.16 | 410 | BSME350E□□221MK20S |
| | 330 | 12.5×20 | 0.16 | 505 | BSME350E□□331MK20S |
| | 470 | 12.5×25 | 0.16 | 655 | BSME350E□□471MK25S |
| | 1,000 | 16×31.5 | 0.16 | 1,140 | BSME350E□□102MLN3S |
| 50 | 1.0 | 5×11 | 0.14 | 17 | BSME500E□□1R0ME11D |
| | 2.2 | 5×11 | 0.14 | 25 | BSME500E□□2R2ME11D |
| | 3.3 | 5×11 | 0.14 | 27 | BSME500E□□3R3ME11D |
| | 4.7 | 5×11 | 0.14 | 34 | BSME500E□□4R7ME11D |
| | 10 | 6.3×11 | 0.14 | 52 | BSME500E□□100MF11D |
| | 22 | 8×11.5 | 0.14 | 89 | BSME500E□□220MHB5D |
| | 33 | 8×11.5 | 0.14 | 105 | BSME500E□□330MHB5D |
| | 47 | 10×12.5 | 0.14 | 150 | BSME500E□□470MJC5S |
| | 100 | 10×20 | 0.14 | 265 | BSME500E□□101MJ20S |
| | 220 | 12.5×25 | 0.14 | 480 | BSME500E□□221MK25S |
| | 330 | 16×25 | 0.14 | 650 | BSME500E□□331ML25S |
| | 470 | 16×31.5 | 0.14 | 835 | BSME500E□□471MLN3S |
| 63 | 3.3 | 5×11 | 0.12 | 28 | BSME630E□□3R3ME11D |
| | 4.7 | 6.3×11 | 0.12 | 34 | BSME630E□□4R7MF11D |
| | 10 | 6.3×11 | 0.12 | 57 | BSME630E□□100MF11D |
| | 22 | 8×11.5 | 0.12 | 95 | BSME630E□□220MHB5D |
| | 33 | 10×12.5 | 0.12 | 135 | BSME630E□□330MJC5S |
| | 47 | 10×16 | 0.12 | 180 | BSME630E□□470MJ16S |
| | 100 | 12.5×20 | 0.12 | 320 | BSME630E□□101MK20S |
| | 220 | 16×25 | 0.12 | 575 | BSME630E□□221ML25S |
| | 330 | 16×31.5 | 0.12 | 655 | BSME630E□□331MLN3S |
| | 470 | 18×35.5 | 0.12 | 965 | BSME630E□□471MMP1S |
| 80 | 2.2 | 5×11 | 0.12 | 29 | BSME800E□□2R2ME11D |
| | 3.3 | 6.3×11 | 0.12 | 39 | BSME800E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.12 | 47 | BSME800E□□4R7MF11D |
| | 10 | 8×11.5 | 0.12 | 65 | BSME800E□□100MHB5D |
| | 22 | 10×16 | 0.12 | 125 | BSME800E□□220MJ16S |
| | 33 | 10×16 | 0.12 | 150 | BSME800E□□330MJ16S |
| | 47 | 10×20 | 0.12 | 195 | BSME800E□□470MJ20S |
| | 100 | 12.5×25 | 0.12 | 350 | BSME800E□□101MK25S |
| | 220 | 16×31.5 | 0.12 | 615 | BSME800E□□221MLN3S |
| | 330 | 18×35.5 | 0.12 | 755 | BSME800E□□331MMP1S |
| 100 | 1.0 | 5×11 | 0.10 | 21 | BSME101E□□1R0ME11D |
| | 2.2 | 6.3×11 | 0.10 | 34 | BSME101E□□2R2MF11D |
| | 3.3 | 6.3×11 | 0.10 | 39 | BSME101E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.10 | 47 | BSME101E□□4R7MF11D |
| | 10 | 8×11.5 | 0.10 | 71 | BSME101E□□100MHB5D |
| | 22 | 10×16 | 0.10 | 135 | BSME101E□□220MJ16S |
| | 33 | 12.5×20 | 0.10 | 220 | BSME101E□□330MK20S |
| | 47 | 12.5×20 | 0.10 | 240 | BSME101E□□470MK20S |
| | 100 | 16×25 | 0.10 | 425 | BSME101E□□101ML25S |
| | 220 | 18×35.5 | 0.10 | 720 | BSME101E□□221MMP1S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 1.0 to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

# KME-BP Series

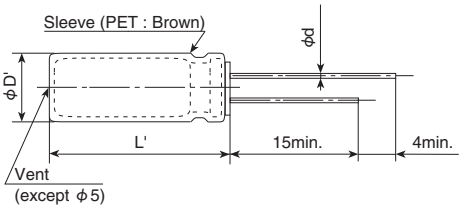
- ●Standard Bi-polar type
- ●Endurance : 1,000 hours at 105℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

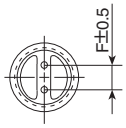
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 100Vdc | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) | | | | | | | | | |
| **Leakage Current** | I=0.06CV or 10μA, whichever is greater. (at 20℃ after 2 minutes)<br>I=0.03CV or 3μA, whichever is greater. (at 20℃ after 5 minutes)<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
| | tanδ (Max.) | 0.24 | 0.24 | 0.20 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.10 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | | | | |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z(−40℃)/Z(+20℃) | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 3 |
| | (at 120Hz) | | | | | | | | | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃, however the polarization shall be reversed every 250 hours. | | | | | | | | | |
| | Rated voltage | 6.3 to 16Vdc | | | | 25 to 100Vdc | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | |
| | Rated voltage | 6.3 to 16Vdc | | | | 25 to 100Vdc | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |

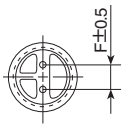
## ◆DIMENSIONS [mm]

●Terminal Code : E




(φ5 to φ10)

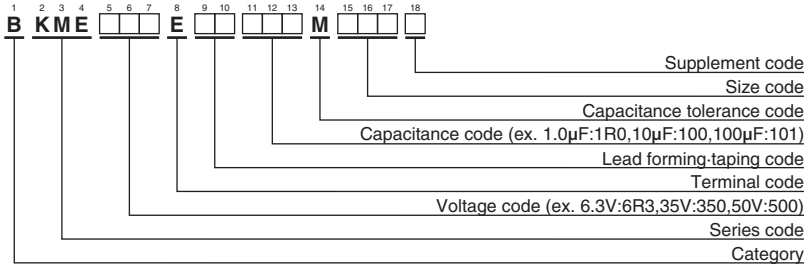



(φ12.5 to φ18)

Gas escape end seal

| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | | | | |
| L' | L+1.5max. | | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

# KME-BP Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 33 | 5×11 | 0.24 | 45 | BKME6R3E□□330ME11D |
| | 47 | 5×11 | 0.24 | 54 | BKME6R3E□□470ME11D |
| | 100 | 6.3×11 | 0.24 | 90 | BKME6R3E□□101MF11D |
| | 220 | 8×11.5 | 0.24 | 150 | BKME6R3E□□221MHB5D |
| | 330 | 8×11.5 | 0.24 | 185 | BKME6R3E□□331MHB5D |
| | 470 | 10×12.5 | 0.24 | 260 | BKME6R3E□□471MJC5S |
| | 1,000 | 10×20 | 0.24 | 460 | BKME6R3E□□102MJ20S |
| | 2,200 | 12.5×25 | 0.26 | 820 | BKME6R3E□□222MK25S |
| | 3,300 | 16×25 | 0.28 | 1,110 | BKME6R3E□□332ML25S |
| | 4,700 | 16×31.5 | 0.30 | 1,430 | BKME6R3E□□472MLN3S |
| | 6,800 | 18×35.5 | 0.34 | 1,830 | BKME6R3E□□682MMP1S |
| 10 | 22 | 5×11 | 0.24 | 37 | BKME100E□□220ME11D |
| | 33 | 5×11 | 0.24 | 45 | BKME100E□□330ME11D |
| | 47 | 5×11 | 0.24 | 54 | BKME100E□□470ME11D |
| | 100 | 6.3×11 | 0.24 | 90 | BKME100E□□101MF11D |
| | 220 | 8×11.5 | 0.24 | 150 | BKME100E□□221MHB5D |
| | 330 | 10×16 | 0.24 | 240 | BKME100E□□331MJ16S |
| | 470 | 10×16 | 0.24 | 290 | BKME100E□□471MJ16S |
| | 1,000 | 12.5×20 | 0.24 | 510 | BKME100E□□102MK20S |
| | 2,200 | 16×25 | 0.26 | 910 | BKME100E□□222ML25S |
| | 3,300 | 16×31.5 | 0.28 | 1,200 | BKME100E□□332MLN3S |
| | 4,700 | 18×35.5 | 0.30 | 1,520 | BKME100E□□472MMP1S |
| 16 | 10 | 5×11 | 0.20 | 27 | BKME160E□□100ME11D |
| | 22 | 5×11 | 0.20 | 40 | BKME160E□□220ME11D |
| | 33 | 5×11 | 0.20 | 49 | BKME160E□□330ME11D |
| | 47 | 6.3×11 | 0.20 | 67 | BKME160E□□470MF11D |
| | 100 | 8×11.5 | 0.20 | 110 | BKME160E□□101MHB5D |
| | 220 | 10×12.5 | 0.20 | 195 | BKME160E□□221MJC5S |
| | 330 | 10×16 | 0.20 | 265 | BKME160E□□331MJ16S |
| | 470 | 10×20 | 0.20 | 345 | BKME160E□□471MJ20S |
| | 1,000 | 12.5×25 | 0.20 | 605 | BKME160E□□102MK25S |
| | 2,200 | 16×31.5 | 0.22 | 1,070 | BKME160E□□222MLN3S |
| | 3,300 | 18×35.5 | 0.24 | 1,400 | BKME160E□□332MMP1S |
| 25 | 10 | 5×11 | 0.20 | 27 | BKME250E□□100ME11D |
| | 22 | 6.3×11 | 0.20 | 46 | BKME250E□□220MF11D |
| | 33 | 6.3×11 | 0.20 | 56 | BKME250E□□330MF11D |
| | 47 | 6.3×11 | 0.20 | 67 | BKME250E□□470MF11D |
| | 100 | 8×11.5 | 0.20 | 110 | BKME250E□□101MHB5D |
| | 220 | 10×16 | 0.20 | 215 | BKME250E□□221MJ16S |
| | 330 | 12.5×20 | 0.20 | 320 | BKME250E□□331MK20S |
| | 470 | 12.5×20 | 0.20 | 380 | BKME250E□□471MK20S |
| | 1,000 | 16×25 | 0.20 | 670 | BKME250E□□102ML25S |
| | 2,200 | 18×35.5 | 0.22 | 1,140 | BKME250E□□222MMP1S |
| 35 | 4.7 | 5×11 | 0.16 | 21 | BKME350E□□4R7ME11D |
| | 10 | 5×11 | 0.16 | 30 | BKME350E□□100ME11D |
| | 22 | 6.3×11 | 0.16 | 51 | BKME350E□□220MF11D |
| | 33 | 8×11.5 | 0.16 | 72 | BKME350E□□330MHB5D |
| | 47 | 8×11.5 | 0.16 | 86 | BKME350E□□470MHB5D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 100 | 10×16 | 0.16 | 160 | BKME350E□□101MJ16S |
| | 220 | 12.5×20 | 0.16 | 290 | BKME350E□□221MK20S |
| | 330 | 12.5×20 | 0.16 | 350 | BKME350E□□331MK20S |
| | 470 | 12.5×25 | 0.16 | 465 | BKME350E□□471MK25S |
| | 1,000 | 16×31.5 | 0.16 | 805 | BKME350E□□102MLN3S |
| 50 | 1.0 | 5×11 | 0.14 | 10 | BKME500E□□1R0ME11D |
| | 2.2 | 5×11 | 0.14 | 15 | BKME500E□□2R2ME11D |
| | 3.3 | 5×11 | 0.14 | 18 | BKME500E□□3R3ME11D |
| | 4.7 | 5×11 | 0.14 | 22 | BKME500E□□4R7ME11D |
| | 10 | 6.3×11 | 0.14 | 37 | BKME500E□□100MF11D |
| | 22 | 8×11.5 | 0.14 | 63 | BKME500E□□220MHB5D |
| | 33 | 8×11.5 | 0.14 | 77 | BKME500E□□330MHB5D |
| | 47 | 10×12.5 | 0.14 | 105 | BKME500E□□470MJC5S |
| | 100 | 10×20 | 0.14 | 190 | BKME500E□□101MJ20S |
| | 220 | 12.5×25 | 0.14 | 340 | BKME500E□□221MK25S |
| | 330 | 16×25 | 0.14 | 460 | BKME500E□□331ML25S |
| | 470 | 16×31.5 | 0.14 | 590 | BKME500E□□471MLN3S |
| 63 | 3.3 | 5×11 | 0.12 | 20 | BKME630E□□3R3ME11D |
| | 4.7 | 6.3×11 | 0.12 | 24 | BKME630E□□4R7MF11D |
| | 10 | 6.3×11 | 0.12 | 40 | BKME630E□□100MF11D |
| | 22 | 8×11.5 | 0.12 | 68 | BKME630E□□220MHB5D |
| | 33 | 10×12.5 | 0.12 | 98 | BKME630E□□330MJC5S |
| | 47 | 10×16 | 0.12 | 130 | BKME630E□□470MJ16S |
| | 100 | 12.5×20 | 0.12 | 225 | BKME630E□□101MK20S |
| | 220 | 16×25 | 0.12 | 405 | BKME630E□□221ML25S |
| | 330 | 16×31.5 | 0.12 | 535 | BKME630E□□331MLN3S |
| | 470 | 18×35.5 | 0.12 | 680 | BKME630E□□471MMP1S |
| 80 | 2.2 | 5×11 | 0.12 | 16 | BKME800E□□2R2ME11D |
| | 3.3 | 6.3×11 | 0.12 | 23 | BKME800E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.12 | 27 | BKME800E□□4R7MF11D |
| | 10 | 8×11.5 | 0.12 | 46 | BKME800E□□100MHB5D |
| | 22 | 10×16 | 0.12 | 89 | BKME800E□□220MJ16S |
| | 33 | 10×16 | 0.12 | 105 | BKME800E□□330MJ16S |
| | 47 | 10×20 | 0.12 | 140 | BKME800E□□470MJ20S |
| | 100 | 12.5×25 | 0.12 | 245 | BKME800E□□101MK25S |
| | 220 | 16×31.5 | 0.12 | 435 | BKME800E□□221MLN3S |
| | 330 | 18×35.5 | 0.12 | 570 | BKME800E□□331MMP1S |
| 100 | 1.0 | 5×11 | 0.10 | 12 | BKME101E□□1R0ME11D |
| | 2.2 | 6.3×11 | 0.10 | 20 | BKME101E□□2R2MF11D |
| | 3.3 | 6.3×11 | 0.10 | 25 | BKME101E□□3R3MF11D |
| | 4.7 | 6.3×11 | 0.10 | 30 | BKME101E□□4R7MF11D |
| | 10 | 8×11.5 | 0.10 | 50 | BKME101E□□100MHB5D |
| | 22 | 10×16 | 0.10 | 97 | BKME101E□□220MJ16S |
| | 33 | 12.5×20 | 0.10 | 140 | BKME101E□□330MK20S |
| | 47 | 12.5×20 | 0.10 | 170 | BKME101E□□470MK20S |
| | 100 | 16×25 | 0.10 | 300 | BKME101E□□101ML25S |
| | 220 | 18×35.5 | 0.10 | 510 | BKME101E□□221MMP1S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 1.0 to 4.7 | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to | 0.85 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

# KZM Series

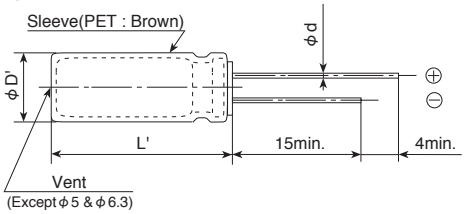
- Long-Life version of KZH series
- Endurance with ripple current : 6,000 to 10,000 hours at 105℃
- Newly innovative electrolyte is employed to minimize ESR
- Rated voltage range : 6.3 to 50Vdc, Nominal capacitance range : 27 to 10,000μF
- Non solvent resistant type
- **RoHS Compliant**

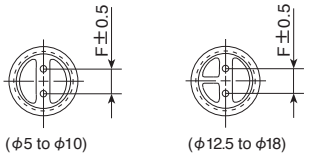
## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| Category Temperature Range | −40 to +105℃ | | | | | | |
| Rated Voltage Range | 6.3 to 50Vdc | | | | | | |
| Capacitance Tolerance | ±20% (M) (at 20℃, 120Hz) | | | | | | |
| Leakage Current | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) | | | | | | |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | tanδ (Max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | |
| Low Temperature Characteristics | Z(−25℃)/Z(+20℃) | 2 max. | | | | | |
| | Z(−40℃)/Z(+20℃) | 3 max. | | | | | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. | | | | | | |
| | Time | φ5 &φ6.3 : 6,000hours φ8 : 8,000hours φ10 to φ18 : 10,000hours | | | | | |
| | Capacitance change | ≦±25% of the initial value (6.3, 10Vdc : ≦± 30%) | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±25% of the initial value (6.3, 10Vdc : ≦±30%) | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |

## ◆DIMENSIONS [mm]

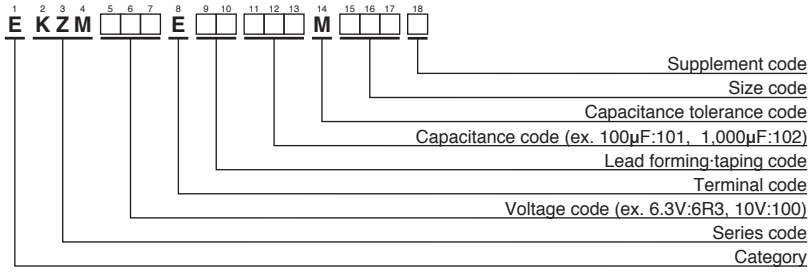
- Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | | | | |
| L' | L+1.5max. | | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 27 to 180 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to 10,000 | 0.85 | 0.95 | 0.98 | 1.00 |

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KZM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Impedance (Ωmax/100kHz) | | Rated ripple current (mArms/105℃,100kHz) | Part No. |
|---|---|---|---|---|---|---|---|
| | | | | 20℃ | -10℃ | | |
| 6.3 | 220 | 5 ×11 | 0.22 | 0.22 | 0.80 | 345 | EKZM6R3E□□221ME11D |
| | 470 | 6.3 ×11 | 0.22 | 0.094 | 0.35 | 540 | EKZM6R3E□□471MF11D |
| | 820 | 8 ×11.5 | 0.22 | 0.056 | 0.19 | 945 | EKZM6R3E□□821MHB5D |
| | 1,200 | 8 ×15 | 0.22 | 0.045 | 0.15 | 1,250 | EKZM6R3E□□122MH15D |
| | 1,200 | 10 ×12.5 | 0.22 | 0.039 | 0.14 | 1,330 | EKZM6R3E□□122MJC5S |
| | 1,500 | 8 ×20 | 0.22 | 0.029 | 0.11 | 1,500 | EKZM6R3E□□152MH20D |
| | 1,800 | 10 ×16 | 0.22 | 0.028 | 0.10 | 1,760 | EKZM6R3E□□182MJ16S |
| | 2,200 | 10 ×20 | 0.24 | 0.020 | 0.060 | 1,960 | EKZM6R3E□□222MJ20S |
| | 2,700 | 10 ×25 | 0.24 | 0.018 | 0.054 | 2,250 | EKZM6R3E□□272MJ25S |
| | 3,900 | 12.5 ×20 | 0.26 | 0.017 | 0.043 | 2,480 | EKZM6R3E□□392MK20S |
| | 4,700 | 12.5 ×25 | 0.28 | 0.015 | 0.038 | 2,900 | EKZM6R3E□□472MK25S |
| | 5,600 | 12.5 ×30 | 0.30 | 0.013 | 0.033 | 3,450 | EKZM6R3E□□562MK30S |
| | 6,800 | 12.5 ×35 | 0.32 | 0.012 | 0.031 | 3,570 | EKZM6R3E□□682MK35S |
| | 6,800 | 16 ×20 | 0.32 | 0.015 | 0.038 | 3,250 | EKZM6R3E□□682ML20S |
| | 8,200 | 16 ×25 | 0.36 | 0.013 | 0.035 | 3,630 | EKZM6R3E□□822ML25S |
| | 10,000 | 18 ×25 | 0.40 | 0.012 | 0.031 | 3,650 | EKZM6R3E□□103MM25S |
| 10 | 150 | 5 ×11 | 0.19 | 0.22 | 0.80 | 345 | EKZM100E□□151ME11D |
| | 330 | 6.3 ×11 | 0.19 | 0.094 | 0.35 | 540 | EKZM100E□□331MF11D |
| | 680 | 8 ×11.5 | 0.19 | 0.056 | 0.19 | 945 | EKZM100E□□681MHB5D |
| | 1,000 | 8 ×15 | 0.19 | 0.045 | 0.15 | 1,250 | EKZM100E□□102MH15D |
| | 1,000 | 10 ×12.5 | 0.19 | 0.039 | 0.14 | 1,330 | EKZM100E□□102MJC5S |
| | 1,500 | 8 ×20 | 0.19 | 0.029 | 0.11 | 1,500 | EKZM100E□□152MH20D |
| | 1,500 | 10 ×16 | 0.19 | 0.028 | 0.10 | 1,760 | EKZM100E□□152MJ16S |
| | 1,800 | 10 ×20 | 0.19 | 0.020 | 0.060 | 1,960 | EKZM100E□□182MJ20S |
| | 2,200 | 10 ×25 | 0.21 | 0.018 | 0.054 | 2,250 | EKZM100E□□222MJ25S |
| | 3,300 | 12.5 ×20 | 0.23 | 0.017 | 0.043 | 2,480 | EKZM100E□□332MK20S |
| | 3,900 | 12.5 ×25 | 0.23 | 0.015 | 0.038 | 2,900 | EKZM100E□□392MK25S |
| | 4,700 | 12.5 ×30 | 0.25 | 0.013 | 0.033 | 3,450 | EKZM100E□□472MK30S |
| | 4,700 | 16 ×20 | 0.25 | 0.015 | 0.038 | 3,250 | EKZM100E□□472ML20S |
| | 5,600 | 12.5 ×35 | 0.27 | 0.012 | 0.031 | 3,570 | EKZM100E□□562MK35S |
| | 6,800 | 16 ×25 | 0.29 | 0.013 | 0.035 | 3,630 | EKZM100E□□682ML25S |
| | 8,200 | 18 ×25 | 0.33 | 0.012 | 0.031 | 3,650 | EKZM100E□□822MM25S |
| 16 | 100 | 5 ×11 | 0.16 | 0.22 | 0.80 | 345 | EKZM160E□□101ME11D |
| | 220 | 6.3 ×11 | 0.16 | 0.094 | 0.35 | 540 | EKZM160E□□221MF11D |
| | 470 | 8 ×11.5 | 0.16 | 0.056 | 0.19 | 945 | EKZM160E□□471MHB5D |
| | 680 | 8 ×15 | 0.16 | 0.045 | 0.15 | 1,250 | EKZM160E□□681MH15D |
| | 680 | 10 ×12.5 | 0.16 | 0.039 | 0.14 | 1,330 | EKZM160E□□681MJC5S |
| | 1,000 | 8 ×20 | 0.16 | 0.029 | 0.11 | 1,500 | EKZM160E□□102MH20D |
| | 1,000 | 10 ×16 | 0.16 | 0.028 | 0.10 | 1,760 | EKZM160E□□102MJ16S |
| | 1,500 | 10 ×20 | 0.16 | 0.020 | 0.060 | 1,960 | EKZM160E□□152MJ20S |
| | 1,800 | 10 ×25 | 0.16 | 0.018 | 0.054 | 2,250 | EKZM160E□□182MJ25S |
| | 2,200 | 12.5 ×20 | 0.18 | 0.017 | 0.043 | 2,480 | EKZM160E□□222MK20S |
| | 2,700 | 12.5 ×25 | 0.18 | 0.015 | 0.038 | 2,900 | EKZM160E□□272MK25S |
| | 3,300 | 12.5 ×30 | 0.20 | 0.013 | 0.033 | 3,450 | EKZM160E□□332MK30S |
| | 3,300 | 16 ×20 | 0.20 | 0.015 | 0.038 | 3,250 | EKZM160E□□332ML20S |
| | 3,900 | 12.5 ×35 | 0.20 | 0.012 | 0.031 | 3,570 | EKZM160E□□392MK35S |
| | 4,700 | 16 ×25 | 0.22 | 0.013 | 0.035 | 3,630 | EKZM160E□□472ML25S |
| | 5,600 | 18 ×25 | 0.24 | 0.012 | 0.031 | 3,650 | EKZM160E□□562MM25S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KZM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Impedance (Ωmax/100kHz) | | Rated ripple current (mArms/105℃,100kHz) | Part No. |
|---|---|---|---|---|---|---|---|
| | | | | 20℃ | -10℃ | | |
| 25 | 68 | 5 × 11 | 0.14 | 0.22 | 0.80 | 345 | EKZM250E□□680ME11D |
| | 150 | 6.3 × 11 | 0.14 | 0.094 | 0.35 | 540 | EKZM250E□□151MF11D |
| | 330 | 8 × 11.5 | 0.14 | 0.056 | 0.19 | 945 | EKZM250E□□331MHB5D |
| | 390 | 8 × 15 | 0.14 | 0.045 | 0.15 | 1,250 | EKZM250E□□391MH15D |
| | 470 | 10 × 12.5 | 0.14 | 0.039 | 0.14 | 1,330 | EKZM250E□□471MJC5S |
| | 560 | 8 × 20 | 0.14 | 0.029 | 0.11 | 1,500 | EKZM250E□□561MH20D |
| | 680 | 10 × 16 | 0.14 | 0.028 | 0.10 | 1,760 | EKZM250E□□681MJ16S |
| | 820 | 10 × 20 | 0.14 | 0.020 | 0.060 | 1,960 | EKZM250E□□821MJ20S |
| | 1,000 | 10 × 25 | 0.14 | 0.018 | 0.054 | 2,250 | EKZM250E□□102MJ25S |
| | 1,500 | 12.5 × 20 | 0.14 | 0.017 | 0.043 | 2,480 | EKZM250E□□152MK20S |
| | 1,800 | 12.5 × 25 | 0.14 | 0.015 | 0.038 | 2,900 | EKZM250E□□182MK25S |
| | 2,200 | 12.5 × 30 | 0.16 | 0.013 | 0.033 | 3,450 | EKZM250E□□222MK30S |
| | 2,200 | 16 × 20 | 0.16 | 0.015 | 0.038 | 3,250 | EKZM250E□□222ML20S |
| | 2,700 | 12.5 × 35 | 0.16 | 0.012 | 0.031 | 3,570 | EKZM250E□□272MK35S |
| | 3,300 | 16 × 25 | 0.18 | 0.013 | 0.035 | 3,630 | EKZM250E□□332ML25S |
| | 3,900 | 18 × 25 | 0.18 | 0.012 | 0.031 | 3,650 | EKZM250E□□392MM25S |
| 35 | 47 | 5 × 11 | 0.12 | 0.22 | 0.80 | 345 | EKZM350E□□470ME11D |
| | 100 | 6.3 × 11 | 0.12 | 0.094 | 0.35 | 540 | EKZM350E□□101MF11D |
| | 220 | 8 × 11.5 | 0.12 | 0.056 | 0.19 | 945 | EKZM350E□□221MHB5D |
| | 270 | 8 × 15 | 0.12 | 0.045 | 0.15 | 1,250 | EKZM350E□□271MH15D |
| | 330 | 10 × 12.5 | 0.12 | 0.039 | 0.14 | 1,330 | EKZM350E□□331MJC5S |
| | 390 | 8 × 20 | 0.12 | 0.029 | 0.11 | 1,500 | EKZM350E□□391MH20D |
| | 470 | 10 × 16 | 0.12 | 0.028 | 0.10 | 1,760 | EKZM350E□□471MJ16S |
| | 560 | 10 × 20 | 0.12 | 0.020 | 0.060 | 1,960 | EKZM350E□□561MJ20S |
| | 680 | 10 × 25 | 0.12 | 0.018 | 0.054 | 2,250 | EKZM350E□□681MJ25S |
| | 1,000 | 12.5 × 20 | 0.12 | 0.017 | 0.043 | 2,480 | EKZM350E□□102MK20S |
| | 1,200 | 12.5 × 25 | 0.12 | 0.015 | 0.038 | 2,900 | EKZM350E□□122MK25S |
| | 1,500 | 12.5 × 30 | 0.12 | 0.013 | 0.033 | 3,450 | EKZM350E□□152MK30S |
| | 1,500 | 16 × 20 | 0.12 | 0.015 | 0.038 | 3,250 | EKZM350E□□152ML20S |
| | 1,800 | 12.5 × 35 | 0.12 | 0.012 | 0.031 | 3,570 | EKZM350E□□182MK35S |
| | 2,200 | 16 × 25 | 0.14 | 0.013 | 0.035 | 3,630 | EKZM350E□□222ML25S |
| | 2,700 | 18 × 25 | 0.14 | 0.012 | 0.031 | 3,650 | EKZM350E□□272MM25S |
| 50 | 27 | 5 × 11 | 0.10 | 0.34 | 1.18 | 238 | EKZM500E□□270ME11D |
| | 56 | 6.3 × 11 | 0.10 | 0.14 | 0.50 | 385 | EKZM500E□□560MF11D |
| | 100 | 8 × 11.5 | 0.10 | 0.074 | 0.22 | 724 | EKZM500E□□101MHB5D |
| | 120 | 8 × 15 | 0.10 | 0.061 | 0.18 | 950 | EKZM500E□□121MH15D |
| | 150 | 10 × 12.5 | 0.10 | 0.061 | 0.18 | 979 | EKZM500E□□151MJC5S |
| | 180 | 8 × 20 | 0.10 | 0.046 | 0.14 | 1,190 | EKZM500E□□181MH20D |
| | 220 | 10 × 16 | 0.10 | 0.042 | 0.12 | 1,370 | EKZM500E□□221MJ16S |
| | 270 | 10 × 20 | 0.10 | 0.030 | 0.090 | 1,580 | EKZM500E□□271MJ20S |
| | 330 | 10 × 25 | 0.10 | 0.028 | 0.085 | 1,870 | EKZM500E□□331MJ25S |
| | 470 | 12.5 × 20 | 0.10 | 0.027 | 0.068 | 2,050 | EKZM500E□□471MK20S |
| | 560 | 12.5 × 25 | 0.10 | 0.023 | 0.059 | 2,410 | EKZM500E□□561MK25S |
| | 680 | 12.5 × 30 | 0.10 | 0.021 | 0.052 | 2,860 | EKZM500E□□681MK30S |
| | 820 | 12.5 × 35 | 0.10 | 0.019 | 0.051 | 2,960 | EKZM500E□□821MK35S |
| | 820 | 16 × 20 | 0.10 | 0.023 | 0.059 | 2,730 | EKZM500E□□821ML20S |
| | 1,000 | 16 × 25 | 0.10 | 0.021 | 0.056 | 3,010 | EKZM500E□□102ML25S |
| | 1,500 | 18 × 25 | 0.10 | 0.019 | 0.051 | 3,290 | EKZM500E□□152MM25S |

□□ : Enter the appropriate lead forming or taping code.

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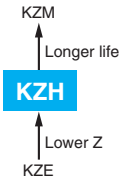
NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KZH Series

- Ultra Low impedance for Personal Computers Storage Equipment
- Endurance with ripple current: 5,000 to 6,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

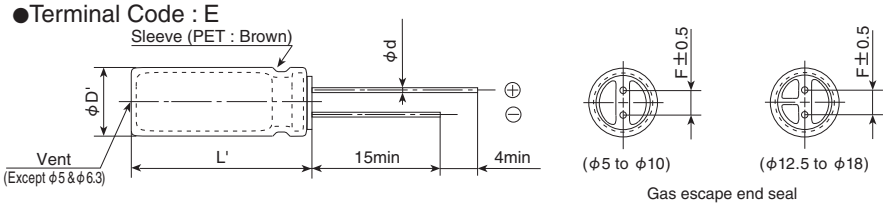


## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +105℃ |
| **Rated Voltage Range** | 6.3 to 35Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) \| 6.3V \| 10V \| 16V \| 25V \| 35V<br>tanδ (Max.) \| 0.22 \| 0.19 \| 0.16 \| 0.14 \| 0.12<br>When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z (-25℃) / Z (+20℃) \| 2max.<br>Z (-40℃) / Z (+20℃) \| 3max.<br>(at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage)for the specified period of time at 105℃.<br>Time \| φ5 & φ6.3 : 5,000hours φ8 to φ16 : 6,000hours<br>Capacitance change \| ≦±25% of the initial value (6.3, 10Vdc :≦±30%)<br>D.F. (tanδ) \| ≦200% of the initial specified value<br>Leakage current \| ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change \| ≦±25% of the initial value (6.3, 10Vdc :≦±30%)<br>D.F. (tanδ) \| ≦200% of the initial specified value<br>Leakage current \| ≦The initial specified value |

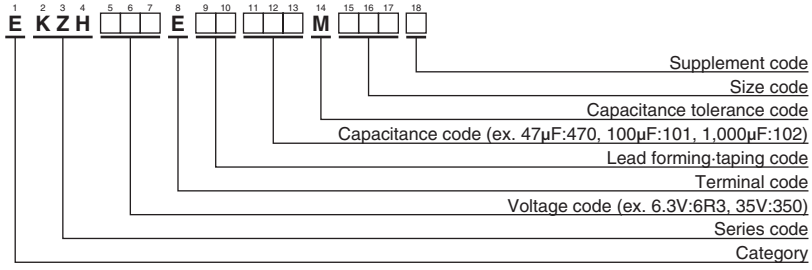
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 |
|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 |
| φD' | φD+0.5max. | | | | | |
| L' | L+1.5max. | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KZH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 220 | 5×11 | 0.24 | 0.80 | 330 | EKZH6R3E□□221ME11D |
| | 470 | 6.3×11 | 0.11 | 0.35 | 500 | EKZH6R3E□□471MF11D |
| | 820 | 8×11.5 | 0.062 | 0.19 | 900 | EKZH6R3E□□821MHB5D |
| | 1,200 | 8×15 | 0.048 | 0.15 | 1,210 | EKZH6R3E□□122MH15D |
| | 1,200 | 10×12.5 | 0.045 | 0.14 | 1,240 | EKZH6R3E□□122MJC5S |
| | 1,500 | 8×20 | 0.033 | 0.11 | 1,410 | EKZH6R3E□□152MH20D |
| | 1,800 | 10×16 | 0.032 | 0.10 | 1,650 | EKZH6R3E□□182MJ16S |
| | 2,200 | 10×20 | 0.020 | 0.060 | 1,960 | EKZH6R3E□□222MJ20S |
| | 2,700 | 10×25 | 0.018 | 0.054 | 2,250 | EKZH6R3E□□272MJ25S |
| | 3,900 | 12.5×20 | 0.017 | 0.043 | 2,480 | EKZH6R3E□□392MK20S |
| | 4,700 | 12.5×25 | 0.015 | 0.038 | 2,900 | EKZH6R3E□□472MK25S |
| | 5,600 | 12.5×30 | 0.013 | 0.033 | 3,450 | EKZH6R3E□□562MK30S |
| | 6,800 | 12.5×35 | 0.012 | 0.031 | 3,570 | EKZH6R3E□□682MK35S |
| | 6,800 | 16×20 | 0.015 | 0.038 | 3,250 | EKZH6R3E□□682ML20S |
| | 8,200 | 16×25 | 0.013 | 0.035 | 3,630 | EKZH6R3E□□822ML25S |
| 10 | 150 | 5×11 | 0.24 | 0.80 | 330 | EKZH100E□□151ME11D |
| | 330 | 6.3×11 | 0.11 | 0.35 | 500 | EKZH100E□□331MF11D |
| | 680 | 8×11.5 | 0.062 | 0.19 | 900 | EKZH100E□□681MHB5D |
| | 1,000 | 8×15 | 0.048 | 0.15 | 1,210 | EKZH100E□□102MH15D |
| | 1,000 | 10×12.5 | 0.045 | 0.14 | 1,240 | EKZH100E□□102MJC5S |
| | 1,500 | 8×20 | 0.033 | 0.11 | 1,410 | EKZH100E□□152MH20D |
| | 1,500 | 10×16 | 0.032 | 0.10 | 1,650 | EKZH100E□□152MJ16S |
| | 1,800 | 10×20 | 0.020 | 0.060 | 1,960 | EKZH100E□□182MJ20S |
| | 2,200 | 10×25 | 0.018 | 0.054 | 2,250 | EKZH100E□□222MJ25S |
| | 3,300 | 12.5×20 | 0.017 | 0.043 | 2,480 | EKZH100E□□332MK20S |
| | 3,900 | 12.5×25 | 0.015 | 0.038 | 2,900 | EKZH100E□□392MK25S |
| | 4,700 | 12.5×30 | 0.013 | 0.033 | 3,450 | EKZH100E□□472MK30S |
| | 4,700 | 16×20 | 0.015 | 0.038 | 3,250 | EKZH100E□□472ML20S |
| | 5,600 | 12.5×35 | 0.012 | 0.031 | 3,570 | EKZH100E□□562MK35S |
| | 6,800 | 16×25 | 0.013 | 0.035 | 3,630 | EKZH100E□□682ML25S |
| 16 | 100 | 5×11 | 0.24 | 0.80 | 330 | EKZH160E□□101ME11D |
| | 220 | 6.3×11 | 0.11 | 0.35 | 500 | EKZH160E□□221MF11D |
| | 470 | 8×11.5 | 0.062 | 0.19 | 900 | EKZH160E□□471MHB5D |
| | 680 | 8×15 | 0.048 | 0.15 | 1,210 | EKZH160E□□681MH15D |
| | 680 | 10×12.5 | 0.045 | 0.14 | 1,240 | EKZH160E□□681MJC5S |
| | 1,000 | 8×20 | 0.033 | 0.11 | 1,410 | EKZH160E□□102MH20D |
| | 1,000 | 10×16 | 0.032 | 0.10 | 1,650 | EKZH160E□□102MJ16S |
| | 1,500 | 10×20 | 0.020 | 0.06 | 1,960 | EKZH160E□□152MJ20S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 16 | 1,800 | 10×25 | 0.018 | 0.054 | 2,250 | EKZH160E□□182MJ25S |
| | 2,200 | 12.5×20 | 0.017 | 0.043 | 2,480 | EKZH160E□□222MK20S |
| | 2,700 | 12.5×25 | 0.015 | 0.038 | 2,900 | EKZH160E□□272MK25S |
| | 3,300 | 12.5×30 | 0.013 | 0.033 | 3,450 | EKZH160E□□332MK30S |
| | 3,300 | 16×20 | 0.015 | 0.038 | 3,250 | EKZH160E□□332ML20S |
| | 3,900 | 12.5×35 | 0.012 | 0.031 | 3,570 | EKZH160E□□392MK35S |
| | 4,700 | 16×25 | 0.013 | 0.035 | 3,630 | EKZH160E□□472ML25S |
| 25 | 68 | 5×11 | 0.24 | 0.80 | 330 | EKZH250E□□680ME11D |
| | 150 | 6.3×11 | 0.11 | 0.35 | 500 | EKZH250E□□151MF11D |
| | 330 | 8×11.5 | 0.062 | 0.19 | 900 | EKZH250E□□331MHB5D |
| | 390 | 8×15 | 0.048 | 0.15 | 1,210 | EKZH250E□□391MH15D |
| | 470 | 10×12.5 | 0.045 | 0.14 | 1,240 | EKZH250E□□471MJC5S |
| | 560 | 8×20 | 0.033 | 0.11 | 1,410 | EKZH250E□□561MH20D |
| | 680 | 10×16 | 0.032 | 0.10 | 1,650 | EKZH250E□□681MJ16S |
| | 820 | 10×20 | 0.020 | 0.060 | 1,960 | EKZH250E□□821MJ20S |
| | 1,000 | 10×25 | 0.018 | 0.054 | 2,250 | EKZH250E□□102MJ25S |
| | 1,500 | 12.5×20 | 0.017 | 0.043 | 2,480 | EKZH250E□□152MK20S |
| | 1,800 | 12.5×25 | 0.015 | 0.038 | 2,900 | EKZH250E□□182MK25S |
| | 2,200 | 12.5×30 | 0.013 | 0.033 | 3,450 | EKZH250E□□222MK30S |
| | 2,200 | 16×20 | 0.015 | 0.038 | 3,250 | EKZH250E□□222ML20S |
| | 2,700 | 12.5×35 | 0.012 | 0.031 | 3,570 | EKZH250E□□272MK35S |
| | 3,300 | 16×25 | 0.013 | 0.035 | 3,630 | EKZH250E□□332ML25S |
| 35 | 47 | 5×11 | 0.24 | 0.80 | 330 | EKZH350E□□470ME11D |
| | 100 | 6.3×11 | 0.11 | 0.35 | 500 | EKZH350E□□101MF11D |
| | 220 | 8×11.5 | 0.062 | 0.19 | 900 | EKZH350E□□221MHB5D |
| | 270 | 8×15 | 0.048 | 0.15 | 1,210 | EKZH350E□□271MH15D |
| | 330 | 10×12.5 | 0.045 | 0.14 | 1,240 | EKZH350E□□331MJC5S |
| | 390 | 8×20 | 0.033 | 0.11 | 1,410 | EKZH350E□□391MH20D |
| | 470 | 10×16 | 0.032 | 0.10 | 1,650 | EKZH350E□□471MJ16S |
| | 560 | 10×20 | 0.020 | 0.060 | 1,960 | EKZH350E□□561MJ20S |
| | 680 | 10×25 | 0.018 | 0.054 | 2,250 | EKZH350E□□681MJ25S |
| | 1,000 | 12.5×20 | 0.017 | 0.043 | 2,480 | EKZH350E□□102MK20S |
| | 1,200 | 12.5×25 | 0.015 | 0.038 | 2,900 | EKZH350E□□122MK25S |
| | 1,500 | 12.5×30 | 0.013 | 0.033 | 3,450 | EKZH350E□□152MK30S |
| | 1,500 | 16×20 | 0.015 | 0.038 | 3,250 | EKZH350E□□152ML20S |
| | 1,800 | 12.5×35 | 0.012 | 0.031 | 3,570 | EKZH350E□□182MK35S |
| | 2,200 | 16×25 | 0.013 | 0.035 | 3,630 | EKZH350E□□222ML25S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 0.47 to 150 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to 8,200 | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KZE Series

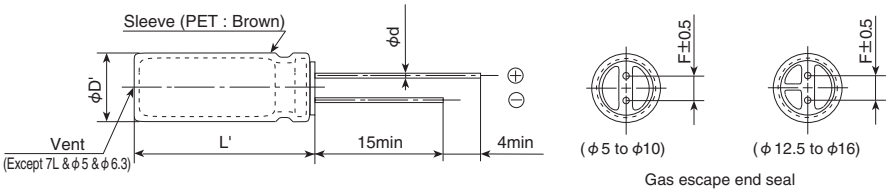
- Ultra Low impedance for Personal Computers Storage Equipment
- Endurance with ripple current: 1,000 to 5,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +105℃ |
| **Rated Voltage Range** | 6.3 to 100Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 80V / 100V<br>tanδ (Max.): 0.22 / 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.09 / 0.08<br>When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z (-25℃) / Z (+20℃): 2max.<br>Z (-40℃) / Z (+20℃): 3max.<br>(at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃.<br>Time: 7L : 1,000hours φ5 & φ6.3 : 2,000hours φ8 : 3,000hours φ10 : 4,000hours φ12.5 to φ18 : 5,000hours<br>Capacitance change: ≦±25% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±25% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

## ◆DIMENSIONS [mm]

●Terminal Code : E




Gas escape end seal

| φD | | 5 | 6.3 | 8 | 10, 12.5 | 16, 18 |
|---|---|---|---|---|---|---|
| φd | 7L | 0.45 | 0.45 | 0.45 | — | — |
| | 11L~ | 0.5 | 0.5 | 0.6 | 0.6 | 0.8 |
| F | | 2.0 | 2.5 | 3.5 | 5.0 | 7.5 |
| φD' | | φD+0.5max. | | | | |
| L' | | L+1.5max.(7L : L+1.0max.) | | | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | K | Z | E | | | | E | | | | | | M | | | | |

- 18: Supplement code
- 15–17: Size code
- 14: Capacitance tolerance code
- 11–13: Capacitance code (ex. 6.8μF:6R8, 10μF:100, 1,000μF:102)
- 9–10: Lead forming·taping code
- 8: Terminal code
- 5–7: Voltage code (ex. 6.3V:6R3, 10V:100, 100V:101)
- 4: Series code
- 1: Category

Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KZE Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ω max/100kHz) 20℃ | Impedance (Ω max/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 68 | 5×7 | 0.43 | 1.3 | 210 | EKZE6R3E□□680ME07D |
| | 150 | 5×11 | 0.30 | 1.0 | 250 | EKZE6R3E□□151ME11D |
| | 150 | 6.3×7 | 0.23 | 0.69 | 300 | EKZE6R3E□□151MF07D |
| | 220 | 8×7 | 0.15 | 0.45 | 380 | EKZE6R3E□□221MH07D |
| | 330 | 6.3×11 | 0.13 | 0.41 | 405 | EKZE6R3E□□331MF11D |
| | 560 | 8×11.5 | 0.072 | 0.22 | 760 | EKZE6R3E□□561MHB5D |
| | 820 | 8×15 | 0.056 | 0.17 | 995 | EKZE6R3E□□821MH15D |
| | 1,000 | 10×12.5 | 0.053 | 0.16 | 1,030 | EKZE6R3E□□102MJC5S |
| | 1,200 | 8×20 | 0.041 | 0.13 | 1,250 | EKZE6R3E□□122MH20D |
| | 1,200 | 10×16 | 0.038 | 0.12 | 1,430 | EKZE6R3E□□122MJ16S |
| | 1,500 | 10×20 | 0.023 | 0.069 | 1,820 | EKZE6R3E□□152MJ20S |
| | 2,200 | 10×25 | 0.022 | 0.066 | 2,150 | EKZE6R3E□□222MJ25S |
| | 3,300 | 12.5×20 | 0.021 | 0.053 | 2,360 | EKZE6R3E□□332MK20S |
| | 3,900 | 12.5×25 | 0.018 | 0.045 | 2,770 | EKZE6R3E□□392MK25S |
| | 4,700 | 12.5×30 | 0.016 | 0.041 | 3,290 | EKZE6R3E□□472MK30S |
| | 5,600 | 12.5×35 | 0.015 | 0.039 | 3,400 | EKZE6R3E□□562MK35S |
| | 5,600 | 16×20 | 0.018 | 0.045 | 3,140 | EKZE6R3E□□562ML20S |
| | 6,800 | 16×25 | 0.016 | 0.043 | 3,460 | EKZE6R3E□□682ML25S |
| 10 | 56 | 5×7 | 0.44 | 1.4 | 210 | EKZE100E□□560ME07D |
| | 100 | 5×11 | 0.30 | 1.0 | 250 | EKZE100E□□101ME11D |
| | 120 | 6.3×7 | 0.23 | 0.69 | 300 | EKZE100E□□121MF07D |
| | 180 | 8×7 | 0.15 | 0.45 | 380 | EKZE100E□□181MH07D |
| | 220 | 6.3×11 | 0.13 | 0.41 | 405 | EKZE100E□□221MF11D |
| | 470 | 8×11.5 | 0.072 | 0.22 | 760 | EKZE100E□□471MHB5D |
| | 680 | 8×15 | 0.056 | 0.17 | 995 | EKZE100E□□681MH15D |
| | 680 | 10×12.5 | 0.053 | 0.16 | 1,030 | EKZE100E□□681MJC5S |
| | 1,000 | 8×20 | 0.041 | 0.13 | 1,250 | EKZE100E□□102MH20D |
| | 1,000 | 10×16 | 0.038 | 0.12 | 1,430 | EKZE100E□□102MJ16S |
| | 1,200 | 10×20 | 0.023 | 0.069 | 1,820 | EKZE100E□□122MJ20S |
| | 1,500 | 10×25 | 0.022 | 0.066 | 2,150 | EKZE100E□□152MJ25S |
| | 2,200 | 12.5×20 | 0.021 | 0.053 | 2,360 | EKZE100E□□222MK20S |
| | 3,300 | 12.5×25 | 0.018 | 0.045 | 2,770 | EKZE100E□□332MK25S |
| | 3,900 | 12.5×30 | 0.016 | 0.041 | 3,290 | EKZE100E□□392MK30S |
| | 3,900 | 16×20 | 0.018 | 0.045 | 3,140 | EKZE100E□□392ML20S |
| | 4,700 | 12.5×35 | 0.015 | 0.039 | 3,400 | EKZE100E□□472MK35S |
| | 5,600 | 16×25 | 0.016 | 0.043 | 3,460 | EKZE100E□□562ML25S |
| 16 | 33 | 5×7 | 0.45 | 1.4 | 210 | EKZE160E□□330ME07D |
| | 56 | 5×11 | 0.30 | 1.0 | 250 | EKZE160E□□560ME11D |
| | 68 | 6.3×7 | 0.24 | 0.72 | 300 | EKZE160E□□680MF07D |
| | 120 | 6.3×11 | 0.13 | 0.41 | 405 | EKZE160E□□121MF11D |
| | 120 | 8×7 | 0.15 | 0.45 | 380 | EKZE160E□□121MH07D |
| | 330 | 8×11.5 | 0.072 | 0.22 | 760 | EKZE160E□□331MHB5D |
| | 470 | 8×15 | 0.056 | 0.17 | 995 | EKZE160E□□471MH15D |
| | 470 | 10×12.5 | 0.053 | 0.16 | 1,030 | EKZE160E□□471MJC5S |
| | 680 | 8×20 | 0.041 | 0.13 | 1,250 | EKZE160E□□681MH20D |
| | 680 | 10×16 | 0.038 | 0.12 | 1,430 | EKZE160E□□681MJ16S |
| | 1,000 | 10×20 | 0.023 | 0.069 | 1,820 | EKZE160E□□102MJ20S |
| | 1,200 | 10×25 | 0.022 | 0.066 | 2,150 | EKZE160E□□122MJ25S |
| | 1,500 | 12.5×20 | 0.021 | 0.053 | 2,360 | EKZE160E□□152MK20S |
| | 2,200 | 12.5×25 | 0.018 | 0.045 | 2,770 | EKZE160E□□222MK25S |
| | 2,700 | 12.5×30 | 0.016 | 0.041 | 3,290 | EKZE160E□□272MK30S |
| | 2,700 | 16×20 | 0.018 | 0.045 | 3,140 | EKZE160E□□272ML20S |
| | 3,300 | 12.5×35 | 0.015 | 0.039 | 3,400 | EKZE160E□□332MK35S |
| | 3,900 | 16×25 | 0.016 | 0.043 | 3,460 | EKZE160E□□392ML25S |
| 25 | 27 | 5×7 | 0.46 | 1.4 | 210 | EKZE250E□□270ME07D |
| | 47 | 5×11 | 0.30 | 1.0 | 250 | EKZE250E□□470ME11D |
| | 56 | 6.3×7 | 0.24 | 0.72 | 300 | EKZE250E□□560MF07D |
| | 100 | 6.3×11 | 0.13 | 0.41 | 405 | EKZE250E□□101MF11D |
| | 100 | 8×7 | 0.15 | 0.45 | 380 | EKZE250E□□101MH07D |
| | 220 | 8×11.5 | 0.072 | 0.22 | 760 | EKZE250E□□221MHB5D |
| | 330 | 8×15 | 0.056 | 0.17 | 995 | EKZE250E□□331MH15D |
| | 330 | 10×12.5 | 0.053 | 0.16 | 1,030 | EKZE250E□□331MJC5S |
| | 470 | 8×20 | 0.041 | 0.13 | 1,250 | EKZE250E□□471MH20D |
| | 470 | 10×16 | 0.038 | 0.12 | 1,430 | EKZE250E□□471MJ16S |
| | 680 | 10×20 | 0.023 | 0.069 | 1,820 | EKZE250E□□681MJ20S |
| 25 | 820 | 10×25 | 0.022 | 0.066 | 2,150 | EKZE250E□□821MJ25S |
| | 1,000 | 12.5×20 | 0.021 | 0.053 | 2,360 | EKZE250E□□102MK20S |
| | 1,500 | 12.5×25 | 0.018 | 0.045 | 2,770 | EKZE250E□□152MK25S |
| | 1,800 | 12.5×30 | 0.016 | 0.041 | 3,290 | EKZE250E□□182MK30S |
| | 1,800 | 16×20 | 0.018 | 0.045 | 3,140 | EKZE250E□□182ML20S |
| | 2,200 | 12.5×35 | 0.015 | 0.039 | 3,400 | EKZE250E□□222MK35S |
| | 2,700 | 16×25 | 0.016 | 0.043 | 3,460 | EKZE250E□□272ML25S |
| 35 | 18 | 5×7 | 0.47 | 1.5 | 210 | EKZE350E□□180ME07D |
| | 33 | 5×11 | 0.30 | 1.0 | 250 | EKZE350E□□330ME11D |
| | 39 | 6.3×7 | 0.25 | 0.75 | 300 | EKZE350E□□390MF07D |
| | 56 | 6.3×11 | 0.13 | 0.41 | 405 | EKZE350E□□560MF11D |
| | 56 | 8×7 | 0.16 | 0.48 | 380 | EKZE350E□□560MH07D |
| | 150 | 8×11.5 | 0.072 | 0.22 | 760 | EKZE350E□□151MHB5D |
| | 220 | 8×15 | 0.056 | 0.17 | 995 | EKZE350E□□221MH15D |
| | 220 | 10×12.5 | 0.053 | 0.16 | 1,030 | EKZE350E□□221MJC5S |
| | 270 | 8×20 | 0.041 | 0.13 | 1,250 | EKZE350E□□271MH20D |
| | 330 | 10×16 | 0.038 | 0.12 | 1,430 | EKZE350E□□331MJ16S |
| | 470 | 10×20 | 0.023 | 0.069 | 1,820 | EKZE350E□□471MJ20S |
| | 560 | 10×25 | 0.022 | 0.066 | 2,150 | EKZE350E□□561MJ25S |
| | 680 | 12.5×20 | 0.021 | 0.053 | 2,360 | EKZE350E□□681MK20S |
| | 1,000 | 12.5×25 | 0.018 | 0.045 | 2,770 | EKZE350E□□102MK25S |
| | 1,200 | 12.5×30 | 0.016 | 0.041 | 3,290 | EKZE350E□□122MK30S |
| | 1,200 | 16×20 | 0.018 | 0.045 | 3,140 | EKZE350E□□122ML20S |
| | 1,500 | 12.5×35 | 0.015 | 0.039 | 3,400 | EKZE350E□□152MK35S |
| | 1,800 | 16×25 | 0.016 | 0.043 | 3,460 | EKZE350E□□182ML25S |
| 50 | 10 | 5×7 | 0.50 | 1.5 | 210 | EKZE500E□□100ME07D |
| | 22 | 5×11 | 0.34 | 1.18 | 238 | EKZE500E□□220ME11D |
| | 22 | 6.3×7 | 0.26 | 0.78 | 300 | EKZE500E□□220MF07D |
| | 33 | 8×7 | 0.17 | 0.51 | 380 | EKZE500E□□330MH07D |
| | 56 | 6.3×11 | 0.14 | 0.50 | 385 | EKZE500E□□560MF11D |
| | 100 | 8×11.5 | 0.074 | 0.22 | 724 | EKZE500E□□101MHB5D |
| | 120 | 8×15 | 0.061 | 0.18 | 950 | EKZE500E□□121MH15D |
| | 150 | 10×12.5 | 0.061 | 0.18 | 979 | EKZE500E□□151MJC5S |
| | 180 | 8×20 | 0.046 | 0.14 | 1,190 | EKZE500E□□181MH20D |
| | 220 | 10×16 | 0.042 | 0.12 | 1,370 | EKZE500E□□221MJ16S |
| | 270 | 10×20 | 0.030 | 0.090 | 1,580 | EKZE500E□□271MJ20S |
| | 330 | 10×25 | 0.028 | 0.085 | 1,870 | EKZE500E□□331MJ25S |
| | 470 | 12.5×20 | 0.027 | 0.068 | 2,050 | EKZE500E□□471MK20S |
| | 560 | 12.5×25 | 0.023 | 0.059 | 2,410 | EKZE500E□□561MK25S |
| | 680 | 12.5×30 | 0.021 | 0.052 | 2,860 | EKZE500E□□681MK30S |
| | 820 | 12.5×35 | 0.019 | 0.051 | 2,960 | EKZE500E□□821MK35S |
| | 820 | 16×20 | 0.023 | 0.059 | 2,730 | EKZE500E□□821ML20S |
| | 1,000 | 16×25 | 0.021 | 0.056 | 3,010 | EKZE500E□□102ML25S |
| 63 | 15 | 5×11 | 0.88 | 3.5 | 165 | EKZE630E□□150ME11D |
| | 33 | 6.3×11 | 0.35 | 1.4 | 265 | EKZE630E□□330MF11D |
| | 56 | 8×11.5 | 0.22 | 0.88 | 500 | EKZE630E□□560MHB5D |
| | 82 | 8×15 | 0.16 | 0.64 | 665 | EKZE630E□□820MH15D |
| | 82 | 10×12.5 | 0.11 | 0.44 | 690 | EKZE630E□□820MJC5S |
| | 120 | 8×20 | 0.12 | 0.48 | 820 | EKZE630E□□121MH20D |
| | 120 | 10×16 | 0.076 | 0.31 | 950 | EKZE630E□□121MJ16S |
| | 180 | 10×20 | 0.056 | 0.23 | 1,150 | EKZE630E□□181MJ20S |
| | 180 | 12.5×16 | 0.072 | 0.29 | 1,150 | EKZE630E□□181MK16S |
| | 220 | 10×25 | 0.046 | 0.19 | 1,350 | EKZE630E□□221MJ25S |
| | 270 | 12.5×20 | 0.041 | 0.13 | 1,500 | EKZE630E□□271MK20S |
| | 390 | 12.5×25 | 0.031 | 0.093 | 1,900 | EKZE630E□□391MK25S |
| | 470 | 12.5×30 | 0.028 | 0.084 | 2,300 | EKZE630E□□471MK30S |
| | 470 | 16×20 | 0.032 | 0.096 | 2,000 | EKZE630E□□471ML20S |
| | 560 | 12.5×35 | 0.024 | 0.072 | 2,500 | EKZE630E□□561MK35S |
| | 680 | 12.5×40 | 0.021 | 0.063 | 2,800 | EKZE630E□□681MK40S |
| | 680 | 16×25 | 0.025 | 0.075 | 2,600 | EKZE630E□□681ML25S |
| | 680 | 18×20 | 0.030 | 0.090 | 2,500 | EKZE630E□□681MM20S |
| | 820 | 16×31.5 | 0.021 | 0.063 | 2,850 | EKZE630E□□821MLN3S |
| | 820 | 18×25 | 0.024 | 0.072 | 2,800 | EKZE630E□□821MM25S |
| | 1,000 | 16×35.5 | 0.019 | 0.057 | 2,900 | EKZE630E□□102MLP1S |
| | 1,200 | 16×40 | 0.018 | 0.054 | 3,400 | EKZE630E□□122ML40S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KZE Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 63 | 1,200 | 18×31.5 | 0.020 | 0.060 | 3,300 | EKZE630E□□122MMN3S |
| | 1,500 | 18×35.5 | 0.018 | 0.054 | 3,400 | EKZE630E□□152MMP1S |
| | 1,800 | 18×40 | 0.017 | 0.051 | 3,500 | EKZE630E□□182MM40S |
| 80 | 68 | 10×12.5 | 0.17 | 0.66 | 480 | EKZE800E□□680MJC5S |
| | 100 | 10×16 | 0.11 | 0.47 | 600 | EKZE800E□□101MJ16S |
| | 120 | 10×20 | 0.084 | 0.34 | 800 | EKZE800E□□121MJ20S |
| | 150 | 10×25 | 0.069 | 0.28 | 900 | EKZE800E□□151MJ25S |
| | 150 | 12.5×16 | 0.11 | 0.34 | 750 | EKZE800E□□151MK16S |
| | 220 | 12.5×20 | 0.062 | 0.18 | 1,100 | EKZE800E□□221MK20S |
| | 330 | 12.5×25 | 0.047 | 0.14 | 1,250 | EKZE800E□□331MK25S |
| | 330 | 16×20 | 0.048 | 0.15 | 1,350 | EKZE800E□□331ML20S |
| | 390 | 12.5×30 | 0.042 | 0.13 | 1,500 | EKZE800E□□391MK30S |
| | 470 | 12.5×35 | 0.036 | 0.11 | 1,650 | EKZE800E□□471MK35S |
| | 470 | 16×25 | 0.038 | 0.12 | 1,700 | EKZE800E□□471ML25S |
| | 470 | 18×20 | 0.045 | 0.14 | 1,500 | EKZE800E□□471MM20S |
| | 560 | 12.5×40 | 0.032 | 0.095 | 1,800 | EKZE800E□□561MK40S |
| | 680 | 16×31.5 | 0.032 | 0.095 | 1,850 | EKZE800E□□681MLN3S |
| | 680 | 18×25 | 0.036 | 0.11 | 1,750 | EKZE800E□□681MM25S |
| | 820 | 16×35.5 | 0.029 | 0.086 | 2,000 | EKZE800E□□821MLP1S |
| | 820 | 18×31.5 | 0.030 | 0.090 | 1,900 | EKZE800E□□821MMN3S |
| | 1,000 | 16×40 | 0.027 | 0.081 | 2,200 | EKZE800E□□102ML40S |
| | 1,000 | 18×35.5 | 0.027 | 0.081 | 2,200 | EKZE800E□□102MMP1S |
| | 1,200 | 18×40 | 0.026 | 0.077 | 2,700 | EKZE800E□□122MM40S |

□□ : Enter the appropriate lead forming or taping code.

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 100 | 6.8 | 5×11 | 1.4 | 5.6 | 125 | EKZE101E□□6R8ME11D |
| | 15 | 6.3×11 | 0.57 | 2.3 | 205 | EKZE101E□□150MF11D |
| | 27 | 8×11.5 | 0.36 | 1.4 | 355 | EKZE101E□□270MHB5D |
| | 39 | 8×15 | 0.25 | 1.0 | 450 | EKZE101E□□390MH15D |
| | 47 | 10×12.5 | 0.17 | 0.66 | 480 | EKZE101E□□470MJC5S |
| | 56 | 8×20 | 0.19 | 0.76 | 565 | EKZE101E□□560MH20D |
| | 68 | 10×16 | 0.11 | 0.47 | 600 | EKZE101E□□680MJ16S |
| | 82 | 10×20 | 0.084 | 0.34 | 800 | EKZE101E□□820MJ20S |
| | 100 | 12.5×16 | 0.11 | 0.34 | 750 | EKZE101E□□101MK16S |
| | 120 | 10×25 | 0.069 | 0.28 | 900 | EKZE101E□□121MJ25S |
| | 150 | 12.5×20 | 0.062 | 0.18 | 1,100 | EKZE101E□□151MK20S |
| | 220 | 12.5×25 | 0.047 | 0.14 | 1,250 | EKZE101E□□221MK25S |
| | 220 | 16×20 | 0.048 | 0.15 | 1,350 | EKZE101E□□221ML20S |
| | 270 | 12.5×30 | 0.042 | 0.13 | 1,500 | EKZE101E□□271MK30S |
| | 330 | 12.5×35 | 0.036 | 0.11 | 1,650 | EKZE101E□□331MK35S |
| | 330 | 16×25 | 0.038 | 0.12 | 1,700 | EKZE101E□□331ML25S |
| | 330 | 18×20 | 0.045 | 0.14 | 1,500 | EKZE101E□□331MM20S |
| | 390 | 12.5×40 | 0.032 | 0.095 | 1,800 | EKZE101E□□391MK40S |
| | 470 | 16×31.5 | 0.032 | 0.095 | 1,850 | EKZE101E□□471MLN3S |
| | 470 | 18×25 | 0.036 | 0.11 | 1,750 | EKZE101E□□471MM25S |
| | 560 | 16×35.5 | 0.029 | 0.086 | 2,000 | EKZE101E□□561MLP1S |
| | 560 | 18×31.5 | 0.030 | 0.090 | 1,900 | EKZE101E□□561MMN3S |
| | 680 | 16×40 | 0.027 | 0.081 | 2,200 | EKZE101E□□681ML40S |
| | 680 | 18×35.5 | 0.027 | 0.081 | 2,200 | EKZE101E□□681MMP1S |
| | 820 | 18×40 | 0.026 | 0.077 | 2,700 | EKZE101E□□821MM40S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

7L

| Capacitance(μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 10 to 33 | 0.42 | 0.70 | 0.90 | 1.00 |
| 39 to 220 | 0.50 | 0.73 | 0.92 | 1.00 |

11L to 40L

| Capacitance(μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 6.8 to 180 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

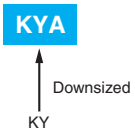
# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Upgrade!

# KYA Series

- Downsized from KY series
- Newly innovative electrolyte is employed to minimize ESR
- Endurance with ripple current : 4,000 to 10,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

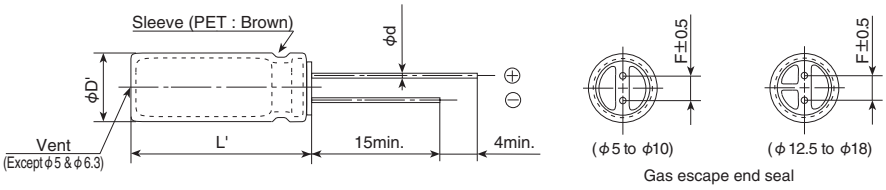


## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Category Temperature Range | −40 to +105℃ | | | | | | | | |
| Rated Voltage Range | 6.3 to 100Vdc | | | | | | | | |
| Capacitance Tolerance | ±20% (M) (at 20℃, 120Hz) | | | | | | | | |
| Leakage Current | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) | | | | | | | | |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V |
| | tanδ (Max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | | | |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z(−40℃)/Z(+20℃) | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 3 |
| | (at 120Hz) | | | | | | | | |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. | | | | | | | | |
| | Time | 6.3 to 10Vdc | φ5 & 6.3 : 4,000hours φ8 & 10 : 6,000hours φ12.5 to 18 : 8,000hours | | | | | | |
| | | 16 to 100Vdc | φ5 & 6.3 : 5,000hours φ8 & 10 : 7,000hours φ12.5 to 18 : 10,000hours | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |

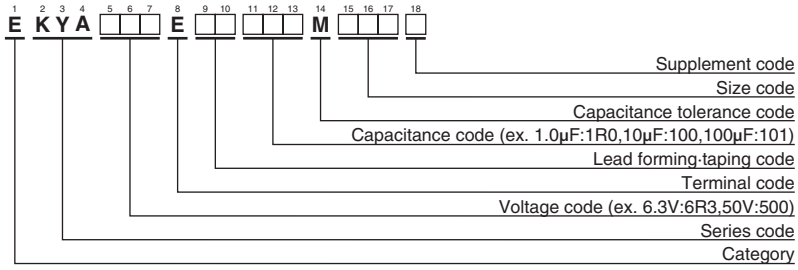
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 |
|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 |
| φD' | φD+0.5max. | | | | | |
| L' | L+1.5max. | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.



CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Upgrade!

## KYA Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (max/100kHz) 20℃ | Impedance (max/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 100 | 5×11 | 0.90 | 3.6 | 150 | EKYA6R3E□□101ME11D |
| | 180 | 5×11 | 0.40 | 1.6 | 250 | EKYA6R3E□□181ME11D |
| | 220 | 5×11 | 0.40 | 1.6 | 250 | EKYA6R3E□□221ME11D |
| | 330 | 6.3×11 | 0.22 | 0.87 | 400 | EKYA6R3E□□331MF11D |
| | 470 | 6.3×11 | 0.22 | 0.87 | 400 | EKYA6R3E□□471MF11D |
| | 820 | 8×11.5 | 0.13 | 0.52 | 640 | EKYA6R3E□□821MHB5D |
| | 1,200 | 10×12.5 | 0.080 | 0.32 | 865 | EKYA6R3E□□122MJC5S |
| | 1,200 | 8×15 | 0.087 | 0.35 | 840 | EKYA6R3E□□122MH15D |
| | 1,500 | 8×20 | 0.069 | 0.27 | 1,050 | EKYA6R3E□□152MH20D |
| | 1,800 | 10×16 | 0.060 | 0.24 | 1,300 | EKYA6R3E□□182MJ16S |
| | 2,700 | 10×20 | 0.046 | 0.18 | 1,400 | EKYA6R3E□□272MJ20S |
| | 3,300 | 10×25 | 0.042 | 0.17 | 1,650 | EKYA6R3E□□332MJ25S |
| | 3,900 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKYA6R3E□□392MK20S |
| | 4,700 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKYA6R3E□□472MK25S |
| | 5,600 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKYA6R3E□□562MK25S |
| | 10,000 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA6R3E□□103ML25S |
| | 12,000 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKYA6R3E□□123MLN3S |
| | 15,000 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKYA6R3E□□153MLP1S |
| 10 | 100 | 5×11 | 0.90 | 3.6 | 150 | EKYA100E□□101ME11D |
| | 120 | 5×11 | 0.40 | 1.6 | 250 | EKYA100E□□121ME11D |
| | 330 | 6.3×11 | 0.22 | 0.87 | 400 | EKYA100E□□331MF11D |
| | 560 | 8×11.5 | 0.13 | 0.52 | 640 | EKYA100E□□561MHB5D |
| | 820 | 8×15 | 0.087 | 0.35 | 840 | EKYA100E□□821MH15D |
| | 820 | 10×12.5 | 0.080 | 0.32 | 865 | EKYA100E□□821MJC5S |
| | 1,000 | 10×12.5 | 0.080 | 0.32 | 865 | EKYA100E□□102MJC5S |
| | 1,200 | 8×20 | 0.069 | 0.27 | 1,050 | EKYA100E□□122MH20D |
| | 1,200 | 10×16 | 0.060 | 0.24 | 1,300 | EKYA100E□□122MJ16S |
| | 1,800 | 10×20 | 0.046 | 0.18 | 1,400 | EKYA100E□□182MJ20S |
| | 2,200 | 10×25 | 0.042 | 0.17 | 1,650 | EKYA100E□□222MJ25S |
| | 3,300 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKYA100E□□332MK20S |
| | 3,900 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKYA100E□□392MK25S |
| | 6,800 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA100E□□682ML25S |
| | 10,000 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKYA100E□□103MLN3S |
| | 12,000 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKYA100E□□123MLP1S |
| 16 | 47 | 5×11 | 0.40 | 1.6 | 250 | EKYA160E□□470ME11D |
| | 100 | 5×11 | 0.40 | 1.6 | 250 | EKYA160E□□101ME11D |
| | 220 | 6.3×11 | 0.22 | 0.87 | 400 | EKYA160E□□221MF11D |
| | 270 | 6.3×11 | 0.22 | 0.87 | 400 | EKYA160E□□271MF11D |
| | 470 | 8×11.5 | 0.13 | 0.52 | 640 | EKYA160E□□471MHB5D |
| | 680 | 8×15 | 0.087 | 0.35 | 840 | EKYA160E□□681MH15D |
| | 680 | 10×12.5 | 0.080 | 0.32 | 865 | EKYA160E□□681MJC5S |
| | 820 | 8×20 | 0.069 | 0.27 | 1,050 | EKYA160E□□821MH20D |
| | 1,000 | 10×16 | 0.060 | 0.24 | 1,300 | EKYA160E□□102MJ16S |
| | 1,500 | 10×20 | 0.046 | 0.18 | 1,400 | EKYA160E□□152MJ20S |
| | 1,800 | 10×25 | 0.042 | 0.17 | 1,650 | EKYA160E□□182MJ25S |
| | 2,200 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKYA160E□□222MK20S |
| | 3,300 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKYA160E□□332MK25S |
| | 4,700 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA160E□□472ML25S |
| | 5,600 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA160E□□562ML25S |
| | 6,800 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKYA160E□□682MLN3S |
| | 8,200 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKYA160E□□822MLN3S |
| | 10,000 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKYA160E□□103MLP1S |
| 25 | 33 | 5×11 | 0.40 | 1.6 | 250 | EKYA250E□□330ME11D |
| | 47 | 5×11 | 0.40 | 1.6 | 250 | EKYA250E□□470ME11D |
| | 68 | 5×11 | 0.40 | 1.6 | 250 | EKYA250E□□680ME11D |
| | 150 | 6.3×11 | 0.22 | 0.87 | 400 | EKYA250E□□151MF11D |
| | 330 | 8×11.5 | 0.13 | 0.52 | 640 | EKYA250E□□331MHB5D |
| | 390 | 8×15 | 0.087 | 0.35 | 840 | EKYA250E□□391MH15D |
| | 470 | 10×12.5 | 0.080 | 0.32 | 865 | EKYA250E□□471MJC5S |
| | 560 | 8×20 | 0.069 | 0.27 | 1,050 | EKYA250E□□561MH20D |
| | 680 | 10×16 | 0.060 | 0.24 | 1,300 | EKYA250E□□681MJ16S |
| | 1,000 | 10×20 | 0.046 | 0.18 | 1,400 | EKYA250E□□102MJ20S |
| | 1,200 | 10×25 | 0.042 | 0.17 | 1,650 | EKYA250E□□122MJ25S |
| | 1,500 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKYA250E□□152MK20S |
| | 2,200 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKYA250E□□222MK25S |
| 25 | 3,300 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA250E□□332ML25S |
| | 3,900 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA250E□□392ML25S |
| | 4,700 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKYA250E□□472MLN3S |
| | 5,600 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKYA250E□□562MLP1S |
| 35 | 33 | 5×11 | 0.40 | 1.6 | 250 | EKYA350E□□330ME11D |
| | 47 | 5×11 | 0.40 | 1.6 | 250 | EKYA350E□□470ME11D |
| | 100 | 6.3×11 | 0.22 | 0.87 | 400 | EKYA350E□□101MF11D |
| | 220 | 8×11.5 | 0.13 | 0.52 | 640 | EKYA350E□□221MHB5D |
| | 270 | 8×15 | 0.087 | 0.35 | 840 | EKYA350E□□271MH15D |
| | 330 | 10×12.5 | 0.080 | 0.32 | 865 | EKYA350E□□331MJC5S |
| | 390 | 8×20 | 0.069 | 0.27 | 1,050 | EKYA350E□□391MH20D |
| | 470 | 10×16 | 0.060 | 0.24 | 1,300 | EKYA350E□□471MJ16S |
| | 680 | 10×20 | 0.046 | 0.18 | 1,400 | EKYA350E□□681MJ20S |
| | 820 | 10×25 | 0.042 | 0.17 | 1,650 | EKYA350E□□821MJ25S |
| | 1,000 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKYA350E□□102MK20S |
| | 1,500 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKYA350E□□152MK25S |
| | 2,200 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA350E□□222ML25S |
| | 2,700 | 16×25 | 0.021 | 0.060 | 2,930 | EKYA350E□□272ML25S |
| | 3,300 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKYA350E□□332MLN3S |
| | 3,900 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKYA350E□□392MLP1S |
| 50 | 1.0 | 5×11 | 4.0 | 16 | 30 | EKYA500E□□1R0ME11D |
| | 2.2 | 5×11 | 2.5 | 10 | 43 | EKYA500E□□2R2ME11D |
| | 3.3 | 5×11 | 2.2 | 8.8 | 53 | EKYA500E□□3R3ME11D |
| | 4.7 | 5×11 | 1.9 | 7.6 | 88 | EKYA500E□□4R7ME11D |
| | 10 | 5×11 | 1.5 | 6.0 | 100 | EKYA500E□□100ME11D |
| | 22 | 5×11 | 0.70 | 2.8 | 180 | EKYA500E□□220ME11D |
| | 27 | 5×11 | 0.70 | 2.8 | 250 | EKYA500E□□270ME11D |
| | 47 | 6.3×11 | 0.30 | 1.2 | 295 | EKYA500E□□470MF11D |
| | 56 | 6.3×11 | 0.30 | 1.2 | 295 | EKYA500E□□560MF11D |
| | 100 | 8×11.5 | 0.17 | 0.68 | 555 | EKYA500E□□101MHB5D |
| | 150 | 8×15 | 0.12 | 0.48 | 730 | EKYA500E□□151MH15D |
| | 180 | 10×12.5 | 0.12 | 0.48 | 760 | EKYA500E□□181MJC5S |
| | 180 | 8×20 | 0.091 | 0.36 | 910 | EKYA500E□□181MH20D |
| | 220 | 10×16 | 0.084 | 0.34 | 1,050 | EKYA500E□□221MJ16S |
| | 330 | 10×20 | 0.060 | 0.24 | 1,220 | EKYA500E□□331MJ20S |
| | 470 | 10×25 | 0.055 | 0.22 | 1,440 | EKYA500E□□471MJ25S |
| | 470 | 12.5×20 | 0.045 | 0.15 | 1,660 | EKYA500E□□471MK20S |
| | 560 | 12.5×20 | 0.045 | 0.15 | 1,660 | EKYA500E□□561MK20S |
| | 820 | 12.5×25 | 0.034 | 0.11 | 1,950 | EKYA500E□□821MK25S |
| | 1,000 | 16×25 | 0.025 | 0.075 | 2,555 | EKYA500E□□102ML25S |
| | 1,200 | 16×25 | 0.025 | 0.075 | 2,555 | EKYA500E□□122ML25S |
| | 1,800 | 16×31.5 | 0.022 | 0.066 | 3,010 | EKYA500E□□182MLN3S |
| | 2,200 | 16×35.5 | 0.019 | 0.057 | 3,150 | EKYA500E□□222MLP1S |
| 63 | 10 | 5×11 | 0.88 | 3.5 | 173 | EKYA630E□□100ME11D |
| | 15 | 5×11 | 0.88 | 3.5 | 173 | EKYA630E□□150ME11D |
| | 33 | 6.3×11 | 0.35 | 1.4 | 278 | EKYA630E□□330MF11D |
| | 56 | 8×11.5 | 0.22 | 0.88 | 500 | EKYA630E□□560MHB5D |
| | 82 | 8×15 | 0.16 | 0.64 | 665 | EKYA630E□□820MH15D |
| | 100 | 10×12.5 | 0.11 | 0.44 | 725 | EKYA630E□□101MJC5S |
| | 120 | 8×20 | 0.12 | 0.48 | 820 | EKYA630E□□121MH20D |
| | 120 | 10×16 | 0.076 | 0.31 | 950 | EKYA630E□□121MJ16S |
| | 220 | 10×20 | 0.056 | 0.23 | 1,200 | EKYA630E□□221MJ20S |
| | 330 | 10×25 | 0.046 | 0.19 | 1,350 | EKYA630E□□331MJ25S |
| | 330 | 12.5×20 | 0.041 | 0.13 | 1,570 | EKYA630E□□331MK20S |
| | 390 | 12.5×20 | 0.041 | 0.13 | 1,570 | EKYA630E□□391MK20S |
| | 470 | 12.5×25 | 0.031 | 0.093 | 1,990 | EKYA630E□□471MK25S |
| | 560 | 12.5×25 | 0.031 | 0.093 | 1,990 | EKYA630E□□561MK25S |
| | 1,000 | 16×25 | 0.025 | 0.075 | 2,730 | EKYA630E□□102ML25S |
| | 1,200 | 16×31.5 | 0.021 | 0.063 | 2,850 | EKYA630E□□122MLN3S |
| | 1,500 | 16×35.5 | 0.019 | 0.057 | 2,900 | EKYA630E□□152MLP1S |
| 100 | 1.0 | 5×11 | 4.5 | 15 | 20 | EKYA101E□□1R0ME11D |
| | 2.2 | 5×11 | 3.0 | 13 | 30 | EKYA101E□□2R2ME11D |
| | 3.3 | 5×11 | 2.7 | 11 | 40 | EKYA101E□□3R3ME11D |
| | 4.7 | 5×11 | 2.5 | 10 | 65 | EKYA101E□□4R7ME11D |
| | 6.8 | 5×11 | 1.4 | 5.6 | 125 | EKYA101E□□6R8ME11D |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Upgrade!
KYA Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) | | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| | | | 20℃ | -10℃ | | |
| 100 | 10 | 6.3×11 | 0.57 | 2.3 | 205 | EKYA101E□□100MF11D |
| | 15 | 6.3×11 | 0.57 | 2.3 | 205 | EKYA101E□□150MF11D |
| | 27 | 8×11.5 | 0.36 | 1.4 | 355 | EKYA101E□□270MHB5D |
| | 39 | 8×15 | 0.25 | 1.0 | 450 | EKYA101E□□390MH15D |
| | 47 | 10×12.5 | 0.17 | 0.66 | 480 | EKYA101E□□470MJC5S |
| | 56 | 8×20 | 0.19 | 0.76 | 565 | EKYA101E□□560MH20D |
| | 68 | 10×16 | 0.11 | 0.47 | 600 | EKYA101E□□680MJ16S |
| | 100 | 10×20 | 0.084 | 0.34 | 800 | EKYA101E□□101MJ20S |
| | 150 | 10×25 | 0.069 | 0.28 | 900 | EKYA101E□□151MJ25S |
| | 180 | 12.5×20 | 0.062 | 0.18 | 1,100 | EKYA101E□□181MK20S |
| | 220 | 12.5×25 | 0.047 | 0.14 | 1,250 | EKYA101E□□221MK25S |
| | 330 | 16×25 | 0.038 | 0.12 | 1,700 | EKYA101E□□331ML25S |
| | 470 | 16×31.5 | 0.032 | 0.095 | 1,850 | EKYA101E□□471MLN3S |
| | 560 | 16×35.5 | 0.029 | 0.086 | 2,000 | EKYA101E□□561MLP1S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 1.0 to 180 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

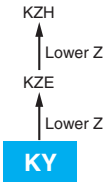
NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KY Series

- Newly innovative electrolyte is employed to minimize ESR
- Endurance with ripple current : 4,000 to 10,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

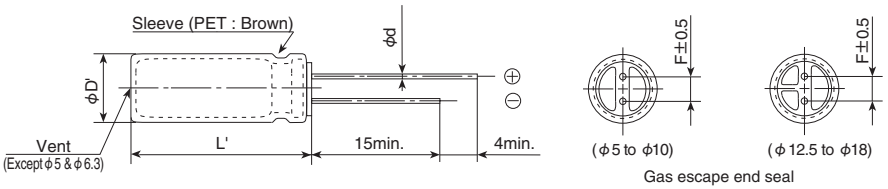


## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 100Vdc | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) | | | | | | | | | |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) | | | | | | | | | |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
| | tanδ (Max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.09 | 0.08 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | | | | |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
| | Z(−25℃)/Z(+20℃) | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z(−40℃)/Z(+20℃) | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 3 | 3 |
| | (at 120Hz) | | | | | | | | | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. | | | | | | | | | |
| | Time | 6.3 to 10Vdc | φ5 & 6.3 : 4,000hours φ8 & 10 : 6,000hours φ12.5 to 18 : 8,000hours | | | | | | | |
| | | 16 to 100Vdc | φ5 & 6.3 : 5,000hours φ8 & 10 : 7,000hours φ12.5 to 18 : 10,000hours | | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |

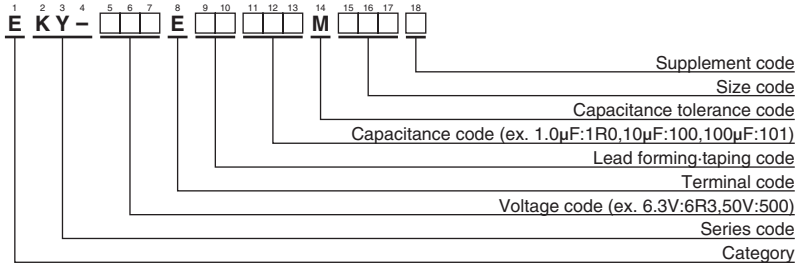
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | | | | |
| L' | L+1.5max. | | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KY Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 150 | 5×11 | 0.58 | 2.3 | 210 | EKY-6R3E□□151ME11D |
| | 330 | 6.3×11 | 0.22 | 0.87 | 340 | EKY-6R3E□□331MF11D |
| | 680 | 8×11.5 | 0.13 | 0.52 | 640 | EKY-6R3E□□681MHB5D |
| | 820 | 10×12.5 | 0.080 | 0.32 | 865 | EKY-6R3E□□821MJC5S |
| | 1,000 | 8×15 | 0.087 | 0.35 | 840 | EKY-6R3E□□102MH15D |
| | 1,200 | 8×20 | 0.069 | 0.27 | 1,050 | EKY-6R3E□□122MH20D |
| | 1,200 | 10×16 | 0.060 | 0.24 | 1,210 | EKY-6R3E□□122MJ16S |
| | 1,500 | 10×20 | 0.046 | 0.18 | 1,400 | EKY-6R3E□□152MJ20S |
| | 1,800 | 12.5×15 | 0.049 | 0.16 | 1,450 | EKY-6R3E□□182MK15S |
| | 2,200 | 10×25 | 0.042 | 0.17 | 1,650 | EKY-6R3E□□222MJ25S |
| | 2,700 | 10×30 | 0.031 | 0.12 | 1,910 | EKY-6R3E□□272MJ30S |
| | 2,700 | 16×15 | 0.042 | 0.12 | 1,940 | EKY-6R3E□□272ML15S |
| | 3,300 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKY-6R3E□□332MK20S |
| | 3,900 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKY-6R3E□□392MK25S |
| | 3,900 | 18×15 | 0.043 | 0.11 | 2,210 | EKY-6R3E□□392MM15S |
| | 4,700 | 12.5×30 | 0.024 | 0.078 | 2,650 | EKY-6R3E□□472MK30S |
| | 5,600 | 12.5×35 | 0.020 | 0.065 | 2,880 | EKY-6R3E□□562MK35S |
| | 5,600 | 16×20 | 0.027 | 0.078 | 2,530 | EKY-6R3E□□562ML20S |
| | 6,800 | 12.5×40 | 0.017 | 0.056 | 3,350 | EKY-6R3E□□682MK40S |
| | 6,800 | 16×25 | 0.021 | 0.060 | 2,930 | EKY-6R3E□□682ML25S |
| | 6,800 | 18×20 | 0.026 | 0.067 | 2,860 | EKY-6R3E□□682MM20S |
| | 8,200 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKY-6R3E□□822MLN3S |
| | 10,000 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKY-6R3E□□103MLP1S |
| | 10,000 | 18×25 | 0.019 | 0.049 | 3,140 | EKY-6R3E□□103MM25S |
| | 12,000 | 16×40 | 0.013 | 0.038 | 4,080 | EKY-6R3E□□123ML40S |
| | 12,000 | 18×31.5 | 0.015 | 0.040 | 4,170 | EKY-6R3E□□123MMN3S |
| | 15,000 | 18×35.5 | 0.014 | 0.038 | 4,220 | EKY-6R3E□□153MMP1S |
| | 18,000 | 18×40 | 0.012 | 0.032 | 4,280 | EKY-6R3E□□183MM40S |
| 10 | 100 | 5×11 | 0.58 | 2.3 | 210 | EKY-100E□□101ME11D |
| | 220 | 6.3×11 | 0.22 | 0.87 | 340 | EKY-100E□□221MF11D |
| | 470 | 8×11.5 | 0.13 | 0.52 | 640 | EKY-100E□□471MHB5D |
| | 680 | 8×15 | 0.087 | 0.35 | 840 | EKY-100E□□681MH15D |
| | 680 | 10×12.5 | 0.080 | 0.32 | 865 | EKY-100E□□681MJC5S |
| | 1,000 | 8×20 | 0.069 | 0.27 | 1,050 | EKY-100E□□102MH20D |
| | 1,000 | 10×16 | 0.060 | 0.24 | 1,210 | EKY-100E□□102MJ16S |
| | 1,200 | 10×20 | 0.046 | 0.18 | 1,400 | EKY-100E□□122MJ20S |
| | 1,500 | 10×25 | 0.042 | 0.17 | 1,650 | EKY-100E□□152MJ25S |
| | 1,500 | 12.5×15 | 0.049 | 0.16 | 1,450 | EKY-100E□□152MK15S |
| | 2,200 | 10×30 | 0.031 | 0.12 | 1,910 | EKY-100E□□222MJ30S |
| | 2,200 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKY-100E□□222MK20S |
| | 2,200 | 16×15 | 0.042 | 0.12 | 1,940 | EKY-100E□□222ML15S |
| | 2,700 | 18×15 | 0.043 | 0.11 | 2,210 | EKY-100E□□272MM15S |
| | 3,300 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKY-100E□□332MK25S |
| | 3,900 | 12.5×30 | 0.024 | 0.078 | 2,650 | EKY-100E□□392MK30S |
| | 3,900 | 16×20 | 0.027 | 0.078 | 2,530 | EKY-100E□□392ML20S |
| | 4,700 | 12.5×35 | 0.020 | 0.065 | 2,880 | EKY-100E□□472MK35S |
| | 5,600 | 12.5×40 | 0.017 | 0.056 | 3,350 | EKY-100E□□562MK40S |
| | 5,600 | 16×25 | 0.021 | 0.060 | 2,930 | EKY-100E□□562ML25S |
| | 5,600 | 18×20 | 0.026 | 0.067 | 2,860 | EKY-100E□□562MM20S |
| | 6,800 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKY-100E□□682MLN3S |
| | 6,800 | 18×25 | 0.019 | 0.049 | 3,140 | EKY-100E□□682MM25S |
| | 8,200 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKY-100E□□822MLP1S |
| | 8,200 | 18×31.5 | 0.015 | 0.040 | 4,170 | EKY-100E□□822MMN3S |
| | 10,000 | 16×40 | 0.013 | 0.038 | 4,080 | EKY-100E□□103ML40S |
| | 10,000 | 18×35.5 | 0.014 | 0.038 | 4,220 | EKY-100E□□103MMP1S |
| | 12,000 | 18×40 | 0.012 | 0.032 | 4,280 | EKY-100E□□123MM40S |
| 16 | 56 | 5×11 | 0.58 | 2.3 | 210 | EKY-160E□□560ME11D |
| | 120 | 6.3×11 | 0.22 | 0.87 | 340 | EKY-160E□□121MF11D |
| | 330 | 8×11.5 | 0.13 | 0.52 | 640 | EKY-160E□□331MHB5D |
| | 470 | 8×15 | 0.087 | 0.35 | 840 | EKY-160E□□471MH15D |
| | 470 | 10×12.5 | 0.080 | 0.32 | 865 | EKY-160E□□471MJC5S |
| | 680 | 8×20 | 0.069 | 0.27 | 1,050 | EKY-160E□□681MH20D |
| | 680 | 10×16 | 0.060 | 0.24 | 1,210 | EKY-160E□□681MJ16S |
| | 1,000 | 10×20 | 0.046 | 0.18 | 1,400 | EKY-160E□□102MJ20S |
| | 1,000 | 12.5×15 | 0.049 | 0.16 | 1,450 | EKY-160E□□102MK15S |
| | 1,200 | 10×25 | 0.042 | 0.17 | 1,650 | EKY-160E□□122MJ25S |
| | 1,500 | 10×30 | 0.031 | 0.12 | 1,910 | EKY-160E□□152MJ30S |
| 16 | 1,500 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKY-160E□□152MK20S |
| | 1,500 | 16×15 | 0.042 | 0.12 | 1,940 | EKY-160E□□152ML15S |
| | 2,200 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKY-160E□□222MK25S |
| | 2,200 | 18×15 | 0.043 | 0.11 | 2,210 | EKY-160E□□222MM15S |
| | 2,700 | 12.5×30 | 0.024 | 0.078 | 2,650 | EKY-160E□□272MK30S |
| | 2,700 | 16×20 | 0.027 | 0.078 | 2,530 | EKY-160E□□272ML20S |
| | 3,300 | 12.5×35 | 0.020 | 0.065 | 2,880 | EKY-160E□□332MK35S |
| | 3,900 | 12.5×40 | 0.017 | 0.056 | 3,350 | EKY-160E□□392MK40S |
| | 3,900 | 16×25 | 0.021 | 0.060 | 2,930 | EKY-160E□□392ML25S |
| | 3,900 | 18×20 | 0.026 | 0.067 | 2,860 | EKY-160E□□392MM20S |
| | 4,700 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKY-160E□□472MLN3S |
| | 4,700 | 18×25 | 0.019 | 0.049 | 3,140 | EKY-160E□□472MM25S |
| | 5,600 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKY-160E□□562MLP1S |
| | 5,600 | 18×31.5 | 0.015 | 0.040 | 4,170 | EKY-160E□□562MMN3S |
| | 6,800 | 16×40 | 0.013 | 0.038 | 4,080 | EKY-160E□□682ML40S |
| | 8,200 | 18×35.5 | 0.014 | 0.038 | 4,220 | EKY-160E□□822MMP1S |
| | 10,000 | 18×40 | 0.012 | 0.032 | 4,280 | EKY-160E□□103MM40S |
| 25 | 47 | 5×11 | 0.58 | 2.3 | 210 | EKY-250E□□470ME11D |
| | 100 | 6.3×11 | 0.22 | 0.87 | 340 | EKY-250E□□101MF11D |
| | 220 | 8×11.5 | 0.13 | 0.52 | 640 | EKY-250E□□221MHB5D |
| | 330 | 8×15 | 0.087 | 0.35 | 840 | EKY-250E□□331MH15D |
| | 330 | 10×12.5 | 0.080 | 0.32 | 865 | EKY-250E□□331MJC5S |
| | 470 | 8×20 | 0.069 | 0.27 | 1,050 | EKY-250E□□471MH20D |
| | 470 | 10×16 | 0.060 | 0.24 | 1,210 | EKY-250E□□471MJ16S |
| | 680 | 10×20 | 0.046 | 0.18 | 1,400 | EKY-250E□□681MJ20S |
| | 680 | 12.5×15 | 0.049 | 0.16 | 1,450 | EKY-250E□□681MK15S |
| | 820 | 10×25 | 0.042 | 0.17 | 1,650 | EKY-250E□□821MJ25S |
| | 1,000 | 10×30 | 0.031 | 0.12 | 1,910 | EKY-250E□□102MJ30S |
| | 1,000 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKY-250E□□102MK20S |
| | 1,000 | 16×15 | 0.042 | 0.12 | 1,940 | EKY-250E□□102ML15S |
| | 1,200 | 18×15 | 0.043 | 0.11 | 2,210 | EKY-250E□□122MM15S |
| | 1,500 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKY-250E□□152MK25S |
| | 1,800 | 12.5×30 | 0.024 | 0.078 | 2,650 | EKY-250E□□182MK30S |
| | 1,800 | 16×20 | 0.027 | 0.078 | 2,530 | EKY-250E□□182ML20S |
| | 2,200 | 12.5×35 | 0.020 | 0.065 | 2,880 | EKY-250E□□222MK35S |
| | 2,200 | 18×20 | 0.026 | 0.067 | 2,860 | EKY-250E□□222MM20S |
| | 2,700 | 12.5×40 | 0.017 | 0.056 | 3,350 | EKY-250E□□272MK40S |
| | 2,700 | 16×25 | 0.021 | 0.060 | 2,930 | EKY-250E□□272ML25S |
| | 3,300 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKY-250E□□332MLN3S |
| | 3,300 | 18×25 | 0.019 | 0.049 | 3,140 | EKY-250E□□332MM25S |
| | 3,900 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKY-250E□□392MLP1S |
| | 3,900 | 18×31.5 | 0.015 | 0.040 | 4,170 | EKY-250E□□392MMN3S |
| | 4,700 | 16×40 | 0.013 | 0.038 | 4,080 | EKY-250E□□472ML40S |
| | 4,700 | 18×35.5 | 0.014 | 0.038 | 4,220 | EKY-250E□□472MMP1S |
| | 5,600 | 18×40 | 0.012 | 0.032 | 4,280 | EKY-250E□□562MM40S |
| 35 | 33 | 5×11 | 0.58 | 2.3 | 210 | EKY-350E□□330ME11D |
| | 56 | 6.3×11 | 0.22 | 0.87 | 340 | EKY-350E□□560MF11D |
| | 150 | 8×11.5 | 0.13 | 0.52 | 640 | EKY-350E□□151MHB5D |
| | 220 | 8×15 | 0.087 | 0.35 | 840 | EKY-350E□□221MH15D |
| | 220 | 10×12.5 | 0.080 | 0.32 | 865 | EKY-350E□□221MJC5S |
| | 270 | 8×20 | 0.069 | 0.27 | 1,050 | EKY-350E□□271MH20D |
| | 330 | 10×16 | 0.060 | 0.24 | 1,210 | EKY-350E□□331MJ16S |
| | 470 | 10×20 | 0.046 | 0.18 | 1,400 | EKY-350E□□471MJ20S |
| | 470 | 12.5×15 | 0.049 | 0.16 | 1,450 | EKY-350E□□471MK15S |
| | 560 | 10×25 | 0.042 | 0.17 | 1,650 | EKY-350E□□561MJ25S |
| | 680 | 10×30 | 0.031 | 0.12 | 1,910 | EKY-350E□□681MJ30S |
| | 680 | 12.5×20 | 0.035 | 0.12 | 1,900 | EKY-350E□□681MK20S |
| | 680 | 16×15 | 0.042 | 0.12 | 1,940 | EKY-350E□□681ML15S |
| | 1,000 | 12.5×25 | 0.027 | 0.089 | 2,230 | EKY-350E□□102MK25S |
| | 1,000 | 18×15 | 0.043 | 0.11 | 2,210 | EKY-350E□□102MM15S |
| | 1,200 | 12.5×30 | 0.024 | 0.078 | 2,650 | EKY-350E□□122MK30S |
| | 1,200 | 16×20 | 0.027 | 0.078 | 2,530 | EKY-350E□□122ML20S |
| | 1,500 | 12.5×35 | 0.020 | 0.065 | 2,880 | EKY-350E□□152MK35S |
| | 1,800 | 12.5×40 | 0.017 | 0.056 | 3,350 | EKY-350E□□182MK40S |
| | 1,800 | 16×25 | 0.021 | 0.060 | 2,930 | EKY-350E□□182ML25S |
| | 1,800 | 18×20 | 0.026 | 0.067 | 2,860 | EKY-350E□□182MM20S |
| | 2,200 | 16×31.5 | 0.017 | 0.050 | 3,450 | EKY-350E□□222MLN3S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## KY Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃ 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 35 | 2,200 | 18×25 | 0.019 | 0.049 | 3,140 | EKY-350E□□222MM25S |
| | 2,700 | 16×35.5 | 0.015 | 0.044 | 3,610 | EKY-350E□□272MLP1S |
| | 2,700 | 18×31.5 | 0.015 | 0.040 | 4,170 | EKY-350E□□272MMN3S |
| | 3,300 | 16×40 | 0.013 | 0.038 | 4,080 | EKY-350E□□332ML40S |
| | 3,300 | 18×35.5 | 0.014 | 0.038 | 4,220 | EKY-350E□□332MMP1S |
| | 3,900 | 18×40 | 0.012 | 0.032 | 4,280 | EKY-350E□□392MM40S |
| 50 | 1.0 | 5×11 | 4.0 | 16.0 | 30 | EKY-500E□□1R0ME11D |
| | 2.2 | 5×11 | 2.5 | 10.0 | 43 | EKY-500E□□2R2ME11D |
| | 3.3 | 5×11 | 2.2 | 8.8 | 53 | EKY-500E□□3R3ME11D |
| | 4.7 | 5×11 | 1.9 | 7.6 | 88 | EKY-500E□□4R7ME11D |
| | 10 | 5×11 | 1.5 | 6.0 | 100 | EKY-500E□□100ME11D |
| | 22 | 5×11 | 0.70 | 2.8 | 180 | EKY-500E□□220ME11D |
| | 56 | 6.3×11 | 0.30 | 1.2 | 295 | EKY-500E□□560MF11D |
| | 100 | 8×11.5 | 0.17 | 0.68 | 555 | EKY-500E□□101MHB5D |
| | 120 | 8×15 | 0.12 | 0.48 | 730 | EKY-500E□□121MH15D |
| | 150 | 10×12.5 | 0.12 | 0.48 | 760 | EKY-500E□□151MJC5S |
| | 180 | 8×20 | 0.091 | 0.36 | 910 | EKY-500E□□181MH20D |
| | 220 | 10×16 | 0.084 | 0.34 | 1,050 | EKY-500E□□221MJ16S |
| | 270 | 10×20 | 0.060 | 0.24 | 1,220 | EKY-500E□□271MJ20S |
| | 270 | 12.5×15 | 0.061 | 0.20 | 1,260 | EKY-500E□□271MK15S |
| | 330 | 10×25 | 0.055 | 0.22 | 1,440 | EKY-500E□□331MJ25S |
| | 470 | 10×30 | 0.043 | 0.17 | 1,690 | EKY-500E□□471MJ30S |
| | 470 | 12.5×20 | 0.045 | 0.15 | 1,660 | EKY-500E□□471MK20S |
| | 470 | 16×15 | 0.055 | 0.17 | 1,690 | EKY-500E□□471ML15S |
| | 560 | 12.5×25 | 0.034 | 0.11 | 1,950 | EKY-500E□□561MK25S |
| | 560 | 18×15 | 0.054 | 0.15 | 1,930 | EKY-500E□□561MM15S |
| | 680 | 12.5×30 | 0.030 | 0.10 | 2,310 | EKY-500E□□681MK30S |
| | 820 | 12.5×35 | 0.025 | 0.083 | 2,510 | EKY-500E□□821MK35S |
| | 820 | 16×20 | 0.034 | 0.10 | 2,210 | EKY-500E□□821ML20S |
| | 1,000 | 12.5×40 | 0.021 | 0.069 | 2,920 | EKY-500E□□102MK40S |
| | 1,000 | 16×25 | 0.025 | 0.075 | 2,555 | EKY-500E□□102ML25S |
| | 1,000 | 18×20 | 0.036 | 0.097 | 2,490 | EKY-500E□□102MM20S |
| | 1,200 | 16×31.5 | 0.022 | 0.066 | 3,010 | EKY-500E□□122MLN3S |
| | 1,200 | 18×25 | 0.026 | 0.070 | 2,740 | EKY-500E□□122MM25S |
| | 1,500 | 16×35.5 | 0.019 | 0.057 | 3,150 | EKY-500E□□152MLP1S |
| | 1,800 | 16×40 | 0.016 | 0.048 | 3,710 | EKY-500E□□182ML40S |
| | 1,800 | 18×31.5 | 0.021 | 0.057 | 3,635 | EKY-500E□□182MMN3S |
| | 2,200 | 18×35.5 | 0.017 | 0.046 | 3,680 | EKY-500E□□222MMP1S |
| | 2,700 | 18×40 | 0.014 | 0.038 | 3,800 | EKY-500E□□272MM40S |
| 63 | 15 | 5×11 | 0.88 | 3.5 | 165 | EKY-630E□□150ME11D |
| | 33 | 6.3×11 | 0.35 | 1.4 | 265 | EKY-630E□□330MF11D |
| | 56 | 8×11.5 | 0.22 | 0.88 | 500 | EKY-630E□□560MHB5D |
| | 82 | 8×15 | 0.16 | 0.64 | 665 | EKY-630E□□820MH15D |
| | 82 | 10×12.5 | 0.11 | 0.44 | 690 | EKY-630E□□820MJC5S |
| | 120 | 8×20 | 0.12 | 0.48 | 820 | EKY-630E□□121MH20D |
| | 120 | 10×16 | 0.076 | 0.31 | 950 | EKY-630E□□121MJ16S |
| | 180 | 10×20 | 0.056 | 0.23 | 1,150 | EKY-630E□□181MJ20S |
| | 180 | 12.5×16 | 0.072 | 0.29 | 1,150 | EKY-630E□□181MK16S |
| | 220 | 10×25 | 0.046 | 0.19 | 1,350 | EKY-630E□□221MJ25S |
| | 270 | 12.5×20 | 0.041 | 0.13 | 1,500 | EKY-630E□□271MK20S |
| | 390 | 12.5×25 | 0.031 | 0.093 | 1,900 | EKY-630E□□391MK25S |
| | 470 | 12.5×30 | 0.028 | 0.084 | 2,300 | EKY-630E□□471MK30S |
| | 470 | 16×20 | 0.032 | 0.096 | 2,000 | EKY-630E□□471ML20S |
| | 560 | 12.5×35 | 0.024 | 0.072 | 2,500 | EKY-630E□□561MK35S |
| | 680 | 12.5×40 | 0.021 | 0.063 | 2,800 | EKY-630E□□681MK40S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃ 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 63 | 680 | 16×25 | 0.025 | 0.075 | 2,600 | EKY-630E□□681ML25S |
| | 680 | 18×20 | 0.030 | 0.090 | 2,500 | EKY-630E□□681MM20S |
| | 820 | 16×31.5 | 0.021 | 0.063 | 2,850 | EKY-630E□□821MLN3S |
| | 820 | 18×25 | 0.024 | 0.072 | 2,800 | EKY-630E□□821MM25S |
| | 1,000 | 16×35.5 | 0.019 | 0.057 | 2,900 | EKY-630E□□102MLP1S |
| | 1,200 | 16×40 | 0.018 | 0.054 | 3,400 | EKY-630E□□122ML40S |
| | 1,200 | 18×31.5 | 0.020 | 0.060 | 3,300 | EKY-630E□□122MMN3S |
| | 1,500 | 18×35.5 | 0.018 | 0.054 | 3,400 | EKY-630E□□152MMP1S |
| | 1,800 | 18×40 | 0.017 | 0.051 | 3,500 | EKY-630E□□182MM40S |
| 80 | 68 | 10×12.5 | 0.17 | 0.66 | 480 | EKY-800E□□680MJC5S |
| | 100 | 10×16 | 0.11 | 0.47 | 600 | EKY-800E□□101MJ16S |
| | 120 | 10×20 | 0.084 | 0.34 | 800 | EKY-800E□□121MJ20S |
| | 150 | 10×25 | 0.069 | 0.28 | 900 | EKY-800E□□151MJ25S |
| | 150 | 12.5×16 | 0.11 | 0.34 | 750 | EKY-800E□□151MK16S |
| | 220 | 12.5×20 | 0.062 | 0.18 | 1,100 | EKY-800E□□221MK20S |
| | 330 | 12.5×25 | 0.047 | 0.14 | 1,250 | EKY-800E□□331MK25S |
| | 330 | 16×20 | 0.048 | 0.15 | 1,350 | EKY-800E□□331ML20S |
| | 390 | 12.5×30 | 0.042 | 0.13 | 1,500 | EKY-800E□□391MK30S |
| | 470 | 12.5×35 | 0.036 | 0.11 | 1,650 | EKY-800E□□471MK35S |
| | 470 | 16×25 | 0.038 | 0.12 | 1,700 | EKY-800E□□471ML25S |
| | 470 | 18×20 | 0.045 | 0.14 | 1,500 | EKY-800E□□471MM20S |
| | 560 | 12.5×40 | 0.032 | 0.095 | 1,800 | EKY-800E□□561MK40S |
| | 680 | 16×31.5 | 0.032 | 0.095 | 1,850 | EKY-800E□□681MLN3S |
| | 680 | 18×25 | 0.036 | 0.11 | 1,750 | EKY-800E□□681MM25S |
| | 820 | 16×35.5 | 0.029 | 0.086 | 2,000 | EKY-800E□□821MLP1S |
| | 820 | 18×31.5 | 0.030 | 0.090 | 1,900 | EKY-800E□□821MMN3S |
| | 1,000 | 16×40 | 0.027 | 0.081 | 2,200 | EKY-800E□□102ML40S |
| | 1,000 | 18×35.5 | 0.027 | 0.081 | 2,200 | EKY-800E□□102MMP1S |
| | 1,200 | 18×40 | 0.026 | 0.077 | 2,700 | EKY-800E□□122MM40S |
| 100 | 6.8 | 5×11 | 1.4 | 5.6 | 125 | EKY-101E□□6R8ME11D |
| | 15 | 6.3×11 | 0.57 | 2.3 | 205 | EKY-101E□□150MF11D |
| | 27 | 8×11.5 | 0.36 | 1.4 | 355 | EKY-101E□□270MHB5D |
| | 39 | 8×15 | 0.25 | 1.0 | 450 | EKY-101E□□390MH15D |
| | 47 | 10×12.5 | 0.17 | 0.66 | 480 | EKY-101E□□470MJC5S |
| | 56 | 8×20 | 0.19 | 0.76 | 565 | EKY-101E□□560MH20D |
| | 68 | 10×16 | 0.11 | 0.47 | 600 | EKY-101E□□680MJ16S |
| | 82 | 10×20 | 0.084 | 0.34 | 800 | EKY-101E□□820MJ20S |
| | 100 | 12.5×16 | 0.11 | 0.34 | 750 | EKY-101E□□101MK16S |
| | 120 | 10×25 | 0.069 | 0.28 | 900 | EKY-101E□□121MJ25S |
| | 150 | 12.5×20 | 0.062 | 0.18 | 1,100 | EKY-101E□□151MK20S |
| | 220 | 12.5×25 | 0.047 | 0.14 | 1,250 | EKY-101E□□221MK25S |
| | 220 | 16×20 | 0.048 | 0.15 | 1,350 | EKY-101E□□221ML20S |
| | 270 | 12.5×30 | 0.042 | 0.13 | 1,500 | EKY-101E□□271MK30S |
| | 330 | 12.5×35 | 0.036 | 0.11 | 1,650 | EKY-101E□□331MK35S |
| | 330 | 16×25 | 0.038 | 0.12 | 1,700 | EKY-101E□□331ML25S |
| | 330 | 18×20 | 0.045 | 0.14 | 1,500 | EKY-101E□□331MM20S |
| | 390 | 12.5×40 | 0.032 | 0.095 | 1,800 | EKY-101E□□391MK40S |
| | 470 | 16×31.5 | 0.032 | 0.095 | 1,850 | EKY-101E□□471MLN3S |
| | 470 | 18×25 | 0.036 | 0.11 | 1,750 | EKY-101E□□471MM25S |
| | 560 | 16×35.5 | 0.029 | 0.086 | 2,000 | EKY-101E□□561MLP1S |
| | 560 | 18×31.5 | 0.030 | 0.090 | 1,900 | EKY-101E□□561MMN3S |
| | 680 | 16×40 | 0.027 | 0.081 | 2,200 | EKY-101E□□681ML40S |
| | 680 | 18×35.5 | 0.027 | 0.081 | 2,200 | EKY-101E□□681MMP1S |
| | 820 | 18×40 | 0.026 | 0.077 | 2,700 | EKY-101E□□821MM40S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 1.0 to 180 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

New!

# LZA Series

- Adoption of innovative electrolyte and new technologies
- Very low impedance at high frequency
- Endurance with ripple current: 4,000 to 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

LZA
↑ Lower Z, Downsized
LXZ

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ | | | | | | |
| **Rated Voltage Range** | 6.3 to 35Vdc | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | tanδ (Max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. | | | | | | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | |
| | Z(−55℃)/Z(+20℃) | 4 | 3 | 3 | 3 | 3 | |
| | | | | | | | (at 120Hz) |

**Endurance**

The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃.

| | | | |
|---|---|---|---|
| Time | φ10 : 4,000hours φ12.5 : 5,000hours | | |
| Rated voltage | 6.3 to 10Vdc(φ10) | 6.3 to 10Vdc(φ12.5) | 16 to 35Vdc |
| Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value | ≦±20% of the initial value |
| D.F.(tanδ) | ≦300% of the initial specified value | ≦200% of the initial specified value | ≦200% of the initial specified value |
| Leakage current | ≦The initial specified value | ≦The initial specified value | ≦The initial specified value |

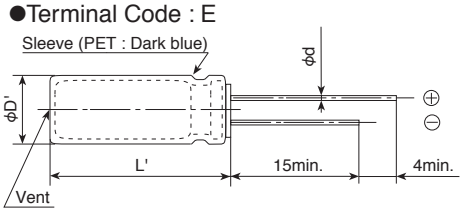
**Shelf Life**

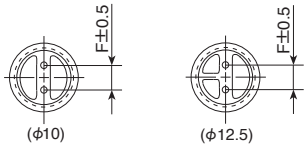
The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

| | | | |
|---|---|---|---|
| Rated voltage | 6.3 to 10Vdc(φ10) | 6.3 to 10Vdc(φ12.5) | 16 to 35Vdc |
| Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value | ≦±20% of the initial value |
| D.F.(tanδ) | ≦300% of the initial specified value | ≦200% of the initial specified value | ≦200% of the initial specified value |
| Leakage current | ≦The initial specified value | ≦The initial specified value | ≦The initial specified value |

## ◆DIMENSIONS [mm]

●Terminal Code : E




Gas escape end seal

| φD | 10 | 12.5 |
|---|---|---|
| φd | 0.6 | 0.6 |
| F | 5.0 | 5.0 |
| φD' | φD+0.5max. | |
| L' | L+1.5max. | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | L | Z | A | | | | E | | | | | | M | | | | S |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 680μF:681, 2,200μF:222)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3, 25V:250)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

New!

## LZA Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 1,500 | 10×12.5 | 0.063 | 960 | ELZA6R3E□□152MJC5S |
| | 1,800 | 10×16 | 0.049 | 1,240 | ELZA6R3E□□182MJ16S |
| | 2,700 | 10×20 | 0.035 | 1,550 | ELZA6R3E□□272MJ20S |
| | 3,300 | 10×25 | 0.033 | 1,740 | ELZA6R3E□□332MJ25S |
| | 4,700 | 12.5×20 | 0.029 | 1,890 | ELZA6R3E□□472MK20S |
| | 6,800 | 12.5×25 | 0.022 | 2,350 | ELZA6R3E□□682MK25S |
| 10 | 1,000 | 10×12.5 | 0.063 | 960 | ELZA100E□□102MJC5S |
| | 1,500 | 10×16 | 0.049 | 1,240 | ELZA100E□□152MJ16S |
| | 2,200 | 10×20 | 0.035 | 1,550 | ELZA100E□□222MJ20S |
| | 2,700 | 10×25 | 0.033 | 1,740 | ELZA100E□□272MJ25S |
| | 3,300 | 12.5×20 | 0.029 | 1,890 | ELZA100E□□332MK20S |
| | 4,700 | 12.5×25 | 0.022 | 2,350 | ELZA100E□□472MK25S |
| 16 | 820 | 10×12.5 | 0.063 | 960 | ELZA160E□□821MJC5S |
| | 1,000 | 10×16 | 0.049 | 1,240 | ELZA160E□□102MJ16S |
| | 1,500 | 10×20 | 0.035 | 1,550 | ELZA160E□□152MJ20S |
| | 1,800 | 10×25 | 0.033 | 1,740 | ELZA160E□□182MJ25S |
| | 2,200 | 12.5×20 | 0.029 | 1,890 | ELZA160E□□222MK20S |
| | 3,300 | 12.5×25 | 0.022 | 2,350 | ELZA160E□□332MK25S |
| 25 | 470 | 10×12.5 | 0.063 | 960 | ELZA250E□□471MJC5S |
| | 680 | 10×16 | 0.049 | 1,240 | ELZA250E□□681MJ16S |
| | 1,000 | 10×20 | 0.035 | 1,550 | ELZA250E□□102MJ20S |
| | 1,200 | 10×25 | 0.033 | 1,740 | ELZA250E□□122MJ25S |
| | 1,500 | 12.5×20 | 0.029 | 1,890 | ELZA250E□□152MK20S |
| | 2,200 | 12.5×25 | 0.022 | 2,350 | ELZA250E□□222MK25S |
| 35 | 330 | 10×12.5 | 0.063 | 960 | ELZA350E□□331MJC5S |
| | 470 | 10×16 | 0.049 | 1,240 | ELZA350E□□471MJ16S |
| | 680 | 10×20 | 0.035 | 1,550 | ELZA350E□□681MJ20S |
| | 820 | 10×25 | 0.033 | 1,740 | ELZA350E□□821MJ25S |
| | 1,000 | 12.5×20 | 0.029 | 1,890 | ELZA350E□□102MK20S |
| | 1,500 | 12.5×25 | 0.022 | 2,350 | ELZA350E□□152MK25S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 330 to 470 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,300 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to 6,800 | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

## LXZ Series

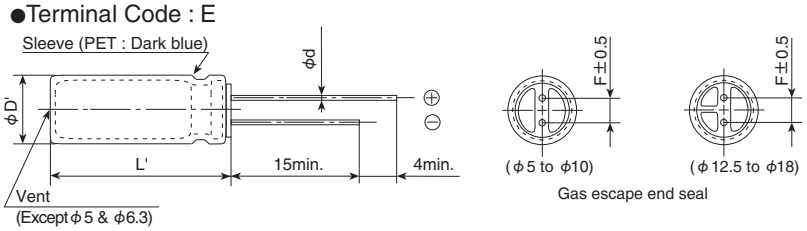
- ●Adoption of innovative electrolyte and new technologies
- ●Very low impedance at high frequency
- ●Endurance with ripple current: 2,000 to 8,000 hours at 105℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 63Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) | | | | | | | |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) | | | | | | | |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V |
| | tanδ (Max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) | | | | | | | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. | | | | | | | |
| | Time | φ5 & 6.3 : 2,000hours φ8 : 3,000hours φ10 : 5,000hours φ12.5 : 7,000hours φ16 & 18 : 8,000hours | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

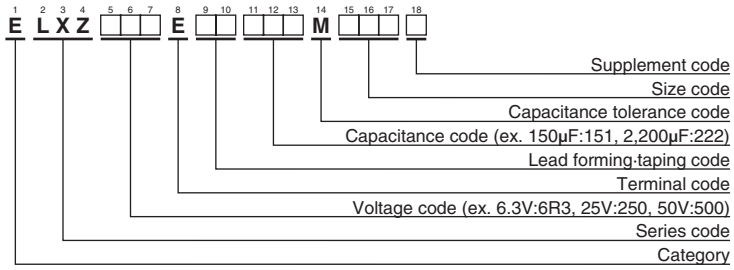
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | | | | |
| L' | L+1.5max. | | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

## LXZ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ω max/100kHz) | | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| | | | 20℃ | -10℃ | | |
| 6.3 | 150 | 5×11.5 | 0.50 | 1.0 | 175 | ELXZ6R3E□□151MEB5D |
| | 330 | 6.3×11.5 | 0.25 | 0.50 | 290 | ELXZ6R3E□□331MFB5D |
| | 470 | 6.3×15 | 0.18 | 0.36 | 400 | ELXZ6R3E□□471MF15D |
| | 680 | 8×12 | 0.12 | 0.24 | 555 | ELXZ6R3E□□681MH12D |
| | 820 | 10×12.5 | 0.090 | 0.18 | 760 | ELXZ6R3E□□821MJC5S |
| | 1,000 | 8×15 | 0.090 | 0.18 | 730 | ELXZ6R3E□□102MH15D |
| | 1,200 | 8×20 | 0.080 | 0.16 | 810 | ELXZ6R3E□□122MH20D |
| | 1,200 | 10×16 | 0.068 | 0.136 | 1,050 | ELXZ6R3E□□122MJ16S |
| | 1,500 | 10×20 | 0.052 | 0.104 | 1,220 | ELXZ6R3E□□152MJ20S |
| | 2,200 | 10×25 | 0.045 | 0.090 | 1,440 | ELXZ6R3E□□222MJ25S |
| | 2,700 | 10×30 | 0.037 | 0.074 | 1,690 | ELXZ6R3E□□272MJ30S |
| | 3,300 | 12.5×20 | 0.038 | 0.076 | 1,660 | ELXZ6R3E□□332MK20S |
| | 3,900 | 12.5×25 | 0.030 | 0.060 | 1,950 | ELXZ6R3E□□392MK25S |
| | 4,700 | 12.5×30 | 0.025 | 0.050 | 2,310 | ELXZ6R3E□□472MK30S |
| | 5,600 | 12.5×35 | 0.022 | 0.044 | 2,510 | ELXZ6R3E□□562MK35S |
| | 5,600 | 16×20 | 0.029 | 0.058 | 2,210 | ELXZ6R3E□□562ML20S |
| | 6,800 | 12.5×40 | 0.017 | 0.034 | 2,870 | ELXZ6R3E□□682MK40S |
| | 6,800 | 16×25 | 0.022 | 0.044 | 2,560 | ELXZ6R3E□□682ML25S |
| | 6,800 | 18×20 | 0.028 | 0.056 | 2,490 | ELXZ6R3E□□682MM20S |
| | 8,200 | 16×30 | 0.019 | 0.038 | 3,010 | ELXZ6R3E□□822ML30S |
| | 10,000 | 16×35 | 0.017 | 0.034 | 3,150 | ELXZ6R3E□□103ML35S |
| | 10,000 | 18×25 | 0.020 | 0.040 | 2,740 | ELXZ6R3E□□103MM25S |
| | 12,000 | 16×40 | 0.015 | 0.030 | 3,710 | ELXZ6R3E□□123ML40S |
| | 12,000 | 18×30 | 0.018 | 0.036 | 3,330 | ELXZ6R3E□□123MM30S |
| | 15,000 | 18×35 | 0.016 | 0.032 | 3,680 | ELXZ6R3E□□153MM35S |
| | 18,000 | 18×40 | 0.015 | 0.030 | 3,800 | ELXZ6R3E□□183MM40S |
| 10 | 100 | 5×11.5 | 0.50 | 1.0 | 175 | ELXZ100E□□101MEB5D |
| | 220 | 6.3×11.5 | 0.25 | 0.50 | 290 | ELXZ100E□□221MFB5D |
| | 330 | 6.3×15 | 0.18 | 0.36 | 400 | ELXZ100E□□331MF15D |
| | 470 | 8×12 | 0.12 | 0.24 | 555 | ELXZ100E□□471MH12D |
| | 680 | 8×15 | 0.090 | 0.18 | 730 | ELXZ100E□□681MH15D |
| | 680 | 10×12.5 | 0.090 | 0.18 | 760 | ELXZ100E□□681MJC5S |
| | 1,000 | 8×20 | 0.080 | 0.16 | 810 | ELXZ100E□□102MH20D |
| | 1,000 | 10×16 | 0.068 | 0.136 | 1,050 | ELXZ100E□□102MJ16S |
| | 1,200 | 10×20 | 0.052 | 0.104 | 1,220 | ELXZ100E□□122MJ20S |
| | 1,500 | 10×25 | 0.045 | 0.090 | 1,440 | ELXZ100E□□152MJ25S |
| | 1,800 | 10×30 | 0.037 | 0.074 | 1,690 | ELXZ100E□□182MJ30S |
| | 2,200 | 12.5×20 | 0.038 | 0.076 | 1,660 | ELXZ100E□□222MK20S |
| | 3,300 | 12.5×25 | 0.030 | 0.060 | 1,950 | ELXZ100E□□332MK25S |
| | 3,900 | 12.5×30 | 0.025 | 0.050 | 2,310 | ELXZ100E□□392MK30S |
| | 3,900 | 16×20 | 0.029 | 0.058 | 2,210 | ELXZ100E□□392ML20S |
| | 4,700 | 12.5×35 | 0.022 | 0.044 | 2,510 | ELXZ100E□□472MK35S |
| | 5,600 | 12.5×40 | 0.017 | 0.034 | 2,870 | ELXZ100E□□562MK40S |
| | 5,600 | 16×25 | 0.022 | 0.044 | 2,560 | ELXZ100E□□562ML25S |
| | 5,600 | 18×20 | 0.028 | 0.056 | 2,490 | ELXZ100E□□562MM20S |
| | 6,800 | 16×30 | 0.019 | 0.038 | 3,010 | ELXZ100E□□682ML30S |
| | 6,800 | 18×25 | 0.020 | 0.040 | 2,740 | ELXZ100E□□682MM25S |
| | 8,200 | 16×35 | 0.017 | 0.034 | 3,150 | ELXZ100E□□822ML35S |
| | 8,200 | 18×30 | 0.018 | 0.036 | 3,330 | ELXZ100E□□822MM30S |
| | 10,000 | 16×40 | 0.015 | 0.030 | 3,710 | ELXZ100E□□103ML40S |
| | 10,000 | 18×35 | 0.016 | 0.032 | 3,680 | ELXZ100E□□103MM35S |
| | 12,000 | 18×40 | 0.015 | 0.030 | 3,800 | ELXZ100E□□123MM40S |
| 16 | 47 | 5×11.5 | 0.50 | 1.0 | 175 | ELXZ160E□□470MEB5D |
| | 100 | 6.3×11.5 | 0.25 | 0.50 | 290 | ELXZ160E□□101MFB5D |
| | 220 | 6.3×15 | 0.18 | 0.36 | 400 | ELXZ160E□□221MF15D |
| | 330 | 8×12 | 0.12 | 0.24 | 555 | ELXZ160E□□331MH12D |
| | 470 | 8×15 | 0.090 | 0.18 | 730 | ELXZ160E□□471MH15D |
| | 470 | 10×12.5 | 0.090 | 0.18 | 760 | ELXZ160E□□471MJC5S |
| | 560 | 8×20 | 0.080 | 0.16 | 810 | ELXZ160E□□561MH20D |
| | 680 | 10×16 | 0.068 | 0.136 | 1,050 | ELXZ160E□□681MJ16S |
| | 1,000 | 10×20 | 0.052 | 0.104 | 1,220 | ELXZ160E□□102MJ20S |
| | 1,200 | 10×25 | 0.045 | 0.090 | 1,440 | ELXZ160E□□122MJ25S |
| | 1,500 | 10×30 | 0.037 | 0.074 | 1,690 | ELXZ160E□□152MJ30S |
| | 1,500 | 12.5×20 | 0.038 | 0.076 | 1,660 | ELXZ160E□□152MK20S |
| | 2,200 | 12.5×25 | 0.030 | 0.060 | 1,950 | ELXZ160E□□222MK25S |
| | 2,700 | 12.5×30 | 0.025 | 0.050 | 2,310 | ELXZ160E□□272MK30S |
| | 2,700 | 16×20 | 0.029 | 0.058 | 2,210 | ELXZ160E□□272ML20S |
| 16 | 3,300 | 12.5×35 | 0.022 | 0.044 | 2,510 | ELXZ160E□□332MK35S |
| | 3,900 | 12.5×40 | 0.017 | 0.034 | 2,870 | ELXZ160E□□392MK40S |
| | 3,900 | 16×25 | 0.022 | 0.044 | 2,560 | ELXZ160E□□392ML25S |
| | 3,900 | 18×20 | 0.028 | 0.056 | 2,490 | ELXZ160E□□392MM20S |
| | 4,700 | 16×30 | 0.019 | 0.038 | 3,010 | ELXZ160E□□472ML30S |
| | 4,700 | 18×25 | 0.020 | 0.040 | 2,740 | ELXZ160E□□472MM25S |
| | 5,600 | 16×35 | 0.017 | 0.034 | 3,150 | ELXZ160E□□562ML35S |
| | 5,600 | 18×30 | 0.018 | 0.036 | 3,330 | ELXZ160E□□562MM30S |
| | 6,800 | 16×40 | 0.015 | 0.030 | 3,710 | ELXZ160E□□682ML40S |
| | 8,200 | 18×35 | 0.016 | 0.032 | 3,680 | ELXZ160E□□822MM35S |
| | 10,000 | 18×40 | 0.015 | 0.030 | 3,800 | ELXZ160E□□103MM40S |
| 25 | 47 | 5×11.5 | 0.50 | 1.0 | 175 | ELXZ250E□□470MEB5D |
| | 100 | 6.3×11.5 | 0.25 | 0.50 | 290 | ELXZ250E□□101MFB5D |
| | 150 | 6.3×15 | 0.18 | 0.36 | 400 | ELXZ250E□□151MF15D |
| | 220 | 8×12 | 0.12 | 0.24 | 555 | ELXZ250E□□221MH12D |
| | 330 | 8×15 | 0.090 | 0.18 | 730 | ELXZ250E□□331MH15D |
| | 330 | 10×12.5 | 0.090 | 0.18 | 760 | ELXZ250E□□331MJC5S |
| | 390 | 8×20 | 0.080 | 0.16 | 810 | ELXZ250E□□391MH20D |
| | 470 | 10×16 | 0.068 | 0.136 | 1,050 | ELXZ250E□□471MJ16S |
| | 680 | 10×20 | 0.052 | 0.104 | 1,220 | ELXZ250E□□681MJ20S |
| | 820 | 10×25 | 0.045 | 0.090 | 1,440 | ELXZ250E□□821MJ25S |
| | 1,000 | 10×30 | 0.037 | 0.074 | 1,690 | ELXZ250E□□102MJ30S |
| | 1,000 | 12.5×20 | 0.038 | 0.076 | 1,660 | ELXZ250E□□102MK20S |
| | 1,500 | 12.5×25 | 0.030 | 0.060 | 1,950 | ELXZ250E□□152MK25S |
| | 1,800 | 12.5×30 | 0.025 | 0.050 | 2,310 | ELXZ250E□□182MK30S |
| | 1,800 | 16×20 | 0.029 | 0.058 | 2,210 | ELXZ250E□□182ML20S |
| | 2,200 | 12.5×35 | 0.022 | 0.044 | 2,510 | ELXZ250E□□222MK35S |
| | 2,200 | 18×20 | 0.028 | 0.056 | 2,490 | ELXZ250E□□222MM20S |
| | 2,700 | 12.5×40 | 0.017 | 0.034 | 2,870 | ELXZ250E□□272MK40S |
| | 2,700 | 16×25 | 0.022 | 0.044 | 2,560 | ELXZ250E□□272ML25S |
| | 3,300 | 16×30 | 0.019 | 0.038 | 3,010 | ELXZ250E□□332ML30S |
| | 3,300 | 18×25 | 0.020 | 0.040 | 2,740 | ELXZ250E□□332MM25S |
| | 3,900 | 16×35 | 0.017 | 0.034 | 3,150 | ELXZ250E□□392ML35S |
| | 3,900 | 18×30 | 0.018 | 0.036 | 3,330 | ELXZ250E□□392MM30S |
| | 4,700 | 16×40 | 0.015 | 0.030 | 3,710 | ELXZ250E□□472ML40S |
| | 4,700 | 18×35 | 0.016 | 0.032 | 3,680 | ELXZ250E□□472MM35S |
| | 5,600 | 18×40 | 0.015 | 0.030 | 3,800 | ELXZ250E□□562MM40S |
| 35 | 33 | 5×11.5 | 0.50 | 1.0 | 175 | ELXZ350E□□330MEB5D |
| | 56 | 6.3×11.5 | 0.25 | 0.50 | 290 | ELXZ350E□□560MFB5D |
| | 100 | 6.3×15 | 0.18 | 0.36 | 400 | ELXZ350E□□101MF15D |
| | 150 | 8×12 | 0.12 | 0.24 | 555 | ELXZ350E□□151MH12D |
| | 220 | 8×15 | 0.090 | 0.18 | 730 | ELXZ350E□□221MH15D |
| | 220 | 10×12.5 | 0.090 | 0.18 | 760 | ELXZ350E□□221MJC5S |
| | 270 | 8×20 | 0.080 | 0.16 | 810 | ELXZ350E□□271MH20D |
| | 330 | 10×16 | 0.068 | 0.136 | 1,050 | ELXZ350E□□331MJ16S |
| | 470 | 10×20 | 0.052 | 0.104 | 1,220 | ELXZ350E□□471MJ20S |
| | 560 | 10×25 | 0.045 | 0.090 | 1,440 | ELXZ350E□□561MJ25S |
| | 680 | 10×30 | 0.037 | 0.074 | 1,690 | ELXZ350E□□681MJ30S |
| | 680 | 12.5×20 | 0.038 | 0.076 | 1,660 | ELXZ350E□□681MK20S |
| | 1,000 | 12.5×25 | 0.030 | 0.060 | 1,950 | ELXZ350E□□102MK25S |
| | 1,200 | 12.5×30 | 0.025 | 0.050 | 2,310 | ELXZ350E□□122MK30S |
| | 1,200 | 16×20 | 0.029 | 0.058 | 2,210 | ELXZ350E□□122ML20S |
| | 1,500 | 12.5×35 | 0.022 | 0.044 | 2,510 | ELXZ350E□□152MK35S |
| | 1,800 | 12.5×40 | 0.017 | 0.034 | 2,870 | ELXZ350E□□182MK40S |
| | 1,800 | 16×25 | 0.022 | 0.044 | 2,560 | ELXZ350E□□182ML25S |
| | 1,800 | 18×20 | 0.028 | 0.056 | 2,490 | ELXZ350E□□182MM20S |
| | 2,200 | 16×30 | 0.019 | 0.038 | 3,010 | ELXZ350E□□222ML30S |
| | 2,200 | 18×25 | 0.020 | 0.040 | 2,740 | ELXZ350E□□222MM25S |
| | 2,700 | 16×35 | 0.017 | 0.034 | 3,150 | ELXZ350E□□272ML35S |
| | 2,700 | 18×30 | 0.018 | 0.036 | 3,330 | ELXZ350E□□272MM30S |
| | 3,300 | 16×40 | 0.015 | 0.030 | 3,710 | ELXZ350E□□332ML40S |
| | 3,300 | 18×35 | 0.016 | 0.032 | 3,680 | ELXZ350E□□332MM35S |
| | 3,900 | 18×40 | 0.015 | 0.030 | 3,800 | ELXZ350E□□392MM40S |
| 50 | 22 | 5×11.5 | 0.90 | 1.8 | 155 | ELXZ500E□□220MEB5D |
| | 47 | 6.3×11.5 | 0.45 | 0.90 | 260 | ELXZ500E□□470MFB5D |
| | 68 | 6.3×15 | 0.31 | 0.62 | 360 | ELXZ500E□□680MF15D |
| | 100 | 8×12 | 0.22 | 0.44 | 485 | ELXZ500E□□101MH12D |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

## LXZ Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ω max/100kHz) | | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| | | | 20℃ | -10℃ | | |
| 50 | 120 | 8×15 | 0.16 | 0.32 | 635 | ELXZ500E□□121MH15D |
| | 120 | 10×12.5 | 0.16 | 0.32 | 620 | ELXZ500E□□121MJC5S |
| | 180 | 8×20 | 0.12 | 0.24 | 730 | ELXZ500E□□181MH20D |
| | 180 | 10×16 | 0.13 | 0.26 | 850 | ELXZ500E□□181MJ16S |
| | 220 | 10×20 | 0.088 | 0.18 | 1,050 | ELXZ500E□□221MJ20S |
| | 330 | 10×25 | 0.073 | 0.15 | 1,250 | ELXZ500E□□331MJ25S |
| | 390 | 10×30 | 0.054 | 0.11 | 1,500 | ELXZ500E□□391MJ30S |
| | 390 | 12.5×20 | 0.059 | 0.12 | 1,480 | ELXZ500E□□391MK20S |
| | 560 | 12.5×25 | 0.044 | 0.088 | 1,840 | ELXZ500E□□561MK25S |
| | 680 | 12.5×30 | 0.039 | 0.078 | 2,220 | ELXZ500E□□681MK30S |
| | 680 | 16×20 | 0.048 | 0.096 | 1,840 | ELXZ500E□□681ML20S |
| | 820 | 12.5×35 | 0.033 | 0.066 | 2,290 | ELXZ500E□□821MK35S |
| | 820 | 18×20 | 0.042 | 0.084 | 1,980 | ELXZ500E□□821MM20S |
| | 1,000 | 12.5×40 | 0.029 | 0.058 | 2,500 | ELXZ500E□□102MK40S |
| | 1,000 | 16×25 | 0.034 | 0.068 | 2,240 | ELXZ500E□□102ML25S |
| | 1,200 | 16×30 | 0.028 | 0.056 | 2,700 | ELXZ500E□□122ML30S |
| | 1,200 | 18×25 | 0.029 | 0.058 | 2,610 | ELXZ500E□□122MM25S |
| | 1,500 | 16×35 | 0.025 | 0.050 | 2,800 | ELXZ500E□□152ML35S |
| | 1,800 | 16×40 | 0.021 | 0.042 | 3,200 | ELXZ500E□□182ML40S |
| | 1,800 | 18×30 | 0.025 | 0.050 | 3,000 | ELXZ500E□□182MM30S |
| | 2,200 | 18×35 | 0.023 | 0.046 | 3,100 | ELXZ500E□□222MM35S |
| | 2,700 | 18×40 | 0.020 | 0.040 | 3,400 | ELXZ500E□□272MM40S |
| 63 | 12 | 5×11.5 | 1.9 | 4.0 | 145 | ELXZ630E□□120MEB5D |
| | 22 | 6.3×11.5 | 1.0 | 2.0 | 240 | ELXZ630E□□220MFB5D |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ω max/100kHz) | | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| | | | 20℃ | -10℃ | | |
| 63 | 39 | 6.3×15 | 0.61 | 1.4 | 330 | ELXZ630E□□390MF15D |
| | 68 | 8×12 | 0.34 | 0.75 | 405 | ELXZ630E□□680MH12D |
| | 100 | 8×15 | 0.27 | 0.65 | 535 | ELXZ630E□□101MH15D |
| | 100 | 10×12.5 | 0.255 | 0.51 | 540 | ELXZ630E□□101MJC5S |
| | 120 | 10×16 | 0.19 | 0.38 | 600 | ELXZ630E□□121MJ16S |
| | 150 | 8×20 | 0.21 | 0.52 | 690 | ELXZ630E□□151MH20D |
| | 180 | 10×20 | 0.145 | 0.29 | 890 | ELXZ630E□□181MJ20S |
| | 220 | 10×25 | 0.13 | 0.26 | 1,050 | ELXZ630E□□221MJ25S |
| | 330 | 10×30 | 0.090 | 0.18 | 1,300 | ELXZ630E□□331MJ30S |
| | 330 | 12.5×20 | 0.085 | 0.17 | 1,290 | ELXZ630E□□331MK20S |
| | 390 | 12.5×25 | 0.070 | 0.14 | 1,720 | ELXZ630E□□391MK25S |
| | 470 | 12.5×30 | 0.055 | 0.11 | 2,090 | ELXZ630E□□471MK30S |
| | 470 | 16×20 | 0.059 | 0.12 | 1,770 | ELXZ630E□□471ML20S |
| | 680 | 12.5×35 | 0.047 | 0.094 | 2,270 | ELXZ630E□□681MK35S |
| | 680 | 16×25 | 0.050 | 0.10 | 2,160 | ELXZ630E□□681ML25S |
| | 680 | 18×20 | 0.055 | 0.11 | 2,290 | ELXZ630E□□681MM20S |
| | 820 | 12.5×40 | 0.042 | 0.084 | 2,560 | ELXZ630E□□821MK40S |
| | 820 | 16×30 | 0.043 | 0.086 | 2,670 | ELXZ630E□□821ML30S |
| | 820 | 18×25 | 0.043 | 0.086 | 2,590 | ELXZ630E□□821MM25S |
| | 1,000 | 16×35 | 0.036 | 0.072 | 2,770 | ELXZ630E□□102ML35S |
| | 1,200 | 16×40 | 0.030 | 0.060 | 2,850 | ELXZ630E□□122ML40S |
| | 1,200 | 18×30 | 0.032 | 0.064 | 2,950 | ELXZ630E□□122MM30S |
| | 1,500 | 18×35 | 0.030 | 0.060 | 3,100 | ELXZ630E□□152MM35S |
| | 1,800 | 18×40 | 0.025 | 0.050 | 3,210 | ELXZ630E□□182MM40S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 12 to 180 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to 18,000 | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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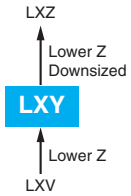
NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

High reliability, Low impedance, 105℃

# LXY Series

- Adoption of innovative electrolyte and new technologies
- Endurance with ripple current : 2,000 to 8,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

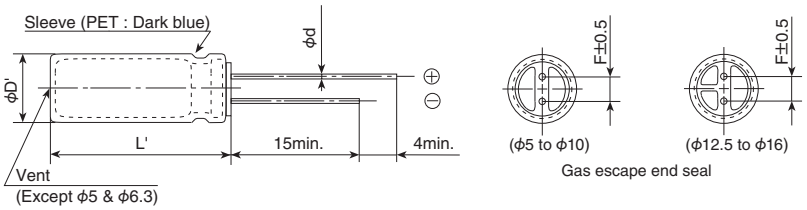


## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −55 to +105℃ |
| **Rated Voltage Range** | 10 to 63Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc): 10V / 16V / 25V / 35V / 50V / 63V<br>tanδ (Max.): 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.10<br>When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Z(−55℃)/Z(+20℃): 10Vdc to 50Vdc : 3max.; 63Vdc : 6max. (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃.<br>Time: φ5 & 6.3 : 2,000hours φ8 : 3,000hours φ10 : 5,000hours φ12.5 : 7,000hours φ16 & 18 : 8,000hours<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

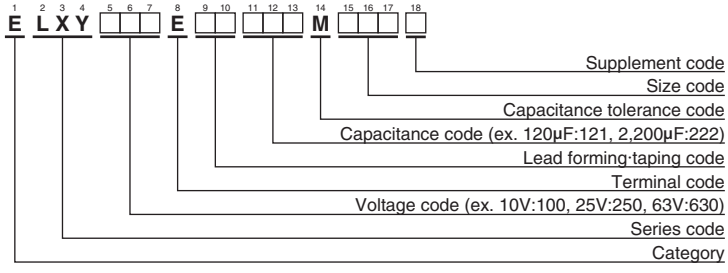
## ◆DIMENSIONS [mm]

- Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 |
|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 |
| φD' | φD+0.5max. | | | | | |
| L' | L+1.5max. | | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 10 to 180 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to 8,200 | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

High reliability, Low impedance, 105℃

## LXY Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 10 | 82 | 5×11.5 | 0.75 | 1.5 | 163 | ELXY100E□□820MEB5D |
| | 180 | 6.3×11.5 | 0.35 | 0.70 | 273 | ELXY100E□□181MFB5D |
| | 220 | 6.3×15 | 0.25 | 0.50 | 390 | ELXY100E□□221MF15D |
| | 330 | 8×12 | 0.17 | 0.34 | 445 | ELXY100E□□331MH12D |
| | 390 | 10×12.5 | 0.12 | 0.24 | 625 | ELXY100E□□391MJC5S |
| | 470 | 8×15 | 0.13 | 0.26 | 555 | ELXY100E□□471MH15D |
| | 680 | 8×20 | 0.095 | 0.19 | 740 | ELXY100E□□681MH20D |
| | 680 | 10×16 | 0.084 | 0.17 | 825 | ELXY100E□□681MJ16S |
| | 1,000 | 10×20 | 0.062 | 0.13 | 1,040 | ELXY100E□□102MJ20S |
| | 1,200 | 10×25 | 0.052 | 0.11 | 1,260 | ELXY100E□□122MJ25S |
| | 1,500 | 10×30 | 0.044 | 0.088 | 1,440 | ELXY100E□□152MJ30S |
| | 1,800 | 12.5×20 | 0.046 | 0.092 | 1,340 | ELXY100E□□182MK20S |
| | 2,200 | 12.5×25 | 0.034 | 0.068 | 1,690 | ELXY100E□□222MK25S |
| | 2,700 | 12.5×30 | 0.030 | 0.060 | 1,950 | ELXY100E□□272MK30S |
| | 3,300 | 12.5×35 | 0.024 | 0.048 | 2,220 | ELXY100E□□332MK35S |
| | 3,300 | 16×20 | 0.038 | 0.076 | 1,630 | ELXY100E□□332ML20S |
| | 3,900 | 12.5×40 | 0.022 | 0.044 | 2,390 | ELXY100E□□392MK40S |
| | 3,900 | 16×25 | 0.028 | 0.056 | 2,070 | ELXY100E□□392ML25S |
| | 5,600 | 16×30 | 0.025 | 0.050 | 2,350 | ELXY100E□□562ML30S |
| | 6,800 | 16×35 | 0.022 | 0.044 | 2,550 | ELXY100E□□682ML35S |
| | 8,200 | 16×40 | 0.018 | 0.036 | 2,900 | ELXY100E□□822ML40S |
| 16 | 56 | 5×11.5 | 0.75 | 1.5 | 163 | ELXY160E□□560MEB5D |
| | 120 | 6.3×11.5 | 0.35 | 0.70 | 273 | ELXY160E□□121MFB5D |
| | 180 | 6.3×15 | 0.25 | 0.50 | 390 | ELXY160E□□181MF15D |
| | 270 | 8×12 | 0.17 | 0.34 | 445 | ELXY160E□□271MH12D |
| | 270 | 10×12.5 | 0.12 | 0.24 | 625 | ELXY160E□□271MJC5S |
| | 330 | 8×15 | 0.13 | 0.26 | 555 | ELXY160E□□331MH15D |
| | 470 | 8×20 | 0.095 | 0.19 | 740 | ELXY160E□□471MH20D |
| | 470 | 10×16 | 0.084 | 0.17 | 825 | ELXY160E□□471MJ16S |
| | 680 | 10×20 | 0.062 | 0.13 | 1,040 | ELXY160E□□681MJ20S |
| | 820 | 10×25 | 0.052 | 0.11 | 1,260 | ELXY160E□□821MJ25S |
| | 1,200 | 10×30 | 0.044 | 0.088 | 1,440 | ELXY160E□□122MJ30S |
| | 1,200 | 12.5×20 | 0.046 | 0.092 | 1,340 | ELXY160E□□122MK20S |
| | 1,500 | 12.5×25 | 0.034 | 0.068 | 1,690 | ELXY160E□□152MK25S |
| | 2,200 | 12.5×30 | 0.030 | 0.060 | 1,950 | ELXY160E□□222MK30S |
| | 2,200 | 16×20 | 0.038 | 0.076 | 1,630 | ELXY160E□□222ML20S |
| | 2,700 | 12.5×35 | 0.024 | 0.048 | 2,220 | ELXY160E□□272MK35S |
| | 2,700 | 16×25 | 0.028 | 0.056 | 2,070 | ELXY160E□□272ML25S |
| | 3,300 | 12.5×40 | 0.022 | 0.044 | 2,390 | ELXY160E□□332MK40S |
| | 3,900 | 16×30 | 0.025 | 0.050 | 2,350 | ELXY160E□□392ML30S |
| | 4,700 | 16×35 | 0.022 | 0.044 | 2,550 | ELXY160E□□472ML35S |
| | 5,600 | 16×40 | 0.018 | 0.036 | 2,900 | ELXY160E□□562ML40S |
| 25 | 39 | 5×11.5 | 0.75 | 1.5 | 163 | ELXY250E□□390MEB5D |
| | 82 | 6.3×11.5 | 0.35 | 0.70 | 273 | ELXY250E□□820MFB5D |
| | 120 | 6.3×15 | 0.25 | 0.50 | 390 | ELXY250E□□121MF15D |
| | 150 | 8×12 | 0.17 | 0.34 | 445 | ELXY250E□□151MH12D |
| | 180 | 10×12.5 | 0.12 | 0.24 | 625 | ELXY250E□□181MJC5S |
| | 220 | 8×15 | 0.13 | 0.26 | 555 | ELXY250E□□221MH15D |
| | 330 | 8×20 | 0.095 | 0.19 | 740 | ELXY250E□□331MH20D |
| | 330 | 10×16 | 0.084 | 0.17 | 825 | ELXY250E□□331MJ16S |
| | 470 | 10×20 | 0.062 | 0.13 | 1,040 | ELXY250E□□471MJ20S |
| | 560 | 10×25 | 0.052 | 0.11 | 1,260 | ELXY250E□□561MJ25S |
| | 820 | 10×30 | 0.044 | 0.088 | 1,440 | ELXY250E□□821MJ30S |
| | 820 | 12.5×20 | 0.046 | 0.092 | 1,340 | ELXY250E□□821MK20S |
| | 1,000 | 12.5×25 | 0.034 | 0.068 | 1,690 | ELXY250E□□102MK25S |
| | 1,500 | 12.5×30 | 0.030 | 0.060 | 1,950 | ELXY250E□□152MK30S |
| | 1,500 | 16×20 | 0.038 | 0.076 | 1,630 | ELXY250E□□152ML20S |
| | 1,800 | 12.5×35 | 0.024 | 0.048 | 2,220 | ELXY250E□□182MK35S |
| | 1,800 | 16×25 | 0.028 | 0.056 | 2,070 | ELXY250E□□182ML25S |
| | 2,200 | 12.5×40 | 0.022 | 0.044 | 2,390 | ELXY250E□□222MK40S |
| | 2,700 | 16×30 | 0.025 | 0.050 | 2,350 | ELXY250E□□272ML30S |
| | 3,300 | 16×35 | 0.022 | 0.044 | 2,550 | ELXY250E□□332ML35S |
| | 3,900 | 16×40 | 0.018 | 0.036 | 2,900 | ELXY250E□□392ML40S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 35 | 27 | 5×11.5 | 0.75 | 1.5 | 163 | ELXY350E□□270MEB5D |
| | 56 | 6.3×11.5 | 0.35 | 0.70 | 273 | ELXY350E□□560MFB5D |
| | 82 | 6.3×15 | 0.25 | 0.50 | 390 | ELXY350E□□820MF15D |
| | 120 | 8×12 | 0.17 | 0.34 | 445 | ELXY350E□□121MH12D |
| | 120 | 10×12.5 | 0.12 | 0.24 | 625 | ELXY350E□□121MJC5S |
| | 180 | 8×15 | 0.13 | 0.26 | 555 | ELXY350E□□181MH15D |
| | 220 | 8×20 | 0.095 | 0.19 | 740 | ELXY350E□□221MH20D |
| | 220 | 10×16 | 0.084 | 0.17 | 825 | ELXY350E□□221MJ16S |
| | 330 | 10×20 | 0.062 | 0.13 | 1,040 | ELXY350E□□331MJ20S |
| | 390 | 10×25 | 0.052 | 0.11 | 1,260 | ELXY350E□□391MJ25S |
| | 560 | 10×30 | 0.044 | 0.088 | 1,440 | ELXY350E□□561MJ30S |
| | 560 | 12.5×20 | 0.046 | 0.092 | 1,340 | ELXY350E□□561MK20S |
| | 680 | 12.5×25 | 0.034 | 0.068 | 1,690 | ELXY350E□□681MK25S |
| | 1,000 | 12.5×30 | 0.030 | 0.060 | 1,950 | ELXY350E□□102MK30S |
| | 1,000 | 16×20 | 0.038 | 0.076 | 1,630 | ELXY350E□□102ML20S |
| | 1,200 | 12.5×35 | 0.024 | 0.048 | 2,220 | ELXY350E□□122MK35S |
| | 1,200 | 16×25 | 0.028 | 0.056 | 2,070 | ELXY350E□□122ML25S |
| | 1,500 | 12.5×40 | 0.022 | 0.044 | 2,390 | ELXY350E□□152MK40S |
| | 1,800 | 16×30 | 0.025 | 0.050 | 2,350 | ELXY350E□□182ML30S |
| | 2,200 | 16×35 | 0.022 | 0.044 | 2,550 | ELXY350E□□222ML35S |
| | 2,700 | 16×40 | 0.018 | 0.036 | 2,900 | ELXY350E□□272ML40S |
| 50 | 18 | 5×11.5 | 1.2 | 2.4 | 129 | ELXY500E□□180MEB5D |
| | 39 | 6.3×11.5 | 0.54 | 1.1 | 219 | ELXY500E□□390MFB5D |
| | 56 | 6.3×15 | 0.34 | 0.68 | 310 | ELXY500E□□560MF15D |
| | 68 | 8×12 | 0.30 | 0.60 | 340 | ELXY500E□□680MH12D |
| | 82 | 8×15 | 0.20 | 0.40 | 470 | ELXY500E□□820MH15D |
| | 82 | 10×12.5 | 0.20 | 0.40 | 480 | ELXY500E□□820MJC5S |
| | 120 | 8×20 | 0.14 | 0.28 | 610 | ELXY500E□□121MH20D |
| | 120 | 10×16 | 0.13 | 0.26 | 755 | ELXY500E□□121MJ16S |
| | 180 | 10×20 | 0.088 | 0.18 | 945 | ELXY500E□□181MJ20S |
| | 220 | 10×25 | 0.073 | 0.15 | 1,150 | ELXY500E□□221MJ25S |
| | 330 | 10×30 | 0.054 | 0.11 | 1,260 | ELXY500E□□331MJ30S |
| | 330 | 12.5×20 | 0.059 | 0.12 | 1,190 | ELXY500E□□331MK20S |
| | 470 | 12.5×25 | 0.044 | 0.088 | 1,490 | ELXY500E□□471MK25S |
| | 560 | 12.5×30 | 0.039 | 0.078 | 1,720 | ELXY500E□□561MK30S |
| | 680 | 12.5×35 | 0.033 | 0.066 | 1,890 | ELXY500E□□681MK35S |
| | 680 | 16×20 | 0.050 | 0.10 | 1,420 | ELXY500E□□681ML20S |
| | 820 | 12.5×40 | 0.029 | 0.058 | 2,030 | ELXY500E□□821MK40S |
| | 820 | 16×25 | 0.034 | 0.068 | 1,880 | ELXY500E□□821ML25S |
| | 1,000 | 16×30 | 0.030 | 0.060 | 2,150 | ELXY500E□□102ML30S |
| | 1,200 | 16×35 | 0.027 | 0.054 | 2,320 | ELXY500E□□122ML35S |
| | 1,500 | 16×40 | 0.024 | 0.048 | 2,540 | ELXY500E□□152ML40S |
| 63 | 10 | 5×11.5 | 1.9 | 4.8 | 103 | ELXY630E□□100MEB5D |
| | 18 | 6.3×11.5 | 1.0 | 2.5 | 161 | ELXY630E□□180MFB5D |
| | 33 | 6.3×15 | 0.61 | 1.6 | 233 | ELXY630E□□330MF15D |
| | 47 | 8×12 | 0.47 | 1.2 | 274 | ELXY630E□□470MH12D |
| | 56 | 10×12.5 | 0.27 | 0.68 | 418 | ELXY630E□□560MJC5S |
| | 68 | 8×15 | 0.34 | 0.85 | 360 | ELXY630E□□680MH15D |
| | 68 | 10×16 | 0.21 | 0.53 | 525 | ELXY630E□□680MJ16S |
| | 82 | 8×20 | 0.21 | 0.53 | 500 | ELXY630E□□820MH20D |
| | 120 | 10×20 | 0.16 | 0.40 | 650 | ELXY630E□□121MJ20S |
| | 150 | 10×25 | 0.13 | 0.33 | 783 | ELXY630E□□151MJ25S |
| | 180 | 10×30 | 0.10 | 0.25 | 960 | ELXY630E□□181MJ30S |
| | 220 | 12.5×20 | 0.11 | 0.28 | 870 | ELXY630E□□221MK20S |
| | 270 | 12.5×25 | 0.074 | 0.19 | 1,150 | ELXY630E□□271MK25S |
| | 330 | 16×20 | 0.085 | 0.22 | 1,100 | ELXY630E□□331ML20S |
| | 390 | 12.5×30 | 0.068 | 0.17 | 1,280 | ELXY630E□□391MK30S |
| | 470 | 12.5×35 | 0.063 | 0.16 | 1,390 | ELXY630E□□471MK35S |
| | 470 | 16×25 | 0.055 | 0.14 | 1,480 | ELXY630E□□471ML25S |
| | 560 | 12.5×40 | 0.051 | 0.13 | 1,530 | ELXY630E□□561MK40S |
| | 680 | 16×30 | 0.046 | 0.12 | 1,720 | ELXY630E□□681ML30S |
| | 820 | 16×35 | 0.040 | 0.10 | 1,910 | ELXY630E□□821ML35S |
| | 1,000 | 16×40 | 0.036 | 0.09 | 2,070 | ELXY630E□□102ML40S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

# LXV Series

LXY
↑ Lower Z
**LXV**
↓ Lower Z
Longer life
KMG

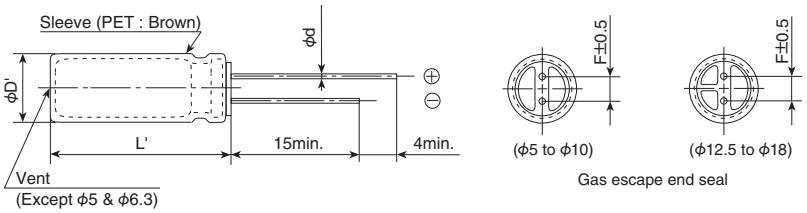
- Low impedance
- Endurance with ripple current : 2,000 to 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 100Vdc | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
| | tanδ (Max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.10 | 0.09 | 0.08 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. | | | | | | | | | (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change ΔC (−55℃ /+20℃) | 0.7min. | | | | | | | | |
| | Max. impedance ratio (−55℃ /+20℃) | 3max.(6.3Vdc : 4max.) | | | | | | | | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. | | | | | | | | | |
| | Time | φ5 to 6.3 : 2,000hours φ8 & 10 : 3,000hours φ12.5 to φ18 : 5,000hours | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | |

## ◆DIMENSIONS [mm]

- Terminal Code : E




| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | | | | |
| L' | L+1.5max. | | | | | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | L | X | V | | | | E | | | | | | M | | | | |

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 120μF:121, 1,500μF:152)
Lead forming·taping code
Terminal code
Voltage code (ex. 6.3V:6R3, 25V:250, 100V:101)
Series code
Category

Please refer to "Product code guide (radial lead type)"

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.



CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## LXV Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 120 | 5×11.5 | 0.72 | 1.8 | 165 | ELXV6R3E□□121MEB5D |
| | 220 | 6.3×11.5 | 0.38 | 0.95 | 255 | ELXV6R3E□□221MFB5D |
| | 330 | 6.3×15 | 0.27 | 0.68 | 330 | ELXV6R3E□□331MF15D |
| | 390 | 8×12 | 0.20 | 0.50 | 415 | ELXV6R3E□□391MH12D |
| | 470 | 10×12.5 | 0.12 | 0.30 | 635 | ELXV6R3E□□471MJC5S |
| | 560 | 8×15 | 0.16 | 0.40 | 495 | ELXV6R3E□□561MH15D |
| | 680 | 10×16 | 0.084 | 0.21 | 825 | ELXV6R3E□□681MJ16S |
| | 820 | 8×20 | 0.11 | 0.28 | 640 | ELXV6R3E□□821MH20D |
| | 1,200 | 10×20 | 0.062 | 0.16 | 1,060 | ELXV6R3E□□122MJ20S |
| | 1,500 | 10×25 | 0.052 | 0.13 | 1,260 | ELXV6R3E□□152MJ25S |
| | 2,200 | 10×30 | 0.044 | 0.11 | 1,450 | ELXV6R3E□□222MJ30S |
| | 2,200 | 12.5×20 | 0.046 | 0.12 | 1,360 | ELXV6R3E□□222MK20S |
| | 2,700 | 12.5×25 | 0.034 | 0.085 | 1,700 | ELXV6R3E□□272MK25S |
| | 3,900 | 12.5×30 | 0.030 | 0.075 | 1,980 | ELXV6R3E□□392MK30S |
| | 3,900 | 16×20 | 0.038 | 0.095 | 1,770 | ELXV6R3E□□392ML20S |
| | 4,700 | 12.5×35 | 0.027 | 0.068 | 2,230 | ELXV6R3E□□472MK35S |
| | 5,600 | 12.5×40 | 0.024 | 0.060 | 2,460 | ELXV6R3E□□562MK40S |
| | 5,600 | 16×25 | 0.028 | 0.070 | 2,190 | ELXV6R3E□□562ML25S |
| | 5,600 | 18×20 | 0.036 | 0.090 | 1,940 | ELXV6R3E□□562MM20S |
| | 6,800 | 16×30 | 0.025 | 0.063 | 2,510 | ELXV6R3E□□682ML30S |
| | 6,800 | 18×25 | 0.027 | 0.068 | 2,350 | ELXV6R3E□□682MM25S |
| | 8,200 | 16×35 | 0.022 | 0.055 | 2,770 | ELXV6R3E□□822ML35S |
| | 10,000 | 16×40 | 0.018 | 0.045 | 3,110 | ELXV6R3E□□103ML40S |
| | 10,000 | 18×30 | 0.024 | 0.060 | 2,720 | ELXV6R3E□□103MM30S |
| | 12,000 | 18×35 | 0.021 | 0.053 | 3,050 | ELXV6R3E□□123MM35S |
| | 15,000 | 18×40 | 0.017 | 0.043 | 3,300 | ELXV6R3E□□153MM40S |
| 10 | 82 | 5×11.5 | 0.72 | 1.8 | 165 | ELXV100E□□820MEB5D |
| | 180 | 6.3×11.5 | 0.38 | 0.95 | 255 | ELXV100E□□181MFB5D |
| | 270 | 6.3×15 | 0.27 | 0.68 | 330 | ELXV100E□□271MF15D |
| | 330 | 8×12 | 0.20 | 0.50 | 415 | ELXV100E□□331MH12D |
| | 390 | 10×12.5 | 0.12 | 0.30 | 635 | ELXV100E□□391MJC5S |
| | 470 | 8×15 | 0.16 | 0.40 | 495 | ELXV100E□□471MH15D |
| | 680 | 8×20 | 0.11 | 0.28 | 640 | ELXV100E□□681MH20D |
| | 680 | 10×16 | 0.084 | 0.21 | 825 | ELXV100E□□681MJ16S |
| | 1,000 | 10×20 | 0.062 | 0.16 | 1,060 | ELXV100E□□102MJ20S |
| | 1,200 | 10×25 | 0.052 | 0.13 | 1,260 | ELXV100E□□122MJ25S |
| | 1,500 | 10×30 | 0.044 | 0.11 | 1,450 | ELXV100E□□152MJ30S |
| | 1,800 | 12.5×20 | 0.046 | 0.12 | 1,360 | ELXV100E□□182MK20S |
| | 2,200 | 12.5×25 | 0.034 | 0.085 | 1,700 | ELXV100E□□222MK25S |
| | 2,700 | 12.5×30 | 0.030 | 0.075 | 1,980 | ELXV100E□□272MK30S |
| | 3,300 | 12.5×35 | 0.027 | 0.068 | 2,230 | ELXV100E□□332MK35S |
| | 3,300 | 16×20 | 0.038 | 0.095 | 1,770 | ELXV100E□□332ML20S |
| | 3,900 | 12.5×40 | 0.024 | 0.060 | 2,460 | ELXV100E□□392MK40S |
| | 3,900 | 16×25 | 0.028 | 0.070 | 2,190 | ELXV100E□□392ML25S |
| | 3,900 | 18×20 | 0.036 | 0.090 | 1,940 | ELXV100E□□392MM20S |
| | 4,700 | 18×25 | 0.027 | 0.068 | 2,350 | ELXV100E□□472MM25S |
| | 5,600 | 16×30 | 0.025 | 0.063 | 2,510 | ELXV100E□□562ML30S |
| | 6,800 | 16×35 | 0.022 | 0.055 | 2,770 | ELXV100E□□682ML35S |
| | 6,800 | 18×30 | 0.024 | 0.060 | 2,720 | ELXV100E□□682MM30S |
| | 8,200 | 16×40 | 0.018 | 0.045 | 3,110 | ELXV100E□□822ML40S |
| | 8,200 | 18×35 | 0.021 | 0.053 | 3,050 | ELXV100E□□822MM35S |
| | 10,000 | 18×40 | 0.017 | 0.043 | 3,300 | ELXV100E□□103MM40S |
| 16 | 56 | 5×11.5 | 0.72 | 1.8 | 165 | ELXV160E□□560MEB5D |
| | 120 | 6.3×11.5 | 0.38 | 0.95 | 255 | ELXV160E□□121MFB5D |
| | 180 | 6.3×15 | 0.27 | 0.68 | 330 | ELXV160E□□181MF15D |
| | 270 | 8×12 | 0.20 | 0.50 | 415 | ELXV160E□□271MH12D |
| | 270 | 10×12.5 | 0.12 | 0.30 | 635 | ELXV160E□□271MJC5S |
| | 330 | 8×15 | 0.16 | 0.40 | 495 | ELXV160E□□331MH15D |
| | 470 | 8×20 | 0.11 | 0.28 | 640 | ELXV160E□□471MH20D |
| | 470 | 10×16 | 0.084 | 0.21 | 825 | ELXV160E□□471MJ16S |
| | 680 | 10×20 | 0.062 | 0.16 | 1,060 | ELXV160E□□681MJ20S |
| | 820 | 10×25 | 0.052 | 0.13 | 1,260 | ELXV160E□□821MJ25S |
| | 1,200 | 10×30 | 0.044 | 0.11 | 1,450 | ELXV160E□□122MJ30S |
| | 1,200 | 12.5×20 | 0.046 | 0.12 | 1,360 | ELXV160E□□122MK20S |
| | 1,500 | 12.5×25 | 0.034 | 0.085 | 1,700 | ELXV160E□□152MK25S |
| | 2,200 | 12.5×30 | 0.030 | 0.075 | 1,980 | ELXV160E□□222MK30S |
| | 2,200 | 16×20 | 0.038 | 0.095 | 1,770 | ELXV160E□□222ML20S |
| 16 | 2,700 | 12.5×35 | 0.027 | 0.068 | 2,230 | ELXV160E□□272MK35S |
| | 2,700 | 16×25 | 0.028 | 0.070 | 2,190 | ELXV160E□□272ML25S |
| | 3,300 | 12.5×40 | 0.024 | 0.060 | 2,460 | ELXV160E□□332MK40S |
| | 3,300 | 18×20 | 0.036 | 0.090 | 1,940 | ELXV160E□□332MM20S |
| | 3,900 | 16×30 | 0.025 | 0.063 | 2,510 | ELXV160E□□392ML30S |
| | 3,900 | 18×25 | 0.027 | 0.068 | 2,350 | ELXV160E□□392MM25S |
| | 4,700 | 16×35 | 0.022 | 0.055 | 2,770 | ELXV160E□□472ML35S |
| | 4,700 | 18×30 | 0.024 | 0.060 | 2,720 | ELXV160E□□472MM30S |
| | 5,600 | 16×40 | 0.018 | 0.045 | 3,110 | ELXV160E□□562ML40S |
| | 6,800 | 18×35 | 0.021 | 0.053 | 3,050 | ELXV160E□□682MM35S |
| | 8,200 | 18×40 | 0.017 | 0.043 | 3,300 | ELXV160E□□822MM40S |
| 25 | 39 | 5×11.5 | 0.72 | 1.8 | 165 | ELXV250E□□390MEB5D |
| | 82 | 6.3×11.5 | 0.38 | 0.95 | 255 | ELXV250E□□820MFB5D |
| | 120 | 6.3×15 | 0.27 | 0.68 | 330 | ELXV250E□□121MF15D |
| | 150 | 8×12 | 0.20 | 0.50 | 415 | ELXV250E□□151MH12D |
| | 180 | 10×12.5 | 0.12 | 0.30 | 635 | ELXV250E□□181MJC5S |
| | 220 | 8×15 | 0.16 | 0.40 | 495 | ELXV250E□□221MH15D |
| | 330 | 8×20 | 0.11 | 0.28 | 640 | ELXV250E□□331MH20D |
| | 330 | 10×16 | 0.084 | 0.21 | 825 | ELXV250E□□331MJ16S |
| | 470 | 10×20 | 0.062 | 0.16 | 1,060 | ELXV250E□□471MJ20S |
| | 560 | 10×25 | 0.052 | 0.13 | 1,260 | ELXV250E□□561MJ25S |
| | 820 | 10×30 | 0.044 | 0.11 | 1,450 | ELXV250E□□821MJ30S |
| | 820 | 12.5×20 | 0.046 | 0.12 | 1,360 | ELXV250E□□821MK20S |
| | 1,000 | 12.5×25 | 0.034 | 0.085 | 1,700 | ELXV250E□□102MK25S |
| | 1,500 | 12.5×30 | 0.030 | 0.075 | 1,980 | ELXV250E□□152MK30S |
| | 1,500 | 16×20 | 0.038 | 0.095 | 1,770 | ELXV250E□□152ML20S |
| | 1,800 | 12.5×35 | 0.027 | 0.068 | 2,230 | ELXV250E□□182MK35S |
| | 1,800 | 16×25 | 0.028 | 0.070 | 2,190 | ELXV250E□□182ML25S |
| | 2,200 | 12.5×40 | 0.024 | 0.060 | 2,460 | ELXV250E□□222MK40S |
| | 2,200 | 18×20 | 0.036 | 0.090 | 1,940 | ELXV250E□□222MM20S |
| | 2,700 | 16×30 | 0.025 | 0.063 | 2,510 | ELXV250E□□272ML30S |
| | 2,700 | 18×25 | 0.027 | 0.068 | 2,350 | ELXV250E□□272MM25S |
| | 3,300 | 16×35 | 0.022 | 0.055 | 2,770 | ELXV250E□□332ML35S |
| | 3,300 | 18×30 | 0.024 | 0.060 | 2,720 | ELXV250E□□332MM30S |
| | 3,900 | 16×40 | 0.018 | 0.045 | 3,110 | ELXV250E□□392ML40S |
| | 3,900 | 18×35 | 0.021 | 0.053 | 3,050 | ELXV250E□□392MM35S |
| | 4,700 | 18×40 | 0.017 | 0.043 | 3,300 | ELXV250E□□472MM40S |
| 35 | 27 | 5×11.5 | 0.72 | 1.8 | 165 | ELXV350E□□270MEB5D |
| | 56 | 6.3×11.5 | 0.38 | 0.95 | 255 | ELXV350E□□560MFB5D |
| | 82 | 6.3×15 | 0.27 | 0.68 | 330 | ELXV350E□□820MF15D |
| | 120 | 8×12 | 0.20 | 0.50 | 415 | ELXV350E□□121MH12D |
| | 120 | 10×12.5 | 0.12 | 0.30 | 635 | ELXV350E□□121MJC5S |
| | 180 | 8×15 | 0.16 | 0.40 | 495 | ELXV350E□□181MH15D |
| | 220 | 8×20 | 0.11 | 0.28 | 640 | ELXV350E□□221MH20D |
| | 220 | 10×16 | 0.084 | 0.21 | 825 | ELXV350E□□221MJ16S |
| | 330 | 10×20 | 0.062 | 0.16 | 1,060 | ELXV350E□□331MJ20S |
| | 390 | 10×25 | 0.052 | 0.13 | 1,260 | ELXV350E□□391MJ25S |
| | 560 | 10×30 | 0.044 | 0.11 | 1,450 | ELXV350E□□561MJ30S |
| | 560 | 12.5×20 | 0.046 | 0.12 | 1,360 | ELXV350E□□561MK20S |
| | 680 | 12.5×25 | 0.034 | 0.085 | 1,700 | ELXV350E□□681MK25S |
| | 1,000 | 12.5×30 | 0.030 | 0.075 | 1,980 | ELXV350E□□102MK30S |
| | 1,000 | 16×20 | 0.038 | 0.095 | 1,770 | ELXV350E□□102ML20S |
| | 1,200 | 12.5×35 | 0.027 | 0.068 | 2,230 | ELXV350E□□122MK35S |
| | 1,200 | 16×25 | 0.028 | 0.070 | 2,190 | ELXV350E□□122ML25S |
| | 1,500 | 12.5×40 | 0.024 | 0.060 | 2,460 | ELXV350E□□152MK40S |
| | 1,500 | 18×20 | 0.036 | 0.090 | 1,940 | ELXV350E□□152MM20S |
| | 1,800 | 16×30 | 0.025 | 0.063 | 2,510 | ELXV350E□□182ML30S |
| | 1,800 | 18×25 | 0.027 | 0.068 | 2,350 | ELXV350E□□182MM25S |
| | 2,200 | 16×35 | 0.022 | 0.055 | 2,770 | ELXV350E□□222ML35S |
| | 2,200 | 18×30 | 0.024 | 0.060 | 2,720 | ELXV350E□□222MM30S |
| | 2,700 | 16×40 | 0.018 | 0.045 | 3,110 | ELXV350E□□272ML40S |
| | 2,700 | 18×35 | 0.021 | 0.053 | 3,050 | ELXV350E□□272MM35S |
| | 3,300 | 18×40 | 0.017 | 0.043 | 3,300 | ELXV350E□□332MM40S |
| 50 | 18 | 5×11.5 | 1.1 | 3.3 | 165 | ELXV500E□□180MEB5D |
| | 39 | 6.3×11.5 | 0.56 | 1.6 | 255 | ELXV500E□□390MFB5D |
| | 56 | 6.3×15 | 0.41 | 1.2 | 310 | ELXV500E□□560MF15D |
| | 68 | 8×12 | 0.29 | 0.84 | 415 | ELXV500E□□680MH12D |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

## LXV Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) 20℃ | Impedance (Ωmax/100kHz) -10℃ | Rated ripple current (mArms/105℃, 100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 50 | 82 | 8×15 | 0.24 | 0.72 | 505 | ELXV500E□□820MH15D |
| | 82 | 10×12.5 | 0.16 | 0.40 | 530 | ELXV500E□□820MJC5S |
| | 120 | 8×20 | 0.18 | 0.52 | 610 | ELXV500E□□121MH20D |
| | 120 | 10×16 | 0.12 | 0.30 | 755 | ELXV500E□□121MJ16S |
| | 180 | 10×20 | 0.088 | 0.22 | 945 | ELXV500E□□181MJ20S |
| | 220 | 10×25 | 0.068 | 0.17 | 1,150 | ELXV500E□□221MJ25S |
| | 330 | 10×30 | 0.059 | 0.15 | 1,260 | ELXV500E□□331MJ30S |
| | 330 | 12.5×20 | 0.059 | 0.15 | 1,190 | ELXV500E□□331MK20S |
| | 470 | 12.5×25 | 0.045 | 0.11 | 1,500 | ELXV500E□□471MK25S |
| | 560 | 12.5×30 | 0.039 | 0.098 | 1,720 | ELXV500E□□561MK30S |
| | 680 | 12.5×35 | 0.033 | 0.083 | 1,900 | ELXV500E□□681MK35S |
| | 680 | 16×20 | 0.043 | 0.11 | 1,500 | ELXV500E□□681ML20S |
| | 820 | 12.5×40 | 0.029 | 0.073 | 2,120 | ELXV500E□□821MK40S |
| | 820 | 16×25 | 0.033 | 0.083 | 1,880 | ELXV500E□□821ML25S |
| | 820 | 18×20 | 0.039 | 0.098 | 1,660 | ELXV500E□□821MM20S |
| | 1,000 | 16×30 | 0.029 | 0.073 | 2,150 | ELXV500E□□102ML30S |
| | 1,000 | 18×25 | 0.030 | 0.075 | 2,020 | ELXV500E□□102MM25S |
| | 1,200 | 16×35 | 0.025 | 0.063 | 2,320 | ELXV500E□□122ML35S |
| | 1,500 | 16×40 | 0.021 | 0.053 | 2,650 | ELXV500E□□152ML40S |
| | 1,500 | 18×30 | 0.026 | 0.065 | 2,340 | ELXV500E□□152MM30S |
| | 1,800 | 18×35 | 0.023 | 0.058 | 2,620 | ELXV500E□□182MM35S |
| | 2,200 | 18×40 | 0.020 | 0.050 | 2,790 | ELXV500E□□222MM40S |
| 63 | 12 | 5×11.5 | 1.9 | 4.8 | 100 | ELXV630E□□120MEB5D |
| | 27 | 6.3×11.5 | 1.1 | 2.8 | 160 | ELXV630E□□270MFB5D |
| | 39 | 6.3×15 | 0.62 | 1.6 | 230 | ELXV630E□□390MF15D |
| | 47 | 8×12 | 0.49 | 1.3 | 275 | ELXV630E□□470MH12D |
| | 56 | 10×12.5 | 0.27 | 0.68 | 420 | ELXV630E□□560MJC5S |
| | 68 | 8×15 | 0.34 | 0.85 | 360 | ELXV630E□□680MH15D |
| | 68 | 10×16 | 0.21 | 0.53 | 523 | ELXV630E□□680MJ16S |
| | 82 | 8×20 | 0.21 | 0.53 | 500 | ELXV630E□□820MH20D |
| | 120 | 10×20 | 0.16 | 0.40 | 650 | ELXV630E□□121MJ20S |
| | 150 | 10×25 | 0.13 | 0.33 | 780 | ELXV630E□□151MJ25S |
| | 180 | 10×30 | 0.10 | 0.25 | 960 | ELXV630E□□181MJ30S |
| | 220 | 12.5×20 | 0.11 | 0.28 | 870 | ELXV630E□□221MK20S |
| | 270 | 12.5×25 | 0.074 | 0.19 | 1,150 | ELXV630E□□271MK25S |
| | 390 | 12.5×30 | 0.068 | 0.17 | 1,280 | ELXV630E□□391MK30S |
| | 390 | 16×20 | 0.085 | 0.22 | 1,100 | ELXV630E□□391ML20S |
| | 470 | 12.5×35 | 0.063 | 0.16 | 1,390 | ELXV630E□□471MK35S |
| | 470 | 16×25 | 0.055 | 0.14 | 1,480 | ELXV630E□□471ML25S |
| | 560 | 12.5×40 | 0.051 | 0.13 | 1,530 | ELXV630E□□561MK40S |
| | 560 | 18×20 | 0.085 | 0.22 | 1,170 | ELXV630E□□561MM20S |
| | 680 | 16×30 | 0.046 | 0.12 | 1,720 | ELXV630E□□681ML30S |
| | 680 | 18×25 | 0.055 | 0.14 | 1,520 | ELXV630E□□681MM25S |
| | 820 | 16×35 | 0.040 | 0.10 | 1,910 | ELXV630E□□821ML35S |
| | 820 | 18×30 | 0.046 | 0.12 | 1,770 | ELXV630E□□821MM30S |
| | 1,000 | 16×40 | 0.036 | 0.09 | 2,070 | ELXV630E□□102ML40S |
| | 1,000 | 18×35 | 0.040 | 0.10 | 1,970 | ELXV630E□□102MM35S |
| | 1,200 | 18×40 | 0.036 | 0.09 | 2,130 | ELXV630E□□122MM40S |
| 80 | 8.2 | 5×11.5 | 1.9 | 5.1 | 100 | ELXV800E□□8R2MEB5D |
| | 18 | 6.3×11.5 | 1.1 | 3.0 | 150 | ELXV800E□□180MFB5D |
| 80 | 27 | 6.3×15 | 0.62 | 1.7 | 220 | ELXV800E□□270MF15D |
| | 33 | 8×12 | 0.53 | 1.5 | 275 | ELXV800E□□330MH12D |
| | 39 | 10×12.5 | 0.47 | 1.3 | 380 | ELXV800E□□390MJC5S |
| | 47 | 8×15 | 0.35 | 0.97 | 360 | ELXV800E□□470MH15D |
| | 56 | 8×20 | 0.27 | 0.74 | 490 | ELXV800E□□560MH20D |
| | 56 | 10×16 | 0.33 | 0.90 | 500 | ELXV800E□□560MJ16S |
| | 82 | 10×20 | 0.26 | 0.70 | 620 | ELXV800E□□820MJ20S |
| | 100 | 10×25 | 0.19 | 0.52 | 795 | ELXV800E□□101MJ25S |
| | 150 | 10×30 | 0.15 | 0.41 | 955 | ELXV800E□□151MJ30S |
| | 150 | 12.5×20 | 0.15 | 0.41 | 890 | ELXV800E□□151MK20S |
| | 180 | 12.5×25 | 0.11 | 0.30 | 1,040 | ELXV800E□□181MK25S |
| | 270 | 12.5×30 | 0.094 | 0.26 | 1,270 | ELXV800E□□271MK30S |
| | 270 | 16×20 | 0.11 | 0.30 | 1,240 | ELXV800E□□271ML20S |
| | 330 | 12.5×35 | 0.087 | 0.24 | 1,450 | ELXV800E□□331MK35S |
| | 330 | 16×25 | 0.081 | 0.22 | 1,440 | ELXV800E□□331ML25S |
| | 390 | 12.5×40 | 0.060 | 0.17 | 1,610 | ELXV800E□□391MK40S |
| | 390 | 18×20 | 0.085 | 0.23 | 1,450 | ELXV800E□□391MM20S |
| | 470 | 16×30 | 0.058 | 0.16 | 1,790 | ELXV800E□□471ML30S |
| | 470 | 18×25 | 0.070 | 0.19 | 1,650 | ELXV800E□□471MM25S |
| | 560 | 16×35 | 0.052 | 0.14 | 2,000 | ELXV800E□□561ML35S |
| | 680 | 16×40 | 0.041 | 0.11 | 2,200 | ELXV800E□□681ML40S |
| | 680 | 18×30 | 0.058 | 0.16 | 1,850 | ELXV800E□□681MM30S |
| | 820 | 18×35 | 0.052 | 0.14 | 1,990 | ELXV800E□□821MM35S |
| | 1,000 | 18×40 | 0.041 | 0.11 | 2,370 | ELXV800E□□102MM40S |
| 100 | 5.6 | 5×11.5 | 1.9 | 5.1 | 100 | ELXV101E□□5R6MEB5D |
| | 12 | 6.3×11.5 | 1.1 | 3.0 | 150 | ELXV101E□□120MFB5D |
| | 18 | 6.3×15 | 0.62 | 1.7 | 220 | ELXV101E□□180MF15D |
| | 22 | 8×12 | 0.53 | 1.5 | 275 | ELXV101E□□220MH12D |
| | 27 | 10×12.5 | 0.47 | 1.3 | 380 | ELXV101E□□270MJC5S |
| | 33 | 8×15 | 0.35 | 0.97 | 360 | ELXV101E□□330MH15D |
| | 33 | 10×16 | 0.33 | 0.90 | 500 | ELXV101E□□330MJ16S |
| | 39 | 8×20 | 0.27 | 0.74 | 490 | ELXV101E□□390MH20D |
| | 56 | 10×20 | 0.26 | 0.70 | 620 | ELXV101E□□560MJ20S |
| | 68 | 10×25 | 0.19 | 0.52 | 795 | ELXV101E□□680MJ25S |
| | 100 | 10×30 | 0.15 | 0.41 | 955 | ELXV101E□□101MJ30S |
| | 100 | 12.5×20 | 0.15 | 0.41 | 890 | ELXV101E□□101MK20S |
| | 120 | 12.5×25 | 0.11 | 0.30 | 1,040 | ELXV101E□□121MK25S |
| | 180 | 12.5×30 | 0.094 | 0.26 | 1,270 | ELXV101E□□181MK30S |
| | 180 | 16×20 | 0.11 | 0.30 | 1,240 | ELXV101E□□181ML20S |
| | 220 | 12.5×35 | 0.087 | 0.24 | 1,450 | ELXV101E□□221MK35S |
| | 220 | 16×25 | 0.081 | 0.22 | 1,440 | ELXV101E□□221ML25S |
| | 270 | 12.5×40 | 0.060 | 0.17 | 1,610 | ELXV101E□□271MK40S |
| | 270 | 18×20 | 0.085 | 0.23 | 1,450 | ELXV101E□□271MM20S |
| | 330 | 16×30 | 0.058 | 0.16 | 1,790 | ELXV101E□□331ML30S |
| | 330 | 18×25 | 0.070 | 0.19 | 1,650 | ELXV101E□□331MM25S |
| | 390 | 16×35 | 0.052 | 0.14 | 2,000 | ELXV101E□□391ML35S |
| | 390 | 18×30 | 0.058 | 0.16 | 1,850 | ELXV101E□□391MM30S |
| | 470 | 16×40 | 0.041 | 0.11 | 2,200 | ELXV101E□□471ML40S |
| | 560 | 18×35 | 0.052 | 0.14 | 1,990 | ELXV101E□□561MM35S |
| | 680 | 18×40 | 0.041 | 0.11 | 2,370 | ELXV101E□□681MM40S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Rated voltage (Vdc) | Case size φD (mm) | Frequency (Hz) 120 | 1k | 10k | 100k | Rated voltage (Vdc) | Case size φD (mm) | Frequency (Hz) 120 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.3 & 10 | 5 to 8 | 0.65 | 0.83 | 0.95 | 1.00 | 35 & 50 | 5 to 8 | 0.40 | 0.66 | 0.85 | 1.00 |
| | 10 & 12.5 | 0.70 | 0.85 | 0.96 | 1.00 | | 10 & 12.5 | 0.50 | 0.73 | 0.89 | 1.00 |
| | 16 & 18 | 0.85 | 0.92 | 0.97 | 1.00 | | 16 & 18 | 0.60 | 0.81 | 0.94 | 1.00 |
| 16 & 25 | 5 to 8 | 0.55 | 0.76 | 0.91 | 1.00 | 63 to 100 | 5 to 8 | 0.20 | 0.55 | 0.80 | 1.00 |
| | 10 & 12.5 | 0.65 | 0.83 | 0.93 | 1.00 | | 10 & 12.5 | 0.35 | 0.65 | 0.85 | 1.00 |
| | 16 & 18 | 0.70 | 0.87 | 0.96 | 1.00 | | 16 & 18 | 0.50 | 0.75 | 0.90 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.



CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc,long life, 105℃

## KXJ Series

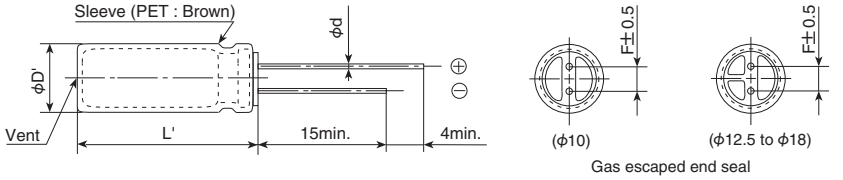
- Downsized and Longer life from current KXG series
- Endurance with ripple current : 10,000 to 12,000 hours at 105℃
- Rated voltage range : 160 to 450V, Capacitance range : 6.8 to 680μF
- For electronic ballast circuits and other long life applications
- Non solvent resistant type
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | |
|---|---|---|---|---|---|
| Category Temperature Range | −40 to +105℃ (160 to 400Vdc)　　-25 to +105℃ (420, 450Vdc) | | | | |
| Rated Voltage Range | 160 to 450Vdc | | | | |
| Capacitance Tolerance | ±20% (M) | | | | (at 20℃, 120Hz) |
| Leakage Current | | After 1 minute | After 5 minutes | | |
| | CV≦1000 | I=0.1CV+40 | I=0.03CV+15 | | |
| | CV＞1000 | I=0.04CV+100 | I=0.02CV+25 | | |
| | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | (at 20℃) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 160 to 250V | 350 to 450V | | |
| | tanδ (Max.) | 0.20 | 0.24 | | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 160 to 250V | 350, 400V | 420, 450V | |
| | Z(−25℃)/Z(+20℃) | 3 | 5 | 6 | |
| | Z(−40℃)/Z(+20℃) | 6 | 6 | – | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 12,000 hours (10,000 hours for 20L max.) at 105℃. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦500% of the initial specified value | | | |

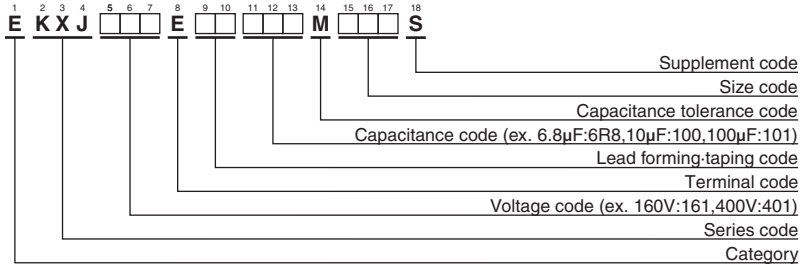
## ◆DIMENSIONS [mm]

- Terminal Code : E




| φD | 10 | 12.5 | 14.5 | 16 | 18 |
|---|---|---|---|---|---|
| φd | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| F | 5.0 | 5.0 | 7.5 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | | |
| L' | L+1.5max. | | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

| Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| Less than 100μF | 1.00 | 1.75 | 2.25 | 2.50 |
| 100μF or more | 1.00 | 1.67 | 2.05 | 2.25 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.



CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

## KXJ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 39 | 10×16 | 0.20 | 245 | EKXJ161E□□390MJ16S |
| | 56 | 10×20 | 0.20 | 315 | EKXJ161E□□560MJ20S |
| | 82 | 10×25 | 0.20 | 415 | EKXJ161E□□820MJ25S |
| | 82 | 10×30 | 0.20 | 445 | EKXJ161E□□820MJ30S |
| | 100 | 12.5×20 | 0.20 | 575 | EKXJ161E□□101MK20S |
| | 120 | 10×35 | 0.20 | 570 | EKXJ161E□□121MJ35S |
| | 120 | 14.5×20 | 0.20 | 675 | EKXJ161E□□121MU20S |
| | 150 | 10×40 | 0.20 | 665 | EKXJ161E□□151MJ40S |
| | 150 | 10×45 | 0.20 | 695 | EKXJ161E□□151MJ45S |
| | 150 | 12.5×25 | 0.20 | 765 | EKXJ161E□□151MK25S |
| | 180 | 10×50 | 0.20 | 785 | EKXJ161E□□181MJ50S |
| | 180 | 12.5×30 | 0.20 | 885 | EKXJ161E□□181MK30S |
| | 180 | 14.5×25 | 0.20 | 890 | EKXJ161E□□181MU25S |
| | 180 | 16×20 | 0.20 | 855 | EKXJ161E□□181ML20S |
| | 220 | 12.5×35 | 0.20 | 1,040 | EKXJ161E□□221MK35S |
| | 220 | 16×25 | 0.20 | 1,020 | EKXJ161E□□221ML25S |
| | 220 | 18×20 | 0.20 | 990 | EKXJ161E□□221MM20S |
| | 270 | 12.5×40 | 0.20 | 1,190 | EKXJ161E□□271MK40S |
| | 270 | 12.5×45 | 0.20 | 1,230 | EKXJ161E□□271MK45S |
| | 270 | 14.5×31.5 | 0.20 | 1,170 | EKXJ161E□□271MUN3S |
| | 270 | 14.5×35.5 | 0.20 | 1,210 | EKXJ161E□□271MUP1S |
| | 330 | 12.5×50 | 0.20 | 1,400 | EKXJ161E□□331MK50S |
| | 330 | 14.5×40 | 0.20 | 1,385 | EKXJ161E□□331MU40S |
| | 330 | 16×31.5 | 0.20 | 1,350 | EKXJ161E□□331MLN3S |
| | 330 | 18×25 | 0.20 | 1,290 | EKXJ161E□□331MM25S |
| | 390 | 14.5×45 | 0.20 | 1,545 | EKXJ161E□□391MU45S |
| | 390 | 16×35.5 | 0.20 | 1,500 | EKXJ161E□□391MLP1S |
| | 470 | 14.5×50 | 0.20 | 1,735 | EKXJ161E□□471MU50S |
| | 470 | 16×40 | 0.20 | 1,700 | EKXJ161E□□471ML40S |
| | 470 | 16×45 | 0.20 | 1,730 | EKXJ161E□□471ML45S |
| | 470 | 18×31.5 | 0.20 | 1,660 | EKXJ161E□□471MMN3S |
| | 470 | 18×35.5 | 0.20 | 1,715 | EKXJ161E□□471MMP1S |
| | 560 | 16×50 | 0.20 | 1,920 | EKXJ161E□□561ML50S |
| | 560 | 18×40 | 0.20 | 1,905 | EKXJ161E□□561MM40S |
| | 680 | 18×45 | 0.20 | 2,130 | EKXJ161E□□681MM45S |
| | 680 | 18×50 | 0.20 | 2,145 | EKXJ161E□□681MM50S |
| 200 | 27 | 10×16 | 0.20 | 200 | EKXJ201E□□270MJ16S |
| | 47 | 10×20 | 0.20 | 290 | EKXJ201E□□470MJ20S |
| | 56 | 10×25 | 0.20 | 345 | EKXJ201E□□560MJ25S |
| | 68 | 10×30 | 0.20 | 405 | EKXJ201E□□680MJ30S |
| | 82 | 12.5×20 | 0.20 | 520 | EKXJ201E□□820MK20S |
| | 100 | 10×35 | 0.20 | 520 | EKXJ201E□□101MJ35S |
| | 100 | 12.5×25 | 0.20 | 625 | EKXJ201E□□101MK25S |
| | 100 | 14.5×20 | 0.20 | 615 | EKXJ201E□□101MU20S |
| | 120 | 10×40 | 0.20 | 595 | EKXJ201E□□121MJ40S |
| | 120 | 10×45 | 0.20 | 620 | EKXJ201E□□121MJ45S |
| | 120 | 12.5×30 | 0.20 | 725 | EKXJ201E□□121MK30S |
| | 120 | 16×20 | 0.20 | 695 | EKXJ201E□□121ML20S |
| | 150 | 10×50 | 0.20 | 720 | EKXJ201E□□151MJ50S |
| | 150 | 12.5×35 | 0.20 | 860 | EKXJ201E□□151MK35S |
| | 150 | 14.5×25 | 0.20 | 810 | EKXJ201E□□151MU25S |
| | 180 | 14.5×31.5 | 0.20 | 955 | EKXJ201E□□181MUN3S |
| | 180 | 16×25 | 0.20 | 925 | EKXJ201E□□181ML25S |
| | 180 | 18×20 | 0.20 | 895 | EKXJ201E□□181MM20S |
| | 220 | 12.5×40 | 0.20 | 1,075 | EKXJ201E□□221MK40S |
| | 220 | 12.5×45 | 0.20 | 1,110 | EKXJ201E□□221MK45S |
| | 220 | 14.5×35.5 | 0.20 | 1,095 | EKXJ201E□□221MUP1S |
| | 220 | 18×25 | 0.20 | 1,050 | EKXJ201E□□221MM25S |
| | 270 | 12.5×50 | 0.20 | 1,265 | EKXJ201E□□271MK50S |
| | 270 | 14.5×40 | 0.20 | 1,250 | EKXJ201E□□271MU40S |
| | 270 | 14.5×45 | 0.20 | 1,290 | EKXJ201E□□271MU45S |
| | 270 | 16×31.5 | 0.20 | 1,220 | EKXJ201E□□271MLN3S |
| | 270 | 16×35.5 | 0.20 | 1,250 | EKXJ201E□□271MLP1S |
| | 330 | 14.5×50 | 0.20 | 1,450 | EKXJ201E□□331MU50S |
| | 330 | 16×40 | 0.20 | 1,425 | EKXJ201E□□331ML40S |
| | 330 | 18×31.5 | 0.20 | 1,395 | EKXJ201E□□331MMN3S |
| | 390 | 16×45 | 0.20 | 1,575 | EKXJ201E□□391ML45S |
| | 390 | 18×35.5 | 0.20 | 1,565 | EKXJ201E□□391MMP1S |
| | 470 | 16×50 | 0.20 | 1,755 | EKXJ201E□□471ML50S |
| | 470 | 18×40 | 0.20 | 1,745 | EKXJ201E□□471MM40S |
| | 470 | 18×45 | 0.20 | 1,770 | EKXJ201E□□471MM45S |
| | 560 | 18×50 | 0.20 | 1,945 | EKXJ201E□□561MM50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 220 | 27 | 10×16 | 0.20 | 200 | EKXJ221E□□270MJ16S |
| | 39 | 10×20 | 0.20 | 265 | EKXJ221E□□390MJ20S |
| | 56 | 10×25 | 0.20 | 345 | EKXJ221E□□560MJ25S |
| | 56 | 10×30 | 0.20 | 370 | EKXJ221E□□560MJ30S |
| | 68 | 12.5×20 | 0.20 | 475 | EKXJ221E□□680MK20S |
| | 82 | 10×35 | 0.20 | 470 | EKXJ221E□□820MJ35S |
| | 82 | 14.5×20 | 0.20 | 555 | EKXJ221E□□820MU20S |
| | 100 | 10×40 | 0.20 | 545 | EKXJ221E□□101MJ40S |
| | 100 | 10×45 | 0.20 | 565 | EKXJ221E□□101MJ45S |
| | 100 | 12.5×25 | 0.20 | 625 | EKXJ221E□□101MK25S |
| | 120 | 10×50 | 0.20 | 645 | EKXJ221E□□121MJ50S |
| | 120 | 12.5×30 | 0.20 | 725 | EKXJ221E□□121MK30S |
| | 120 | 14.5×25 | 0.20 | 725 | EKXJ221E□□121MU25S |
| | 120 | 16×20 | 0.20 | 695 | EKXJ221E□□121ML20S |
| | 150 | 12.5×35 | 0.20 | 860 | EKXJ221E□□151MK35S |
| | 150 | 16×25 | 0.20 | 845 | EKXJ221E□□151ML25S |
| | 150 | 18×20 | 0.20 | 815 | EKXJ221E□□151MM20S |
| | 180 | 12.5×40 | 0.20 | 975 | EKXJ221E□□181MK40S |
| | 180 | 12.5×45 | 0.20 | 1,005 | EKXJ221E□□181MK45S |
| | 180 | 14.5×31.5 | 0.20 | 955 | EKXJ221E□□181MUN3S |
| | 220 | 12.5×50 | 0.20 | 1,145 | EKXJ221E□□221MK50S |
| | 220 | 14.5×35.5 | 0.20 | 1,095 | EKXJ221E□□221MUP1S |
| | 220 | 14.5×40 | 0.20 | 1,130 | EKXJ221E□□221MU40S |
| | 220 | 16×31.5 | 0.20 | 1,100 | EKXJ221E□□221MLN3S |
| | 220 | 18×25 | 0.20 | 1,050 | EKXJ221E□□221MM25S |
| | 270 | 14.5×45 | 0.20 | 1,285 | EKXJ221E□□271MU45S |
| | 270 | 14.5×50 | 0.20 | 1,315 | EKXJ221E□□271MU50S |
| | 270 | 16×35.5 | 0.20 | 1,245 | EKXJ221E□□271MLP1S |
| | 270 | 18×31.5 | 0.20 | 1,260 | EKXJ221E□□271MMN3S |
| | 330 | 16×40 | 0.20 | 1,425 | EKXJ221E□□331ML40S |
| | 330 | 16×45 | 0.20 | 1,450 | EKXJ221E□□331ML45S |
| | 330 | 18×35.5 | 0.20 | 1,440 | EKXJ221E□□331MMP1S |
| | 390 | 16×50 | 0.20 | 1,600 | EKXJ221E□□391ML50S |
| | 390 | 18×40 | 0.20 | 1,590 | EKXJ221E□□391MM40S |
| | 390 | 18×45 | 0.20 | 1,620 | EKXJ221E□□391MM45S |
| | 470 | 18×50 | 0.20 | 1,785 | EKXJ221E□□471MM50S |
| 250 | 22 | 10×16 | 0.20 | 185 | EKXJ251E□□220MJ16S |
| | 33 | 10×20 | 0.20 | 240 | EKXJ251E□□330MJ20S |
| | 47 | 10×25 | 0.20 | 315 | EKXJ251E□□470MJ25S |
| | 47 | 10×30 | 0.20 | 340 | EKXJ251E□□470MJ30S |
| | 56 | 12.5×20 | 0.20 | 430 | EKXJ251E□□560MK20S |
| | 68 | 10×35 | 0.20 | 430 | EKXJ251E□□680MJ35S |
| | 68 | 14.5×20 | 0.20 | 505 | EKXJ251E□□680MU20S |
| | 82 | 10×40 | 0.20 | 495 | EKXJ251E□□820MJ40S |
| | 82 | 10×45 | 0.20 | 515 | EKXJ251E□□820MJ45S |
| | 82 | 12.5×25 | 0.20 | 565 | EKXJ251E□□820MK25S |
| | 100 | 10×50 | 0.20 | 585 | EKXJ251E□□101MJ50S |
| | 100 | 12.5×30 | 0.20 | 660 | EKXJ251E□□101MK30S |
| | 100 | 14.5×25 | 0.20 | 665 | EKXJ251E□□101MU25S |
| | 100 | 16×20 | 0.20 | 635 | EKXJ251E□□101ML20S |
| | 120 | 12.5×35 | 0.20 | 770 | EKXJ251E□□121MK35S |
| | 120 | 16×25 | 0.20 | 755 | EKXJ251E□□121ML25S |
| | 120 | 18×20 | 0.20 | 730 | EKXJ251E□□121MM20S |
| | 150 | 12.5×40 | 0.20 | 890 | EKXJ251E□□151MK40S |
| | 150 | 12.5×45 | 0.20 | 920 | EKXJ251E□□151MK45S |
| | 150 | 14.5×31.5 | 0.20 | 870 | EKXJ251E□□151MUN3S |
| | 180 | 12.5×50 | 0.20 | 1,035 | EKXJ251E□□181MK50S |
| | 180 | 14.5×35.5 | 0.20 | 990 | EKXJ251E□□181MUP1S |
| | 180 | 14.5×40 | 0.20 | 1,020 | EKXJ251E□□181MU40S |
| | 180 | 16×31.5 | 0.20 | 995 | EKXJ251E□□181MLN3S |
| | 180 | 18×25 | 0.20 | 950 | EKXJ251E□□181MM25S |
| | 220 | 14.5×45 | 0.20 | 1,160 | EKXJ251E□□221MU45S |
| | 220 | 14.5×50 | 0.20 | 1,185 | EKXJ251E□□221MU50S |
| | 220 | 16×35.5 | 0.20 | 1,125 | EKXJ251E□□221MLP1S |
| | 220 | 18×31.5 | 0.20 | 1,135 | EKXJ251E□□221MMN3S |
| | 270 | 16×40 | 0.20 | 1,285 | EKXJ251E□□271ML40S |
| | 270 | 16×45 | 0.20 | 1,310 | EKXJ251E□□271ML45S |
| | 270 | 18×35.5 | 0.20 | 1,300 | EKXJ251E□□271MMP1S |
| | 330 | 16×50 | 0.20 | 1,475 | EKXJ251E□□331ML50S |
| | 330 | 18×40 | 0.20 | 1,460 | EKXJ251E□□331MM40S |
| | 330 | 18×45 | 0.20 | 1,485 | EKXJ251E□□331MM45S |
| | 390 | 18×50 | 0.20 | 1,625 | EKXJ251E□□391MM50S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

## KXJ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 12 | 10×16 | 0.24 | 135 | EKXJ351E□□120MJ16S |
| | 22 | 10×20 | 0.24 | 200 | EKXJ351E□□220MJ20S |
| | 27 | 10×25 | 0.24 | 240 | EKXJ351E□□270MJ25S |
| | 27 | 10×30 | 0.24 | 255 | EKXJ351E□□270MJ30S |
| | 33 | 12.5×20 | 0.24 | 330 | EKXJ351E□□330MK20S |
| | 39 | 10×35 | 0.24 | 325 | EKXJ351E□□390MJ35S |
| | 47 | 10×40 | 0.24 | 375 | EKXJ351E□□470MJ40S |
| | 47 | 12.5×25 | 0.24 | 425 | EKXJ351E□□470MK25S |
| | 47 | 14.5×20 | 0.24 | 420 | EKXJ351E□□470MU20S |
| | 56 | 10×45 | 0.24 | 425 | EKXJ351E□□560MJ45S |
| | 56 | 12.5×30 | 0.24 | 495 | EKXJ351E□□560MK30S |
| | 56 | 16×20 | 0.24 | 475 | EKXJ351E□□560ML20S |
| | 68 | 10×50 | 0.24 | 485 | EKXJ351E□□680MJ50S |
| | 68 | 12.5×35 | 0.24 | 580 | EKXJ351E□□680MK35S |
| | 68 | 14.5×25 | 0.24 | 545 | EKXJ351E□□680MU25S |
| | 68 | 18×20 | 0.24 | 550 | EKXJ351E□□680MM20S |
| | 82 | 12.5×40 | 0.24 | 655 | EKXJ351E□□820MK40S |
| | 82 | 14.5×31.5 | 0.24 | 645 | EKXJ351E□□820MUN3S |
| | 82 | 16×25 | 0.24 | 625 | EKXJ351E□□820ML25S |
| | 100 | 12.5×45 | 0.24 | 750 | EKXJ351E□□101MK45S |
| | 100 | 12.5×50 | 0.24 | 770 | EKXJ351E□□101MK50S |
| | 100 | 14.5×35.5 | 0.24 | 740 | EKXJ351E□□101MUP1S |
| | 100 | 16×31.5 | 0.24 | 740 | EKXJ351E□□101MLN3S |
| | 100 | 18×25 | 0.24 | 710 | EKXJ351E□□101MM25S |
| | 120 | 14.5×40 | 0.24 | 835 | EKXJ351E□□121MU40S |
| | 120 | 14.5×45 | 0.24 | 860 | EKXJ351E□□121MU45S |
| | 120 | 16×35.5 | 0.24 | 830 | EKXJ351E□□121MLP1S |
| | 150 | 14.5×50 | 0.24 | 980 | EKXJ351E□□151MU50S |
| | 150 | 16×40 | 0.24 | 960 | EKXJ351E□□151ML40S |
| | 150 | 16×45 | 0.24 | 975 | EKXJ351E□□151ML45S |
| | 150 | 18×31.5 | 0.24 | 940 | EKXJ351E□□151MMN3S |
| | 180 | 16×50 | 0.24 | 1,090 | EKXJ351E□□181ML50S |
| | 180 | 18×35.5 | 0.24 | 1,065 | EKXJ351E□□181MMP1S |
| | 180 | 18×40 | 0.24 | 1,080 | EKXJ351E□□181MM40S |
| | 220 | 18×45 | 0.24 | 1,210 | EKXJ351E□□221MM45S |
| | 220 | 18×50 | 0.24 | 1,220 | EKXJ351E□□221MM50S |
| 400 | 10 | 10×16 | 0.24 | 125 | EKXJ401E□□100MJ16S |
| | 18 | 10×20 | 0.24 | 180 | EKXJ401E□□180MJ20S |
| | 22 | 10×25 | 0.24 | 215 | EKXJ401E□□220MJ25S |
| | 27 | 10×30 | 0.24 | 255 | EKXJ401E□□270MJ30S |
| | 27 | 12.5×20 | 0.24 | 300 | EKXJ401E□□270MK20S |
| | 33 | 10×35 | 0.24 | 300 | EKXJ401E□□330MJ35S |
| | 39 | 10×40 | 0.24 | 340 | EKXJ401E□□390MJ40S |
| | 39 | 10×45 | 0.24 | 355 | EKXJ401E□□390MJ45S |
| | 39 | 12.5×25 | 0.24 | 390 | EKXJ401E□□390MK25S |
| | 39 | 14.5×20 | 0.24 | 385 | EKXJ401E□□390MU20S |
| | 47 | 12.5×30 | 0.24 | 455 | EKXJ401E□□470MK30S |
| | 47 | 16×20 | 0.24 | 435 | EKXJ401E□□470ML20S |
| | 56 | 10×50 | 0.24 | 440 | EKXJ401E□□560MJ50S |
| | 56 | 12.5×35 | 0.24 | 525 | EKXJ401E□□560MK35S |
| | 56 | 14.5×25 | 0.24 | 495 | EKXJ401E□□560MU25S |
| | 56 | 18×20 | 0.24 | 500 | EKXJ401E□□560MM20S |
| | 68 | 12.5×40 | 0.24 | 600 | EKXJ401E□□680MK40S |
| | 68 | 14.5×31.5 | 0.24 | 585 | EKXJ401E□□680MUN3S |
| | 68 | 16×25 | 0.24 | 570 | EKXJ401E□□680ML25S |
| | 82 | 12.5×45 | 0.24 | 680 | EKXJ401E□□820MK45S |
| | 82 | 12.5×50 | 0.24 | 700 | EKXJ401E□□820MK50S |
| | 82 | 14.5×35.5 | 0.24 | 670 | EKXJ401E□□820MUP1S |
| | 82 | 16×31.5 | 0.24 | 670 | EKXJ401E□□820MLN3S |
| | 82 | 18×25 | 0.24 | 640 | EKXJ401E□□820MM25S |
| | 100 | 14.5×40 | 0.24 | 760 | EKXJ401E□□101MU40S |
| | 100 | 14.5×45 | 0.24 | 785 | EKXJ401E□□101MU45S |
| | 100 | 16×35.5 | 0.24 | 760 | EKXJ401E□□101MLP1S |
| | 120 | 14.5×50 | 0.24 | 875 | EKXJ401E□□121MU50S |
| | 120 | 16×40 | 0.24 | 860 | EKXJ401E□□121ML40S |
| | 120 | 16×45 | 0.24 | 875 | EKXJ401E□□121ML45S |
| | 120 | 18×31.5 | 0.24 | 840 | EKXJ401E□□121MMN3S |
| | 120 | 18×35.5 | 0.24 | 870 | EKXJ401E□□121MMP1S |
| | 150 | 16×50 | 0.24 | 995 | EKXJ401E□□151ML50S |
| | 150 | 18×40 | 0.24 | 985 | EKXJ401E□□151MM40S |
| | 180 | 18×45 | 0.24 | 1,095 | EKXJ401E□□181MM45S |
| | 220 | 18×50 | 0.24 | 1,220 | EKXJ401E□□221MM50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 6.8 | 10×16 | 0.24 | 105 | EKXJ421E□□6R8MJ16S |
| | 12 | 10×20 | 0.24 | 150 | EKXJ421E□□120MJ20S |
| | 15 | 10×25 | 0.24 | 185 | EKXJ421E□□150MJ25S |
| | 18 | 10×30 | 0.24 | 215 | EKXJ421E□□180MJ30S |
| | 22 | 12.5×20 | 0.24 | 285 | EKXJ421E□□220MK20S |
| | 27 | 10×35 | 0.24 | 275 | EKXJ421E□□270MJ35S |
| | 27 | 10×40 | 0.24 | 290 | EKXJ421E□□270MJ40S |
| | 27 | 12.5×25 | 0.24 | 340 | EKXJ421E□□270MK25S |
| | 27 | 14.5×20 | 0.24 | 335 | EKXJ421E□□270MU20S |
| | 33 | 10×45 | 0.24 | 335 | EKXJ421E□□330MJ45S |
| | 33 | 12.5×30 | 0.24 | 400 | EKXJ421E□□330MK30S |
| | 33 | 16×20 | 0.24 | 385 | EKXJ421E□□330ML20S |
| | 39 | 10×50 | 0.24 | 375 | EKXJ421E□□390MJ50S |
| | 39 | 14.5×25 | 0.24 | 435 | EKXJ421E□□390MU25S |
| | 47 | 12.5×35 | 0.24 | 505 | EKXJ421E□□470MK35S |
| | 47 | 16×25 | 0.24 | 500 | EKXJ421E□□470ML25S |
| | 47 | 18×20 | 0.24 | 480 | EKXJ421E□□470MM20S |
| | 56 | 12.5×40 | 0.24 | 570 | EKXJ421E□□560MK40S |
| | 56 | 12.5×45 | 0.24 | 590 | EKXJ421E□□560MK45S |
| | 56 | 14.5×31.5 | 0.24 | 560 | EKXJ421E□□560MUN3S |
| | 68 | 12.5×50 | 0.24 | 670 | EKXJ421E□□680MK50S |
| | 68 | 14.5×35.5 | 0.24 | 640 | EKXJ421E□□680MUP1S |
| | 68 | 14.5×40 | 0.24 | 660 | EKXJ421E□□680MU40S |
| | 68 | 16×31.5 | 0.24 | 645 | EKXJ421E□□680MLN3S |
| | 68 | 18×25 | 0.24 | 615 | EKXJ421E□□680MM25S |
| | 82 | 14.5×45 | 0.24 | 750 | EKXJ421E□□820MU45S |
| | 82 | 16×35.5 | 0.24 | 725 | EKXJ421E□□820MLP1S |
| | 82 | 18×31.5 | 0.24 | 730 | EKXJ421E□□820MMN3S |
| | 100 | 14.5×50 | 0.24 | 845 | EKXJ421E□□101MU50S |
| | 100 | 16×40 | 0.24 | 825 | EKXJ421E□□101ML40S |
| | 100 | 16×45 | 0.24 | 840 | EKXJ421E□□101ML45S |
| | 100 | 18×35.5 | 0.24 | 835 | EKXJ421E□□101MMP1S |
| | 120 | 16×50 | 0.24 | 935 | EKXJ421E□□121ML50S |
| | 120 | 18×40 | 0.24 | 930 | EKXJ421E□□121MM40S |
| | 120 | 18×45 | 0.24 | 945 | EKXJ421E□□121MM45S |
| | 150 | 18×50 | 0.24 | 1,060 | EKXJ421E□□151MM50S |
| 450 | 6.8 | 10×16 | 0.24 | 105 | EKXJ451E□□6R8MJ16S |
| | 12 | 10×20 | 0.24 | 150 | EKXJ451E□□120MJ20S |
| | 15 | 10×25 | 0.24 | 185 | EKXJ451E□□150MJ25S |
| | 18 | 10×30 | 0.24 | 215 | EKXJ451E□□180MJ30S |
| | 18 | 12.5×20 | 0.24 | 255 | EKXJ451E□□180MK20S |
| | 22 | 10×35 | 0.24 | 250 | EKXJ451E□□220MJ35S |
| | 27 | 10×40 | 0.24 | 290 | EKXJ451E□□270MJ40S |
| | 27 | 10×45 | 0.24 | 305 | EKXJ451E□□270MJ45S |
| | 27 | 12.5×25 | 0.24 | 340 | EKXJ451E□□270MK25S |
| | 27 | 14.5×20 | 0.24 | 335 | EKXJ451E□□270MU20S |
| | 33 | 12.5×30 | 0.24 | 400 | EKXJ451E□□330MK30S |
| | 33 | 14.5×25 | 0.24 | 400 | EKXJ451E□□330MU25S |
| | 33 | 16×20 | 0.24 | 385 | EKXJ451E□□330ML20S |
| | 39 | 10×50 | 0.24 | 375 | EKXJ451E□□390MJ50S |
| | 39 | 12.5×35 | 0.24 | 460 | EKXJ451E□□390MK35S |
| | 39 | 18×20 | 0.24 | 440 | EKXJ451E□□390MM20S |
| | 47 | 12.5×40 | 0.24 | 525 | EKXJ451E□□470MK40S |
| | 47 | 14.5×31.5 | 0.24 | 515 | EKXJ451E□□470MUN3S |
| | 47 | 16×25 | 0.24 | 500 | EKXJ451E□□470ML25S |
| | 56 | 12.5×45 | 0.24 | 590 | EKXJ451E□□560MK45S |
| | 56 | 14.5×35.5 | 0.24 | 580 | EKXJ451E□□560MUP1S |
| | 56 | 16×31.5 | 0.24 | 585 | EKXJ451E□□560MLN3S |
| | 56 | 18×25 | 0.24 | 560 | EKXJ451E□□560MM25S |
| | 68 | 12.5×50 | 0.24 | 670 | EKXJ451E□□680MK50S |
| | 68 | 14.5×40 | 0.24 | 660 | EKXJ451E□□680MU40S |
| | 68 | 14.5×45 | 0.24 | 680 | EKXJ451E□□680MU45S |
| | 68 | 16×35.5 | 0.24 | 660 | EKXJ451E□□680MLP1S |
| | 82 | 14.5×50 | 0.24 | 765 | EKXJ451E□□820MU50S |
| | 82 | 16×40 | 0.24 | 750 | EKXJ451E□□820ML40S |
| | 82 | 16×45 | 0.24 | 760 | EKXJ451E□□820ML45S |
| | 82 | 18×31.5 | 0.24 | 730 | EKXJ451E□□820MMN3S |
| | 100 | 16×50 | 0.24 | 855 | EKXJ451E□□101ML50S |
| | 100 | 18×35.5 | 0.24 | 835 | EKXJ451E□□101MMP1S |
| | 120 | 18×40 | 0.24 | 930 | EKXJ451E□□121MM40S |
| | 120 | 18×45 | 0.24 | 945 | EKXJ451E□□121MM45S |
| | 150 | 18×50 | 0.24 | 1,060 | EKXJ451E□□151MM50S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

# KXG Series

- For electronic ballast circuits and other long life applications
- Endurance with ripple current : 8,000 to 10,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

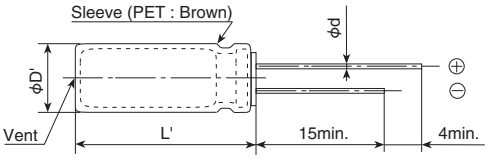
KXJ
↑ Downsized
KXG

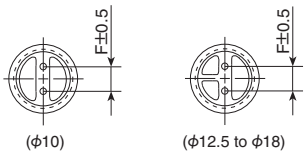
## ◆SPECIFICATIONS

| Items | Characteristics | | | | |
|---|---|---|---|---|---|
| Category Temperature Range | −40 to +105℃ (160 to 400Vdc) −25 to+105℃ (450Vdc) | | | | |
| Rated Voltage Range | 160 to 450Vdc | | | | |
| Capacitance Tolerance | ±20% (M) | | | | (at 20℃, 120Hz) |
| Leakage Current | | After 1 minute | After 5 minutes | | |
| | CV≦1,000 | I=0.1CV+40 | I=0.03CV+15 | | |
| | CV>1,000 | I=0.04CV+100 | I=0.02CV+25 | | |
| | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | (at 20℃) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 160 to 250V | 350 to 450V | | |
| | tanδ (Max.) | 0.20 | 0.24 | | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 160 to 250V | 350 & 400V | 450V | |
| | Z(−25℃)/Z(+20℃) | 3 | 5 | 6 | |
| | Z(−40℃)/Z(+20℃) | 6 | 6 | — | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 10,000 hours (8,000 hours for φ10) at 105℃. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦500% of the initial specified value | | | |

## ◆DIMENSIONS [mm]

- Terminal Code : E




Gas escape end seal

| φD | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|
| φd | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.5max. | | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | K | X | G | | | | E | | | | | | M | | | | S |

- 18 Supplement code
- 15 16 17 Size code
- 14 Capacitance tolerance code
- 11 12 13 Capacitance code (ex. 6.8μF:6R8,10μF:100,100μF:101)
- 9 10 Lead forming·taping code
- 8 Terminal code
- 5 6 7 Voltage code (ex. 160V:161,450V:451)
- 3 4 Series code
- 1 2 Category

Please refer to "Product code guide (radial lead type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 6.8 to 82 | 1.00 | 1.75 | 2.25 | 2.50 |
| 100 to 330 | 1.00 | 1.67 | 2.05 | 2.25 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

## KXG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current(mArms/105℃) | | Part No. |
|---|---|---|---|---|---|---|
| | | | | 120Hz | 100kHz | |
| 160 | 10 | 10×16 | 0.20 | 125 | 315 | EKXG161E□□100MJ16S |
| | 22 | 10×20 | 0.20 | 200 | 500 | EKXG161E□□220MJ20S |
| | 33 | 10×20 | 0.20 | 250 | 625 | EKXG161E□□330MJ20S |
| | 47 | 10×20 | 0.20 | 300 | 750 | EKXG161E□□470MJ20S |
| | 68 | 12.5×20 | 0.20 | 470 | 1,175 | EKXG161E□□680MK20S |
| | 82 | 12.5×20 | 0.20 | 510 | 1,275 | EKXG161E□□820MK20S |
| | 100 | 12.5×25 | 0.20 | 620 | 1,395 | EKXG161E□□101MK25S |
| | 100 | 16×20 | 0.20 | 630 | 1,420 | EKXG161E□□101ML20S |
| | 150 | 16×20 | 0.20 | 770 | 1,735 | EKXG161E□□151ML20S |
| | 220 | 16×25 | 0.20 | 1,020 | 2,295 | EKXG161E□□221ML25S |
| | 330 | 18×31.5 | 0.20 | 1,390 | 3,130 | EKXG161E□□331MMN3S |
| 200 | 10 | 10×16 | 0.20 | 125 | 315 | EKXG201E□□100MJ16S |
| | 22 | 10×20 | 0.20 | 200 | 500 | EKXG201E□□220MJ20S |
| | 33 | 10×20 | 0.20 | 260 | 650 | EKXG201E□□330MJ20S |
| | 47 | 12.5×20 | 0.20 | 390 | 975 | EKXG201E□□470MK20S |
| | 68 | 12.5×20 | 0.20 | 470 | 1,175 | EKXG201E□□680MK20S |
| | 82 | 16×20 | 0.20 | 550 | 1,375 | EKXG201E□□820ML20S |
| | 100 | 16×20 | 0.20 | 630 | 1,420 | EKXG201E□□101ML20S |
| | 150 | 16×25 | 0.20 | 840 | 1,890 | EKXG201E□□151ML25S |
| | 220 | 18×25 | 0.20 | 1,050 | 2,365 | EKXG201E□□221MM25S |
| | 330 | 18×35.5 | 0.20 | 1,430 | 3,220 | EKXG201E□□331MMP1S |
| 250 | 10 | 10×20 | 0.20 | 140 | 350 | EKXG251E□□100MJ20S |
| | 22 | 10×20 | 0.20 | 200 | 500 | EKXG251E□□220MJ20S |
| | 33 | 12.5×20 | 0.20 | 320 | 800 | EKXG251E□□330MK20S |
| | 47 | 12.5×20 | 0.20 | 390 | 975 | EKXG251E□□470MK20S |
| | 68 | 16×20 | 0.20 | 520 | 1,300 | EKXG251E□□680ML20S |
| | 82 | 16×20 | 0.20 | 550 | 1,375 | EKXG251E□□820ML20S |
| | 100 | 16×25 | 0.20 | 680 | 1,530 | EKXG251E□□101ML25S |
| | 150 | 18×25 | 0.20 | 860 | 1,935 | EKXG251E□□151MM25S |
| | 220 | 18×31.5 | 0.20 | 1,130 | 2,545 | EKXG251E□□221MMN3S |
| 350 | 6.8 | 10×16 | 0.24 | 110 | 275 | EKXG351E□□6R8MJ16S |
| | 10 | 10×20 | 0.24 | 140 | 350 | EKXG351E□□100MJ20S |
| | 22 | 12.5×20 | 0.24 | 260 | 650 | EKXG351E□□220MK20S |
| | 33 | 16×20 | 0.24 | 360 | 900 | EKXG351E□□330ML20S |
| | 47 | 16×20 | 0.24 | 430 | 1,075 | EKXG351E□□470ML20S |
| | 68 | 16×25 | 0.24 | 560 | 1,400 | EKXG351E□□680ML25S |
| | 68 | 18×20 | 0.24 | 550 | 1,375 | EKXG351E□□680MM20S |
| | 82 | 18×25 | 0.24 | 610 | 1,525 | EKXG351E□□820MM25S |
| | 100 | 18×25 | 0.24 | 700 | 1,575 | EKXG351E□□101MM25S |
| | 120 | 18×31.5 | 0.24 | 830 | 1,865 | EKXG351E□□121MMN3S |
| | 150 | 18×35.5 | 0.24 | 960 | 2,160 | EKXG351E□□151MMP1S |
| 400 | 6.8 | 10×16 | 0.24 | 110 | 275 | EKXG401E□□6R8MJ16S |
| | 10 | 10×20 | 0.24 | 140 | 350 | EKXG401E□□100MJ20S |
| | 15 | 12.5×20 | 0.24 | 220 | 550 | EKXG401E□□150MK20S |
| | 22 | 12.5×20 | 0.24 | 260 | 650 | EKXG401E□□220MK20S |
| | 33 | 16×20 | 0.24 | 360 | 900 | EKXG401E□□330ML20S |
| | 47 | 16×25 | 0.24 | 470 | 1,175 | EKXG401E□□470ML25S |
| | 47 | 18×20 | 0.24 | 450 | 1,125 | EKXG401E□□470MM20S |
| | 68 | 18×25 | 0.24 | 585 | 1,465 | EKXG401E□□680MM25S |
| | 82 | 18×25 | 0.24 | 610 | 1,525 | EKXG401E□□820MM25S |
| | 100 | 18×31.5 | 0.24 | 765 | 1,720 | EKXG401E□□101MMN3S |
| | 120 | 18×35.5 | 0.24 | 865 | 1,945 | EKXG401E□□121MMP1S |
| | 150 | 18×40 | 0.24 | 985 | 2,215 | EKXG401E□□151MM40S |
| 450 | 6.8 | 10×20 | 0.24 | 110 | 275 | EKXG451E□□6R8MJ20S |
| | 10 | 12.5×20 | 0.24 | 180 | 450 | EKXG451E□□100MK20S |
| | 15 | 12.5×25 | 0.24 | 240 | 600 | EKXG451E□□150MK25S |
| | 22 | 16×20 | 0.24 | 290 | 725 | EKXG451E□□220ML20S |
| | 33 | 16×25 | 0.24 | 390 | 975 | EKXG451E□□330ML25S |
| | 33 | 18×20 | 0.24 | 380 | 950 | EKXG451E□□330MM20S |
| | 47 | 18×25 | 0.24 | 480 | 1,200 | EKXG451E□□470MM25S |
| | 68 | 18×31.5 | 0.24 | 630 | 1,575 | EKXG451E□□680MMN3S |
| | 82 | 18×35.5 | 0.24 | 715 | 1,785 | EKXG451E□□820MMP1S |
| | 100 | 18×40 | 0.24 | 800 | 1,800 | EKXG451E□□101MM40S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

400 to 450Vdc, Downsized, 105℃

*New!*

# KHE Series

KHE
↑ Downsized
PAG

- Ideal for low profile power supply applications
- Downsize, high ripple design
- Rated voltage range : 400 to 450Vdc, Capacitance range : 27 to 120 μF
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

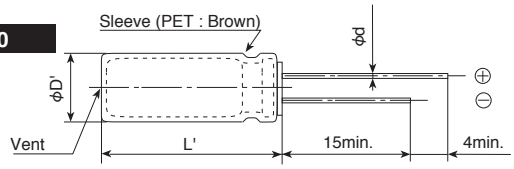
## ◆SPECIFICATIONS

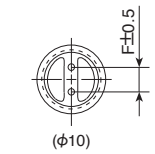
| Items | Characteristics | | | | |
|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ (400Vdc) −25 to+105℃ (420, 450Vdc) | | | | |
| **Rated Voltage Range** | 400 to 450Vdc | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | (at 20℃, 120Hz) |
| **Leakage Current** | | After 1 minute | After 5 minutes | | |
| | CV≦1,000 | I=0.1CV+40 | I=0.03CV+15 | | |
| | CV＞1,000 | I=0.04CV+100 | I=0.02CV+25 | | |
| | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | (at 20℃) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 400V | 420V | 450V | |
| | tanδ (Max.) | 0.15 | 0.20 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 400V | 420V | 450V | |
| | Z(−25℃)/Z(+20℃) | 5 | 6 | 6 | |
| | Z(−40℃)/Z(+20℃) | 6 | — | — | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦500% of the initial specified value | | | |

## ◆DIMENSIONS [mm]

- Terminal Code : E

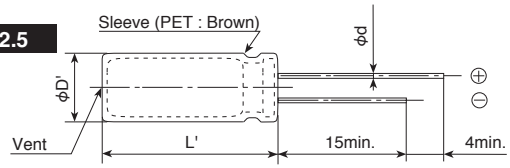
**φ10**

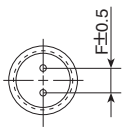



Gas escape end seal

**≧φ12.5**




| φD | 10 | 12.5 | 14.5 | 16 | 18 |
|---|---|---|---|---|---|
| φd | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| F | 5.0 | 5.0 | 7.5 | 7.5 | 7.5 |
| φD' | φD+0.5 max. | | | | |
| L' | L+2.0 max. | | | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | K | H | E | | | | E | | | | | | M | | | | S |

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 47μF:470,100μF:101)
Lead forming·taping code
Terminal code
Voltage code (ex. 400V:401,450V:451)
Series code
Category

Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

400 to 450Vdc, Downsized, 105℃

New!

## KHE Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 33 | 10×30 | 0.15 | 335 | EKHE401E□□330MJ30S |
| | 39 | 10×35 | 0.15 | 385 | EKHE401E□□390MJ35S |
| | 47 | 10×40 | 0.15 | 445 | EKHE401E□□470MJ40S |
| | 56 | 10×45 | 0.15 | 505 | EKHE401E□□560MJ45S |
| | 56 | 12.5×30 | 0.15 | 480 | EKHE401E□□560MK30S |
| | 68 | 12.5×35 | 0.15 | 560 | EKHE401E□□680MK35S |
| | 82 | 12.5×40 | 0.15 | 640 | EKHE401E□□820MK40S |
| | 82 | 14.5×31.5 | 0.15 | 625 | EKHE401E□□820MUN3S |
| | 100 | 12.5×45 | 0.15 | 730 | EKHE401E□□101MK45S |
| | 100 | 14.5×35 | 0.15 | 715 | EKHE401E□□101MU35S |
| | 100 | 16×31.5 | 0.15 | 720 | EKHE401E□□101MLN3S |
| | 120 | 14.5×40 | 0.15 | 810 | EKHE401E□□121MU40S |
| | 120 | 16×35 | 0.15 | 810 | EKHE401E□□121ML35S |
| | 120 | 18×31.5 | 0.15 | 815 | EKHE401E□□121MMN3S |
| 420 | 33 | 10×30 | 0.20 | 335 | EKHE421E□□330MJ30S |
| | 39 | 10×35 | 0.20 | 385 | EKHE421E□□390MJ35S |
| | 47 | 10×40 | 0.20 | 445 | EKHE421E□□470MJ40S |
| | 56 | 10×50 | 0.20 | 520 | EKHE421E□□560MJ50S |
| | 56 | 12.5×30 | 0.20 | 480 | EKHE421E□□560MK30S |
| | 68 | 12.5×35 | 0.20 | 560 | EKHE421E□□680MK35S |
| | 82 | 12.5×40 | 0.20 | 640 | EKHE421E□□820MK40S |
| | 82 | 14.5×31.5 | 0.20 | 625 | EKHE421E□□820MUN3S |
| | 100 | 12.5×50 | 0.20 | 750 | EKHE421E□□101MK50S |
| | 100 | 14.5×40 | 0.20 | 740 | EKHE421E□□101MU40S |
| | 100 | 16×31.5 | 0.20 | 720 | EKHE421E□□101MLN3S |
| | 120 | 14.5×45 | 0.20 | 835 | EKHE421E□□121MU45S |
| | 120 | 16×35 | 0.20 | 810 | EKHE421E□□121ML35S |
| | 120 | 18×31.5 | 0.20 | 815 | EKHE421E□□121MMN3S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 27 | 10×30 | 0.20 | 305 | EKHE451E□□270MJ30S |
| | 33 | 10×35 | 0.20 | 355 | EKHE451E□□330MJ35S |
| | 39 | 10×40 | 0.20 | 405 | EKHE451E□□390MJ40S |
| | 47 | 10×45 | 0.20 | 460 | EKHE451E□□470MJ45S |
| | 47 | 12.5×30 | 0.20 | 440 | EKHE451E□□470MK30S |
| | 56 | 12.5×35 | 0.20 | 505 | EKHE451E□□560MK35S |
| | 68 | 12.5×40 | 0.20 | 580 | EKHE451E□□680MK40S |
| | 68 | 14.5×31.5 | 0.20 | 570 | EKHE451E□□680MUN3S |
| | 82 | 12.5×45 | 0.20 | 660 | EKHE451E□□820MK45S |
| | 82 | 14.5×35 | 0.20 | 650 | EKHE451E□□820MU35S |
| | 82 | 16×31.5 | 0.20 | 655 | EKHE451E□□820MLN3S |
| | 100 | 14.5×40 | 0.20 | 740 | EKHE451E□□101MU40S |
| | 100 | 16×35 | 0.20 | 740 | EKHE451E□□101ML35S |
| | 120 | 18×31.5 | 0.20 | 815 | EKHE451E□□121MMN3S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 27 to 82 | 1.00 | 1.50 | 1.75 | 1.80 |
| 100 to 120 | 1.00 | 1.30 | 1.40 | 1.50 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

200 to 450Vdc, Downsized, 105℃

# PAG Series

- Downsize, high ripple design (ϕ10 to 18)
- Rated voltage range : 200 to 450Vdc., Capacitance range : 18 to 560μF
- Endurance with ripple current : 2,000 hours at 105℃
- Ideal for low profile power supply applications
- Non solvent resistant type
- **RoHS Compliant**

PAG
↑ Downsized, Higher ripple
KMG

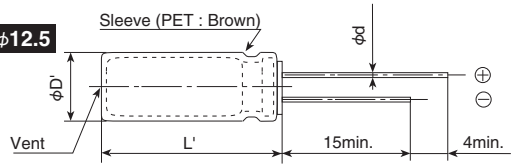
## ◆SPECIFICATIONS

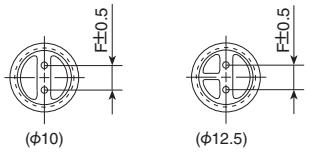
| Items | Characteristics | | | | | |
|---|---|---|---|---|---|---|
| Category Temperature Range | −40 to +105℃ (200, 400Vdc) −25 to+105℃ (420, 450Vdc) | | | | | |
| Rated Voltage Range | 200 to 450Vdc | | | | | |
| Capacitance Tolerance | ±20% (M) | | | | | (at 20℃, 120Hz) |
| Leakage Current | | After 1 minute | After 5 minutes | | | |
| | CV≦1,000 | I=0.1CV+40 | I=0.03CV+15 | | | |
| | CV>1,000 | I=0.04CV+100 | I=0.02CV+25 | | | |
| | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | (at 20℃) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 200V | 400V | 420V | 450V | |
| | tanδ (Max.) | 0.12 | 0.15 | 0.20 | 0.20 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 200V | 400V | 420V | 450V | |
| | Z(−25℃)/Z(+20℃) | 3 | 5 | 6 | 6 | |
| | Z(−40℃)/Z(+20℃) | 6 | 6 | — | — | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | |
| | Leakage current | ≦The initial specified value | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | |
| | Leakage current | ≦500% of the initial specified value | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : E

**ϕ10 & ϕ12.5**

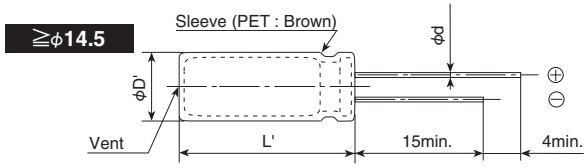


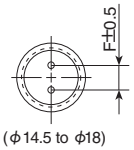




Gas escape end seal

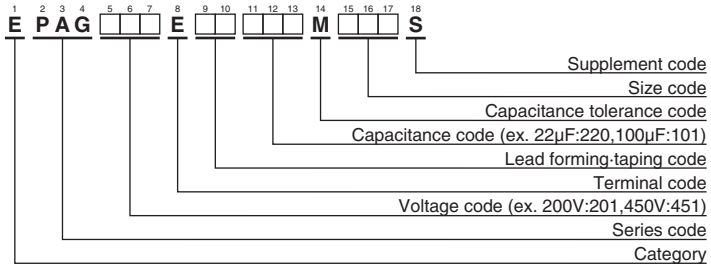
| ϕD | 10 | 12.5 | 14.5 | 16 | 18 |
|---|---|---|---|---|---|
| ϕd | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| F | 5.0 | 5.0 | 7.5 | 7.5 | 7.5 |
| ϕD' | ϕD+0.5 max. | | | | |
| L' | L+2.0 max. | | | | |

**≧ϕ14.5**




## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

200 to 450Vdc, Downsized, 105℃

## PAG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 82 | 10×30 | 0.12 | 440 | EPAG201E□□820MJ30S |
| | 100 | 10×35 | 0.12 | 510 | EPAG201E□□101MJ35S |
| | 120 | 10×40 | 0.12 | 590 | EPAG201E□□121MJ40S |
| | 150 | 12.5×30 | 0.12 | 650 | EPAG201E□□151MK30S |
| | 180 | 12.5×35 | 0.12 | 750 | EPAG201E□□181MK35S |
| | 220 | 12.5×40 | 0.12 | 830 | EPAG201E□□221MK40S |
| | 220 | 14.5×30 | 0.12 | 830 | EPAG201E□□221MU30S |
| | 270 | 14.5×35 | 0.12 | 960 | EPAG201E□□271MU35S |
| | 270 | 16×30 | 0.12 | 960 | EPAG201E□□271ML30S |
| | 330 | 16×35 | 0.12 | 1,100 | EPAG201E□□331ML35S |
| | 330 | 18×30 | 0.12 | 1,100 | EPAG201E□□331MM30S |
| | 390 | 16×40 | 0.12 | 1,240 | EPAG201E□□391ML40S |
| | 390 | 18×35 | 0.12 | 1,240 | EPAG201E□□391MM35S |
| | 470 | 18×40 | 0.12 | 1,390 | EPAG201E□□471MM40S |
| | 560 | 18×45 | 0.12 | 1,560 | EPAG201E□□561MM45S |
| 400 | 27 | 10×30 | 0.15 | 260 | EPAG401E□□270MJ30S |
| | 33 | 10×35 | 0.15 | 300 | EPAG401E□□330MJ35S |
| | 39 | 10×40 | 0.15 | 340 | EPAG401E□□390MJ40S |
| | 47 | 12.5×30 | 0.15 | 370 | EPAG401E□□470MK30S |
| | 56 | 12.5×35 | 0.15 | 420 | EPAG401E□□560MK35S |
| | 68 | 12.5×40 | 0.15 | 480 | EPAG401E□□680MK40S |
| | 68 | 14.5×30 | 0.15 | 480 | EPAG401E□□680MU30S |
| | 82 | 14.5×35 | 0.15 | 530 | EPAG401E□□820MU35S |
| | 100 | 14.5×40 | 0.15 | 580 | EPAG401E□□101MU40S |
| | 100 | 16×30 | 0.15 | 580 | EPAG401E□□101ML30S |
| | 120 | 16×35 | 0.15 | 670 | EPAG401E□□121ML35S |
| | 120 | 18×30 | 0.15 | 670 | EPAG401E□□121MM30S |
| | 150 | 16×40 | 0.15 | 770 | EPAG401E□□151ML40S |
| | 150 | 18×35 | 0.15 | 770 | EPAG401E□□151MM35S |
| | 180 | 18×40 | 0.15 | 880 | EPAG401E□□181MM40S |
| | 220 | 18×45 | 0.15 | 1,000 | EPAG401E□□221MM45S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 22 | 10×30 | 0.20 | 230 | EPAG421E□□220MJ30S |
| | 27 | 10×35 | 0.20 | 270 | EPAG421E□□270MJ35S |
| | 33 | 10×40 | 0.20 | 310 | EPAG421E□□330MJ40S |
| | 39 | 12.5×30 | 0.20 | 330 | EPAG421E□□390MK30S |
| | 47 | 12.5×35 | 0.20 | 390 | EPAG421E□□470MK35S |
| | 56 | 12.5×40 | 0.20 | 430 | EPAG421E□□560MK40S |
| | 56 | 14.5×30 | 0.20 | 430 | EPAG421E□□560MU30S |
| | 68 | 14.5×35 | 0.20 | 510 | EPAG421E□□680MU35S |
| | 68 | 16×30 | 0.20 | 510 | EPAG421E□□680ML30S |
| | 82 | 14.5×40 | 0.20 | 570 | EPAG421E□□820MU40S |
| | 82 | 16×35 | 0.20 | 570 | EPAG421E□□820ML35S |
| | 100 | 16×40 | 0.20 | 610 | EPAG421E□□101ML40S |
| | 100 | 18×30 | 0.20 | 610 | EPAG421E□□101MM30S |
| | 120 | 18×35 | 0.20 | 690 | EPAG421E□□121MM35S |
| | 150 | 18×40 | 0.20 | 790 | EPAG421E□□151MM40S |
| 450 | 18 | 10×30 | 0.20 | 210 | EPAG451E□□180MJ30S |
| | 22 | 10×35 | 0.20 | 240 | EPAG451E□□220MJ35S |
| | 27 | 10×40 | 0.20 | 280 | EPAG451E□□270MJ40S |
| | 33 | 12.5×30 | 0.20 | 310 | EPAG451E□□330MK30S |
| | 39 | 12.5×35 | 0.20 | 350 | EPAG451E□□390MK35S |
| | 47 | 12.5×40 | 0.20 | 390 | EPAG451E□□470MK40S |
| | 47 | 14.5×30 | 0.20 | 390 | EPAG451E□□470MU30S |
| | 56 | 14.5×35 | 0.20 | 440 | EPAG451E□□560MU35S |
| | 56 | 16×30 | 0.20 | 440 | EPAG451E□□560ML30S |
| | 68 | 14.5×40 | 0.20 | 500 | EPAG451E□□680MU40S |
| | 68 | 16×35 | 0.20 | 500 | EPAG451E□□680ML35S |
| | 82 | 16×40 | 0.20 | 550 | EPAG451E□□820ML40S |
| | 82 | 18×30 | 0.20 | 550 | EPAG451E□□820MM30S |
| | 100 | 18×35 | 0.20 | 650 | EPAG451E□□101MM35S |
| | 120 | 18×40 | 0.20 | 740 | EPAG451E□□121MM40S |
| | 150 | 18×45 | 0.20 | 810 | EPAG451E□□151MM45S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 18 to 82 | 1.00 | 1.50 | 1.75 | 1.80 |
| 100 to 560 | 1.00 | 1.30 | 1.40 | 1.50 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

## KLJ Series

- Doesn't spark with DC over voltage
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- ESR value prescribed
- **RoHS Compliant**

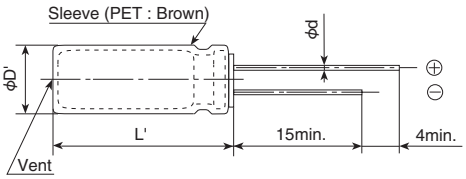
KLJ
↑ Downsized
KLG

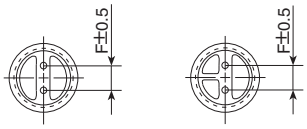
## ◆SPECIFICATIONS

| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | |
| **Rated Voltage Range** | 200 & 400Vdc | | | |
| **Capacitance Tolerance** | ±20% (M) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.04CV+100<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 1 minute) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 200V | 400V | |
| | tanδ (Max.) | 0.20 | 0.24 | (at 20℃ ,120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 200V | 400V | |
| | Z(−25℃)/Z(+20℃) | 4 | 6 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦500% of the initial specified value | | |

## ◆DIMENSIONS [mm]

- Terminal Code : E




Gas escape end seal

| φD | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|
| φd | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 5.0 | 5.0 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.5max. | | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | K | L | J | | | | E | | | | | | M | | | | S |

Supplement code (sleeve PET:S, Pb-free PVC:M)
Size code
Capacitance tolerance code
Capacitance code (ex. 100μF:101,4.7μF:4R7)
Lead forming·taping code
Terminal code
Voltage code (ex. 200V:201,400V:401)
Series code
Category

Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

## KLJ Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | ESR (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃, 120Hz) | Part No. |
|---|---|---|---|---|---|---|
| 200 | 33 | 10×20 | 0.20 | 1.8 | 165 | EKLJ201E□□330MJ20S |
| | 39 | 10×25 | 0.20 | 1.4 | 200 | EKLJ201E□□390MJ25S |
| | 56 | 12.5×20 | 0.20 | 1.0 | 265 | EKLJ201E□□560MK20S |
| | 82 | 12.5×25 | 0.20 | 0.72 | 350 | EKLJ201E□□820MK25S |
| | 100 | 16×20 | 0.20 | 0.63 | 390 | EKLJ201E□□101ML20S |
| | 120 | 16×25 | 0.20 | 0.44 | 465 | EKLJ201E□□121ML25S |
| | 150 | 18×20 | 0.20 | 0.31 | 505 | EKLJ201E□□151MM20S |
| | 180 | 16×31.5 | 0.20 | 0.36 | 615 | EKLJ201E□□181MLN3S |
| | 180 | 18×25 | 0.20 | 0.30 | 585 | EKLJ201E□□181MM25S |
| | 220 | 16×35.5 | 0.20 | 0.30 | 695 | EKLJ201E□□221MLP1S |
| | 220 | 18×31.5 | 0.20 | 0.28 | 700 | EKLJ201E□□221MMN3S |
| | 270 | 18×35.5 | 0.20 | 0.24 | 805 | EKLJ201E□□271MMP1S |
| | 330 | 18×40 | 0.20 | 0.21 | 900 | EKLJ201E□□331MM40S |
| 400 | 4.7 | 10×12.5 | 0.24 | 8.4 | 36 | EKLJ401E□□4R7MJC5S |
| | 10 | 10×16 | 0.24 | 5.7 | 64 | EKLJ401E□□100MJ16S |
| | 15 | 10×20 | 0.24 | 4.0 | 105 | EKLJ401E□□150MJ20S |
| | 18 | 10×25 | 0.24 | 3.2 | 110 | EKLJ401E□□180MJ25S |
| | 22 | 12.5×20 | 0.24 | 2.7 | 165 | EKLJ401E□□220MK20S |
| | 27 | 12.5×25 | 0.24 | 1.9 | 200 | EKLJ401E□□270MK25S |
| | 33 | 16×20 | 0.24 | 1.5 | 225 | EKLJ401E□□330ML20S |
| | 39 | 18×20 | 0.24 | 1.2 | 255 | EKLJ401E□□390MM20S |
| | 39 | 18×25 | 0.24 | 0.72 | 270 | EKLJ401E□□390MM25S |
| | 47 | 16×25 | 0.24 | 1.1 | 290 | EKLJ401E□□470ML25S |
| | 47 | 18×20 | 0.24 | 1.2 | 280 | EKLJ401E□□470MM20S |
| | 56 | 16×31.5 | 0.24 | 0.84 | 340 | EKLJ401E□□560MLN3S |
| | 68 | 16×35.5 | 0.24 | 0.72 | 385 | EKLJ401E□□680MLP1S |
| | 68 | 18×25 | 0.24 | 0.88 | 360 | EKLJ401E□□680MM25S |
| | 82 | 16×40 | 0.24 | 0.65 | 435 | EKLJ401E□□820ML40S |
| | 82 | 18×31.5 | 0.24 | 0.64 | 425 | EKLJ401E□□820MMN3S |
| | 100 | 18×35.5 | 0.24 | 0.54 | 490 | EKLJ401E□□101MMP1S |
| | 120 | 18×40 | 0.24 | 0.49 | 540 | EKLJ401E□□121MM40S |

□□ : Enter the appropriate lead forming or taping code.
Sleeve PET : suffix is S, Pb-free PVC : suffix is M

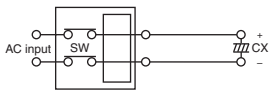
## ◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

●Test DC voltage

| Rated voltage | Current limit | Test DC voltage |
|---|---|---|
| 200Vdc | 4A | 300/375Vdc |
| 400Vdc | 2A | 500/600Vdc |

●Test circuit




Constant DC voltage/current power supply

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k | 100k |
|---|---|---|---|---|---|---|---|
| 4.7 to 10μF | 0.65 | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 | 2.70 |
| 15 to 47μF | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 | 1.85 |
| 56 to 330μF | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 | 1.60 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

## KLG Series

KLJ
Downsized
KLG

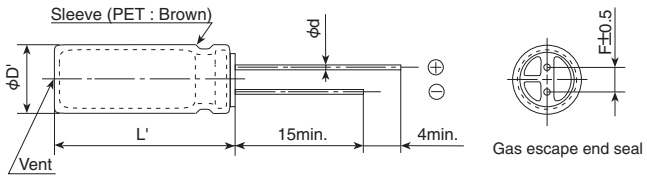
- Doesn't spark with DC over voltage
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | |
| **Rated Voltage Range** | 200 & 400Vdc | | | |
| **Capacitance Tolerance** | ±20% (M) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.04CV+100<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 1 minute) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 200V | 400V | |
| | tanδ (Max.) | 0.20 | 0.24 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 200V | 400V | |
| | Z(−25℃)/Z(+20℃) | 4 | 6 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦500% of the initial specified value | | |

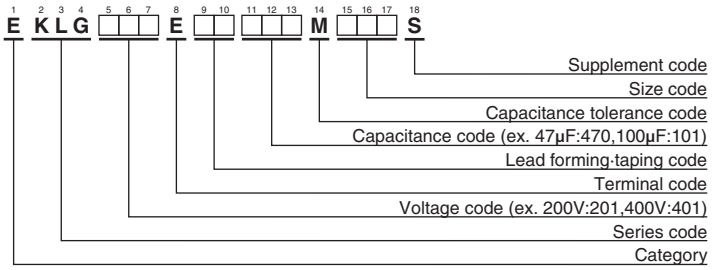
## ◆DIMENSIONS [mm]

- Terminal Code : E




| φD | 16 | 18 |
|---|---|---|
| φd | 0.8 | |
| F | 7.5 | |
| φD' | φD+0.5max. | |
| L' | L+1.5max. | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

## KLG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 82 | 16×20 | 0.20 | 230 | EKLG201E□□820ML20S |
| | 100 | 16×25 | 0.20 | 425 | EKLG201E□□101ML25S |
| | 100 | 18×20 | 0.20 | 250 | EKLG201E□□101MM20S |
| | 120 | 16×31.5 | 0.20 | 500 | EKLG201E□□121MLN3S |
| | 120 | 18×25 | 0.20 | 475 | EKLG201E□□121MM25S |
| | 130 | 18×20 | 0.20 | 285 | EKLG201E□□131MM20S |
| | 150 | 16×31.5 | 0.20 | 560 | EKLG201E□□151MLN3S |
| | 150 | 18×20 | 0.20 | 315 | EKLG201E□□151MM20S |
| | 150 | 18×25 | 0.20 | 530 | EKLG201E□□151MM25S |
| | 180 | 16×40 | 0.20 | 645 | EKLG201E□□181ML40S |
| | 180 | 18×31.5 | 0.20 | 630 | EKLG201E□□181MMN3S |
| | 220 | 18×35.5 | 0.20 | 725 | EKLG201E□□221MMP1S |
| | 220 | 18×40 | 0.20 | 735 | EKLG201E□□221MM40S |
| | 270 | 18×45 | 0.20 | 830 | EKLG201E□□271MM45S |
| | 330 | 18×45 | 0.20 | 920 | EKLG201E□□331MM45S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 22 | 16×20 | 0.24 | 145 | EKLG401E□□220ML20S |
| | 22 | 16×25 | 0.24 | 200 | EKLG401E□□220ML25S |
| | 33 | 16×25 | 0.24 | 220 | EKLG401E□□330ML25S |
| | 33 | 18×20 | 0.24 | 225 | EKLG401E□□330MM20S |
| | 39 | 16×31.5 | 0.24 | 245 | EKLG401E□□390MLN3S |
| | 39 | 18×25 | 0.24 | 250 | EKLG401E□□390MM25S |
| | 47 | 16×31.5 | 0.24 | 275 | EKLG401E□□470MLN3S |
| | 47 | 18×25 | 0.24 | 280 | EKLG401E□□470MM25S |
| | 56 | 16×40 | 0.24 | 350 | EKLG401E□□560ML40S |
| | 56 | 18×31.5 | 0.24 | 315 | EKLG401E□□560MMN3S |
| | 68 | 18×35.5 | 0.24 | 350 | EKLG401E□□680MMP1S |
| | 82 | 18×40 | 0.24 | 395 | EKLG401E□□820MM40S |
| | 100 | 18×40 | 0.24 | 450 | EKLG401E□□101MM40S |

□□ : Enter the appropriate lead forming or taping code.

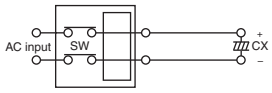
### ◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

●Test DC voltage

| Rated voltage | Current limit | Test DC voltage |
|---|---|---|
| 200Vdc | 4A | 300/375Vdc |
| 400Vdc | 2A | 500/600Vdc |

●Test circuit




Constant DC voltage/current power supply

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k | 100k |
|---|---|---|---|---|---|---|---|
| 22 to 47μF | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 | 1.85 |
| 56 to 330μF | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 | 1.60 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ5 to φ8 product, 105℃

*New!*

## LE Series

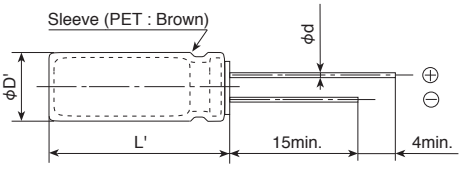
- Suitable for long life and high reliability products
- Downsize and long life
- Endurance with ripple current : 10,000 hours at 105℃
- Case size range : φ5×11L to φ8×11.5L
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

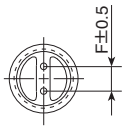
## ◆SPECIFICATION

| Items | Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | | | | | | |
| **Rated Voltage Range** | 10 to 100Vdc | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ )** | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | 63V | 100V | |
| | tanδ (Max.) | 0.45 | 0.35 | 0.30 | 0.22 | 0.19 | 0.17 | 0.15 | (at 20℃,120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | 63V | 100V | |
| | Z(−25℃)/Z(20℃) | 8 | 6 | 4 | 4 | 3 | 3 | 3 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 10,000 hours at 105℃. | | | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : E

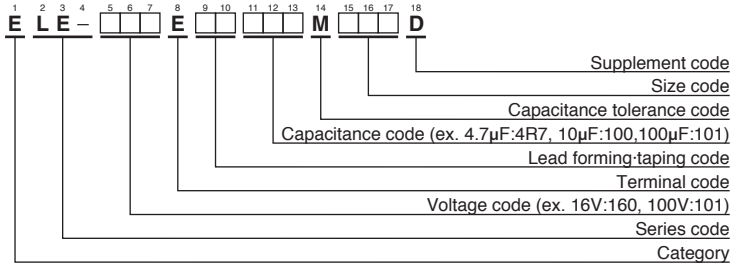



Gas escape end seal

| φD | 5 | 6.3 | 8 |
|---|---|---|---|
| φd | 0.5 | 0.5 | 0.6 |
| F | 2.0 | 2.5 | 3.5 |
| φD' | φD+0.5max. | | |
| L' | L+1.5max. | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ5 to φ8 product, 105℃

*New!*

## LE Series

## ◆STANDARD RATINGS

| WV ($V_{dc}$) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (mArms/105℃,100kHz) | Part No. |
|---|---|---|---|---|---|
| 10 | 100 | 5×11 | 0.45 | 130 | ELE-100E□□101ME11D |
| | 220 | 6.3×11 | 0.45 | 210 | ELE-100E□□221MF11D |
| | 330 | 8×11.5 | 0.45 | 330 | ELE-100E□□331MHB5D |
| 16 | 47 | 5×11 | 0.35 | 130 | ELE-160E□□470ME11D |
| | 100 | 6.3×11 | 0.35 | 210 | ELE-160E□□101MF11D |
| | 220 | 8×11.5 | 0.35 | 330 | ELE-160E□□221MHB5D |
| 25 | 33 | 5×11 | 0.30 | 130 | ELE-250E□□330ME11D |
| | 47 | 5×11 | 0.30 | 130 | ELE-250E□□470ME11D |
| | 100 | 6.3×11 | 0.30 | 210 | ELE-250E□□101MF11D |
| 35 | 33 | 5×11 | 0.22 | 130 | ELE-350E□□330ME11D |
| | 47 | 6.3×11 | 0.22 | 210 | ELE-350E□□470MF11D |
| | 100 | 8×11.5 | 0.22 | 330 | ELE-350E□□101MHB5D |
| 50 | 1.0 | 5×11 | 0.19 | 25 | ELE-500E□□1R0ME11D |
| | 2.2 | 5×11 | 0.19 | 35 | ELE-500E□□2R2ME11D |
| | 3.3 | 5×11 | 0.19 | 70 | ELE-500E□□3R3ME11D |
| | 4.7 | 5×11 | 0.19 | 80 | ELE-500E□□4R7ME11D |
| | 10 | 5×11 | 0.19 | 90 | ELE-500E□□100ME11D |
| | 22 | 5×11 | 0.19 | 110 | ELE-500E□□220ME11D |
| | 33 | 6.3×11 | 0.19 | 190 | ELE-500E□□330MF11D |
| | 47 | 6.3×11 | 0.19 | 190 | ELE-500E□□470MF11D |
| | 100 | 8×11.5 | 0.19 | 270 | ELE-500E□□101MHB5D |
| 63 | 10 | 5×11 | 0.17 | 80 | ELE-630E□□100ME11D |
| | 22 | 6.3×11 | 0.17 | 170 | ELE-630E□□220MF11D |
| | 33 | 6.3×11 | 0.17 | 170 | ELE-630E□□330MF11D |
| | 47 | 8×11.5 | 0.17 | 240 | ELE-630E□□470MHB5D |
| 100 | 1.0 | 5×11 | 0.15 | 40 | ELE-101E□□1R0ME11D |
| | 2.2 | 5×11 | 0.15 | 50 | ELE-101E□□2R2ME11D |
| | 3.3 | 5×11 | 0.15 | 60 | ELE-101E□□3R3ME11D |
| | 4.7 | 5×11 | 0.15 | 70 | ELE-101E□□4R7ME11D |
| | 10 | 6.3×11 | 0.15 | 150 | ELE-101E□□100MF11D |
| | 22 | 8×11.5 | 0.15 | 230 | ELE-101E□□220MHB5D |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) \ Frequency(Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 1.0 to 10 | 0.42 | 0.60 | 0.80 | 1.00 |
| 22 to 33 | 0.55 | 0.75 | 0.90 | 1.00 |
| 47 to 330 | 0.70 | 0.85 | 0.95 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ4 to φ8 product, 105℃

## FL Series

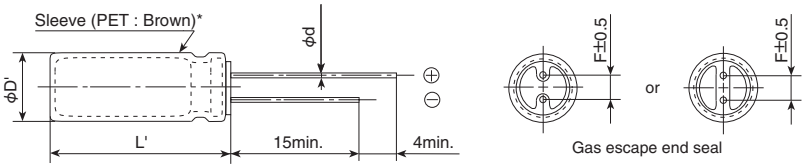
- Long life and high reliability for φ4×5L to φ8×7L mm range
- Endurance with ripple current : 3,000 hours at 105℃
- Suitable for long life and high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ | | | | | | | |
| **Rated Voltage Range** | 6.3 to 50Vdc | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.03CV or 3μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.50 | 0.40 | 0.35 | 0.30 | 0.25 | 0.25 | (at 20℃, 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃. | | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : E




*φ8×5L : Coating case

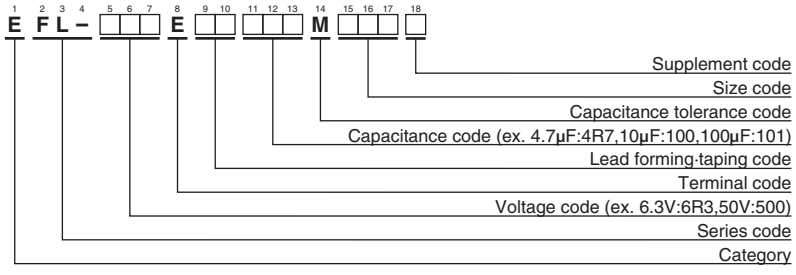
5mm Height

| φD | 4 | 5 | 6.3 | 8 |
|---|---|---|---|---|
| φd | 0.45 | 0.45 | 0.45 | 0.45 |
| F | 1.5 | 2.0 | 2.5 | 2.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.0max. | | | |

7mm Height

| φD | 4 | 5 | 6.3 | 8 |
|---|---|---|---|---|
| φd | 0.45 | 0.45 | 0.45 | 0.45 |
| F | 1.5 | 2.0 | 2.5 | 3.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.0max. | | | |

## ◆PART NUMBERING SYSTEM

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ4 to φ8 product, 105℃

## FL Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/105℃,100kHz) | Part No. |
|---|---|---|---|---|---|---|
| 6.3 | 33 | 4×5 | 0.50 | 5.4 | 37 | EFL-6R3E□□330MD05D |
| | 47 | 4×7 | 0.50 | 4.5 | 44 | EFL-6R3E□□470MD07D |
| | 56 | 5×5 | 0.50 | 3.1 | 57 | EFL-6R3E□□560ME05D |
| | 82 | 5×7 | 0.50 | 2.5 | 70 | EFL-6R3E□□820ME07D |
| | 100 | 6.3×5 | 0.50 | 1.7 | 82 | EFL-6R3E□□101MF05D |
| | 150 | 6.3×7 | 0.50 | 1.3 | 116 | EFL-6R3E□□151MF07D |
| | 220 | 8×5 | 0.50 | 1.5 | 110 | EFL-6R3E□□221MH05G |
| | 270 | 8×7 | 0.50 | 0.90 | 162 | EFL-6R3E□□271MH07D |
| 10 | 22 | 4×5 | 0.40 | 5.4 | 37 | EFL-100E□□220MD05D |
| | 33 | 4×7 | 0.40 | 4.5 | 44 | EFL-100E□□330MD07D |
| | 33 | 5×5 | 0.40 | 3.1 | 57 | EFL-100E□□330ME05D |
| | 47 | 5×7 | 0.40 | 2.5 | 70 | EFL-100E□□470ME07D |
| | 68 | 6.3×5 | 0.40 | 1.7 | 82 | EFL-100E□□680MF05D |
| | 100 | 6.3×7 | 0.40 | 1.3 | 116 | EFL-100E□□101MF07D |
| | 150 | 8×5 | 0.40 | 1.5 | 110 | EFL-100E□□151MH05G |
| | 220 | 8×7 | 0.40 | 0.90 | 162 | EFL-100E□□221MH07D |
| 16 | 15 | 4×5 | 0.35 | 5.4 | 37 | EFL-160E□□150MD05D |
| | 22 | 4×7 | 0.35 | 4.5 | 44 | EFL-160E□□220MD07D |
| | 22 | 5×5 | 0.35 | 3.1 | 57 | EFL-160E□□220ME05D |
| | 33 | 5×7 | 0.35 | 2.5 | 70 | EFL-160E□□330ME07D |
| | 47 | 6.3×5 | 0.35 | 1.7 | 82 | EFL-160E□□470MF05D |
| | 68 | 6.3×7 | 0.35 | 1.3 | 116 | EFL-160E□□680MF07D |
| | 100 | 8×5 | 0.35 | 1.5 | 110 | EFL-160E□□101MH05G |
| | 150 | 8×7 | 0.35 | 0.90 | 162 | EFL-160E□□151MH07D |
| 25 | 10 | 4×5 | 0.30 | 5.4 | 37 | EFL-250E□□100MD05D |
| | 15 | 4×7 | 0.30 | 4.5 | 44 | EFL-250E□□150MD07D |
| | 15 | 5×5 | 0.30 | 3.1 | 57 | EFL-250E□□150ME05D |
| | 22 | 5×7 | 0.30 | 2.5 | 70 | EFL-250E□□220ME07D |
| | 33 | 6.3×5 | 0.30 | 1.7 | 82 | EFL-250E□□330MF05D |
| | 56 | 6.3×7 | 0.30 | 1.3 | 116 | EFL-250E□□560MF07D |
| | 68 | 8×5 | 0.30 | 1.5 | 110 | EFL-250E□□680MH05G |
| | 100 | 8×7 | 0.30 | 0.90 | 162 | EFL-250E□□101MH07D |
| 35 | 4.7 | 4×5 | 0.25 | 5.4 | 37 | EFL-350E□□4R7MD05D |
| | 6.8 | 4×7 | 0.25 | 4.5 | 44 | EFL-350E□□6R8MD07D |
| | 10 | 5×5 | 0.25 | 3.1 | 57 | EFL-350E□□100ME05D |
| | 10 | 5×7 | 0.25 | 2.5 | 70 | EFL-350E□□100ME07D |
| | 22 | 6.3×5 | 0.25 | 1.7 | 82 | EFL-350E□□220MF05D |
| | 22 | 6.3×7 | 0.25 | 1.3 | 116 | EFL-350E□□220MF07D |
| | 33 | 8×5 | 0.25 | 1.5 | 110 | EFL-350E□□330MH05G |
| | 47 | 8×7 | 0.25 | 0.90 | 162 | EFL-350E□□470MH07D |
| 50 | 1.0 | 4×5 | 0.25 | 19 | 18 | EFL-500E□□1R0MD05D |
| | 2.2 | 4×5 | 0.25 | 14 | 22 | EFL-500E□□2R2MD05D |
| | 3.3 | 4×5 | 0.25 | 11 | 26 | EFL-500E□□3R3MD05D |
| | 4.7 | 4×7 | 0.25 | 9.0 | 30 | EFL-500E□□4R7MD07D |
| | 4.7 | 5×5 | 0.25 | 6.0 | 40 | EFL-500E□□4R7ME05D |
| | 6.8 | 5×7 | 0.25 | 4.8 | 50 | EFL-500E□□6R8ME07D |
| | 10 | 6.3×5 | 0.25 | 2.9 | 63 | EFL-500E□□100MF05D |
| | 15 | 6.3×7 | 0.25 | 2.2 | 90 | EFL-500E□□150MF07D |
| | 22 | 8×5 | 0.25 | 2.6 | 84 | EFL-500E□□220MH05G |
| | 22 | 8×7 | 0.25 | 1.6 | 120 | EFL-500E□□220MH07D |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) \ Frequency(Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| to 3.3 | 0.20 | 0.66 | 0.90 | 1.00 |
| 4.7 to 6.8 | 0.35 | 0.70 | 0.90 | 1.00 |
| 10 to 150 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 270 | 0.50 | 0.85 | 0.94 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

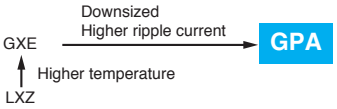
# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, Downsized, 125℃

Upgrade!

# GPA Series

- Downsized, low impedance and high-ripple current version of GXE series
- Specified ESR after endurance test
- For high ripple current automotive applications. (Direct fuel injection and electric power steering etc.)
- Endurance with ripple current : 3,000 to 5,000 hours at 125℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

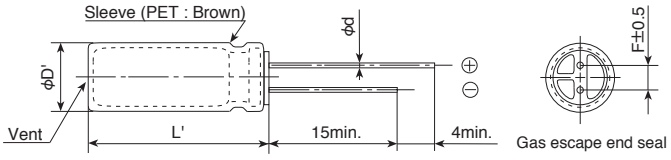


## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| Category Temperature Range | −40 to +125℃ | | | | | | |
| Rated Voltage Range | 25 to 100Vdc | | | | | | |
| Capacitance Tolerance | ±20% (M) | | | | | | (at 20℃, 120Hz) |
| Leakage Current | I=0.03CV or 4μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃, 1 minute) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 25V | 35V | 50V | 63V | 80V | 100V |
| | tanδ (Max.) | 0.14 | 0.12 | 0.10 | 0.10 | 0.08 | 0.08 |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase. | | | | | | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 25V | 35V | 50V | 63V | 80V | 100V |
| | Z(−25℃)/Z(+20℃) | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z(−40℃)/Z(+20℃) | 4 | 4 | 4 | 4 | 4 | 4 (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours (3,000 hours for 25L and less) at 125 ℃. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |

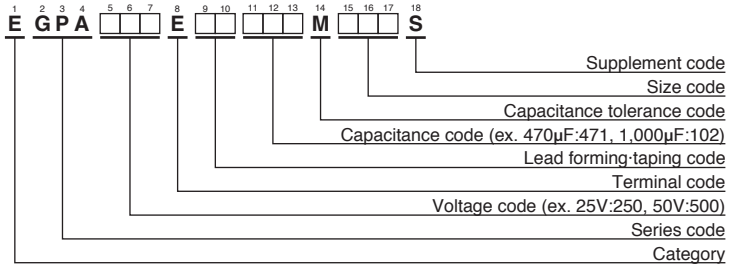
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 12.5 | 14.5 | 16 | 18 |
|---|---|---|---|---|
| φd | 0.6 | 0.8 | 0.8 | 0.8 |
| F | 5.0 | 7.5 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.5max. | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

Upgrude!

## GPA Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | ESR (Initial) (Ω max/100kHz) | | ESR (End of Life) (Ω max/100kHz) | | Rated ripple current (mArms/125℃,100kHz) | Part No. |
|---|---|---|---|---|---|---|---|---|
| | | | 20℃ | -40℃ | 20℃ | -40℃ | | |
| 25 | 1,200 | 12.5×20 | 0.044 | 0.22 | 0.18 | 2.2 | 1,820 | EGPA250E□□122MK20S |
| | 1,500 | 14.5×20 | 0.037 | 0.19 | 0.11 | 1.3 | 2,100 | EGPA250E□□152MU20S |
| | 1,800 | 12.5×25 | 0.033 | 0.17 | 0.13 | 1.6 | 2,280 | EGPA250E□□182MK25S |
| | 1,800 | 16×20 | 0.034 | 0.17 | 0.10 | 1.3 | 2,280 | EGPA250E□□182ML20S |
| | 2,200 | 12.5×30 | 0.029 | 0.13 | 0.11 | 1.3 | 2,560 | EGPA250E□□222MK30S |
| | 2,200 | 14.5×25 | 0.028 | 0.14 | 0.080 | 0.90 | 2,620 | EGPA250E□□222MU25S |
| | 2,700 | 12.5×35 | 0.024 | 0.11 | 0.090 | 0.80 | 2,970 | EGPA250E□□272MK35S |
| | 2,700 | 14.5×30 | 0.023 | 0.10 | 0.070 | 0.70 | 3,060 | EGPA250E□□272MU30S |
| | 2,700 | 16×25 | 0.026 | 0.13 | 0.080 | 1.1 | 2,860 | EGPA250E□□272ML25S |
| | 2,700 | 18×20 | 0.032 | 0.16 | 0.090 | 0.60 | 2,490 | EGPA250E□□272MM20S |
| | 3,300 | 12.5×40 | 0.021 | 0.095 | 0.080 | 0.50 | 3,340 | EGPA250E□□332MK40S |
| | 3,300 | 14.5×35 | 0.021 | 0.095 | 0.060 | 0.70 | 3,380 | EGPA250E□□332MU35S |
| | 3,300 | 16×30 | 0.023 | 0.10 | 0.070 | 0.90 | 3,160 | EGPA250E□□332ML30S |
| | 3,900 | 16×35 | 0.020 | 0.090 | 0.060 | 0.70 | 3,590 | EGPA250E□□392ML35S |
| | 3,900 | 18×25 | 0.024 | 0.12 | 0.070 | 0.50 | 3,010 | EGPA250E□□392MM25S |
| | 4,700 | 14.5×40 | 0.018 | 0.081 | 0.050 | 0.50 | 3,730 | EGPA250E□□472MU40S |
| | 4,700 | 18×30 | 0.022 | 0.099 | 0.080 | 0.60 | 3,390 | EGPA250E□□472MM30S |
| | 5,600 | 16×40 | 0.017 | 0.077 | 0.040 | 0.60 | 3,970 | EGPA250E□□562ML40S |
| | 5,600 | 18×35 | 0.019 | 0.086 | 0.070 | 0.50 | 3,840 | EGPA250E□□562MM35S |
| | 6,800 | 18×40 | 0.016 | 0.072 | 0.030 | 0.40 | 4,230 | EGPA250E□□682MM40S |
| 35 | 680 | 12.5×20 | 0.044 | 0.22 | 0.18 | 2.2 | 1,820 | EGPA350E□□681MK20S |
| | 1,000 | 12.5×25 | 0.033 | 0.17 | 0.13 | 1.6 | 2,280 | EGPA350E□□102MK25S |
| | 1,000 | 14.5×20 | 0.037 | 0.19 | 0.11 | 1.3 | 2,100 | EGPA350E□□102MU20S |
| | 1,200 | 12.5×30 | 0.029 | 0.13 | 0.11 | 1.3 | 2,560 | EGPA350E□□122MK30S |
| | 1,200 | 16×20 | 0.034 | 0.17 | 0.10 | 1.3 | 2,280 | EGPA350E□□122ML20S |
| | 1,200 | 14.5×25 | 0.028 | 0.14 | 0.080 | 0.90 | 2,620 | EGPA350E□□122MU25S |
| | 1,500 | 12.5×35 | 0.024 | 0.11 | 0.090 | 0.80 | 2,970 | EGPA350E□□152MK35S |
| | 1,500 | 14.5×30 | 0.023 | 0.10 | 0.070 | 0.70 | 3,060 | EGPA350E□□152MU30S |
| | 1,500 | 18×20 | 0.032 | 0.16 | 0.090 | 0.60 | 2,490 | EGPA350E□□152MM20S |
| | 1,800 | 12.5×40 | 0.021 | 0.095 | 0.080 | 0.50 | 3,340 | EGPA350E□□182MK40S |
| | 1,800 | 16×25 | 0.026 | 0.13 | 0.080 | 1.1 | 2,860 | EGPA350E□□182ML25S |
| | 2,200 | 14.5×35 | 0.021 | 0.095 | 0.060 | 0.70 | 3,380 | EGPA350E□□222MU35S |
| | 2,200 | 16×30 | 0.023 | 0.10 | 0.070 | 0.90 | 3,160 | EGPA350E□□222ML30S |
| | 2,200 | 18×25 | 0.024 | 0.12 | 0.070 | 0.50 | 3,010 | EGPA350E□□222MM25S |
| | 2,700 | 14.5×40 | 0.018 | 0.081 | 0.050 | 0.50 | 3,730 | EGPA350E□□272MU40S |
| | 2,700 | 16×35 | 0.020 | 0.090 | 0.060 | 0.70 | 3,590 | EGPA350E□□272ML35S |
| | 2,700 | 18×30 | 0.022 | 0.099 | 0.080 | 0.60 | 3,390 | EGPA350E□□272MM30S |
| | 3,300 | 16×40 | 0.017 | 0.077 | 0.040 | 0.60 | 3,970 | EGPA350E□□332ML40S |
| | 3,300 | 18×35 | 0.019 | 0.086 | 0.070 | 0.50 | 3,840 | EGPA350E□□332MM35S |
| | 4,700 | 18×40 | 0.016 | 0.072 | 0.030 | 0.40 | 4,230 | EGPA350E□□472MM40S |
| 50 | 470 | 12.5×20 | 0.065 | 0.33 | 0.18 | 2.2 | 1,500 | EGPA500E□□471MK20S |
| | 560 | 14.5×20 | 0.055 | 0.28 | 0.11 | 1.3 | 1,740 | EGPA500E□□561MU20S |
| | 680 | 12.5×25 | 0.048 | 0.24 | 0.13 | 1.6 | 1,900 | EGPA500E□□681MK25S |
| | 680 | 16×20 | 0.043 | 0.22 | 0.10 | 1.3 | 2,040 | EGPA500E□□681ML20S |
| | 820 | 12.5×30 | 0.041 | 0.18 | 0.11 | 1.3 | 2,150 | EGPA500E□□821MK30S |
| | 820 | 14.5×25 | 0.040 | 0.20 | 0.080 | 0.90 | 2,190 | EGPA500E□□821MU25S |
| | 1,000 | 12.5×35 | 0.034 | 0.15 | 0.090 | 0.80 | 2,510 | EGPA500E□□102MK35S |
| | 1,000 | 14.5×30 | 0.036 | 0.16 | 0.070 | 0.70 | 2,470 | EGPA500E□□102MU30S |
| | 1,000 | 16×25 | 0.031 | 0.16 | 0.080 | 1.1 | 2,620 | EGPA500E□□102ML25S |
| | 1,000 | 18×20 | 0.039 | 0.20 | 0.090 | 0.60 | 2,240 | EGPA500E□□102MM20S |
| | 1,200 | 12.5×40 | 0.028 | 0.13 | 0.080 | 0.50 | 2,870 | EGPA500E□□122MK40S |
| | 1,200 | 14.5×35 | 0.029 | 0.13 | 0.060 | 0.70 | 2,840 | EGPA500E□□122MU35S |
| | 1,200 | 16×30 | 0.027 | 0.13 | 0.070 | 0.90 | 2,940 | EGPA500E□□122ML30S |
| | 1,200 | 18×25 | 0.029 | 0.15 | 0.070 | 0.50 | 2,750 | EGPA500E□□122MM25S |
| | 1,500 | 16×35 | 0.023 | 0.10 | 0.060 | 0.70 | 3,300 | EGPA500E□□152ML35S |
| | 1,800 | 14.5×40 | 0.024 | 0.11 | 0.050 | 0.50 | 3,230 | EGPA500E□□182MU40S |
| | 1,800 | 18×30 | 0.026 | 0.12 | 0.080 | 0.60 | 3,140 | EGPA500E□□182MM30S |
| | 2,200 | 16×40 | 0.020 | 0.090 | 0.040 | 0.60 | 3,720 | EGPA500E□□222ML40S |
| | 2,200 | 18×35 | 0.022 | 0.10 | 0.070 | 0.50 | 3,510 | EGPA500E□□222MM35S |
| | 2,700 | 18×40 | 0.018 | 0.080 | 0.030 | 0.40 | 3,940 | EGPA500E□□272MM40S |

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

Upgrude!

## GPA Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | ESR (Initial) (Ω max/100kHz) | | ESR (End of Life) (Ω max/100kHz) | | Rated ripple current (mArms/125℃,100kHz) | Part No. |
|---|---|---|---|---|---|---|---|---|
| | | | 20℃ | -40℃ | 20℃ | -40℃ | | |
| 63 | 470 | 16×20 | 0.085 | 0.58 | 0.19 | 3.0 | 1,790 | EGPA630E□□471ML20S |
| | 680 | 16×25 | 0.061 | 0.48 | 0.14 | 2.0 | 2,030 | EGPA630E□□681ML25S |
| | 680 | 18×20 | 0.070 | 0.49 | 0.19 | 3.0 | 1,910 | EGPA630E□□681MM20S |
| | 820 | 16×30 | 0.053 | 0.41 | 0.090 | 1.3 | 2,330 | EGPA630E□□821ML30S |
| | 1,000 | 16×35 | 0.044 | 0.33 | 0.070 | 0.90 | 2,580 | EGPA630E□□102ML35S |
| | 1,000 | 18×25 | 0.049 | 0.34 | 0.14 | 2.0 | 2,280 | EGPA630E□□102MM25S |
| | 1,200 | 16×40 | 0.036 | 0.26 | 0.060 | 0.80 | 2,900 | EGPA630E□□122ML40S |
| | 1,200 | 18×30 | 0.041 | 0.26 | 0.090 | 1.3 | 2,580 | EGPA630E□□122MM30S |
| | 1,500 | 18×35 | 0.035 | 0.21 | 0.070 | 0.90 | 2,890 | EGPA630E□□152MM35S |
| | 1,800 | 18×40 | 0.030 | 0.18 | 0.060 | 0.80 | 3,210 | EGPA630E□□182MM40S |
| 80 | 330 | 16×20 | 0.085 | 0.58 | 0.19 | 3.0 | 1,790 | EGPA800E□□331ML20S |
| | 470 | 16×25 | 0.061 | 0.48 | 0.14 | 2.0 | 2,030 | EGPA800E□□471ML25S |
| | 470 | 18×20 | 0.070 | 0.49 | 0.19 | 3.0 | 1,910 | EGPA800E□□471MM20S |
| | 560 | 16×30 | 0.053 | 0.41 | 0.090 | 1.3 | 2,330 | EGPA800E□□561ML30S |
| | 560 | 18×25 | 0.049 | 0.34 | 0.14 | 2.0 | 2,280 | EGPA800E□□561MM25S |
| | 680 | 16×35 | 0.044 | 0.33 | 0.070 | 0.90 | 2,580 | EGPA800E□□681ML35S |
| | 680 | 18×30 | 0.041 | 0.26 | 0.090 | 1.3 | 2,580 | EGPA800E□□681MM30S |
| | 820 | 16×40 | 0.036 | 0.26 | 0.060 | 0.80 | 2,900 | EGPA800E□□821ML40S |
| | 820 | 18×35 | 0.035 | 0.21 | 0.070 | 0.90 | 2,890 | EGPA800E□□821MM35S |
| | 1,200 | 18×40 | 0.030 | 0.18 | 0.060 | 0.80 | 3,210 | EGPA800E□□122MM40S |
| 100 | 200 | 16×20 | 0.11 | 0.88 | 0.25 | 3.9 | 1,580 | EGPA101E□□201ML20S |
| | 270 | 18×20 | 0.091 | 0.73 | 0.22 | 3.9 | 1,690 | EGPA101E□□271MM20S |
| | 300 | 16×25 | 0.079 | 0.72 | 0.18 | 2.7 | 1,990 | EGPA101E□□301ML25S |
| | 360 | 16×30 | 0.068 | 0.62 | 0.13 | 1.9 | 2,250 | EGPA101E□□361ML30S |
| | 390 | 18×25 | 0.064 | 0.50 | 0.15 | 2.7 | 2,110 | EGPA101E□□391MM25S |
| | 470 | 16×35 | 0.056 | 0.50 | 0.090 | 1.3 | 2,500 | EGPA101E□□471ML35S |
| | 510 | 18×30 | 0.054 | 0.39 | 0.13 | 1.9 | 2,410 | EGPA101E□□511MM30S |
| | 560 | 16×40 | 0.046 | 0.39 | 0.080 | 1.1 | 2,700 | EGPA101E□□561ML40S |
| | 620 | 18×35 | 0.044 | 0.32 | 0.090 | 1.3 | 2,690 | EGPA101E□□621MM35S |
| | 750 | 18×40 | 0.039 | 0.27 | 0.080 | 1.1 | 2,880 | EGPA101E□□751MM40S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) \ Frequency(Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 200 | 0.40 | 0.82 | 0.93 | 1.00 |
| 270 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 620 to 1,800 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,900 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 to 6,800 | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

# GXE Series

- For automobile modules and other high temperature applications
- Downsize, long life, low impedance and better low temperature characteristics
- Endurance with ripple current : 2,000 to 5,000 hours at 125℃
- Solvent resistant type except 63 to 450V (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

GXE → Downsized, Higher ripple current → GPA

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +125℃ (10 to 250Vdc ) −25 to +125℃ (350 to 450Vdc) |
| **Rated Voltage Range** | 10 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | 10 to 100Vdc: I=0.03CV or 4μA, whichever is greater. 160 to 450Vdc: CV≦1,000 I=0.1CV+40; CV>1,000 I=0.04CV+100<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, 1 minute) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc): 10V 16V 25V 35V 50V 63V 80V 100V 160 to 250V 350 to 450V<br>tanδ (Max.): 0.20 0.16 0.14 0.12 0.10 0.10 0.08 0.08 0.20 0.24<br>When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase. (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc): 10V 16V 25V 35V 50V 63V 80V 100V 160 to 250V 350 to 450V<br>Z(−25℃)/Z(+20℃): 3 2 2 2 2 2 2 2 3 6<br>Z(−40℃)/Z(+20℃): 6 4 4 4 4 4 4 4 6 — (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified time at 125℃. |

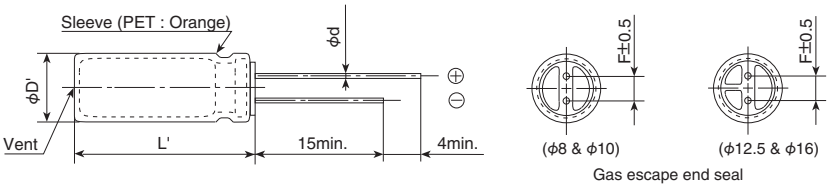
| | 10 to 100Vdc | 160 to 450Vdc |
|---|---|---|
| Time | φ8 : 2,000hours φ10 : 3,000hours φ12.5 & φ16 : 5,000hours | 2,000hours |
| Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value |
| D.F. (tanδ) | ≦300% of the initial specified value | ≦200% of the initial specified value |
| Leakage current | ≦The initial specified value | ≦The initial specified value |

**Shelf Life**: The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for 350 to 450Vdc) at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

| | 10 to 100Vdc | 160 to 450Vdc |
|---|---|---|
| Capacitance change | ≦±30% of the initial value | ≦±20% of the initial value |
| D.F. (tanδ) | ≦300% of the initial specified value | ≦200% of the initial specified value |
| Leakage current | ≦The initial specified value | ≦500% of the initial specified value |

## ◆DIMENSIONS [mm]

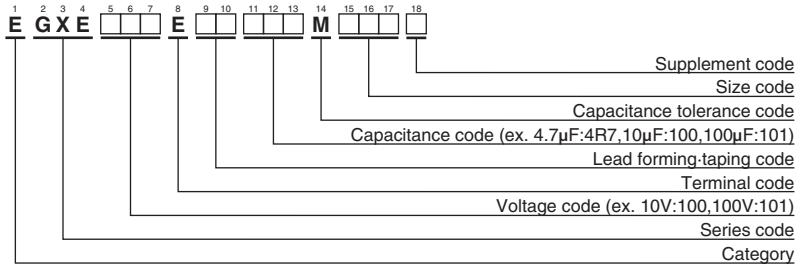
●Terminal Code : E




Gas escape end seal

| φD | 8 | 10 | 12.5 | 16 |
|---|---|---|---|---|
| φd | 0.6 | 0.6 | 0.6 | 0.8 |
| F | 3.5 | 5.0 | 5.0 | 7.5 |
| φD' | φD+0.5max. | | | |
| L' | L+2.0max. | | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

# GXE Series

## ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/ 20℃, 100kHz) | Rated ripple current (mArms/ 125℃, Note1) | Part No. |
|---|---|---|---|---|---|
| 10 | 220 | 8× 12 | 0.32 | 340 | EGXE100E□□221MH12D |
| | 330 | 10× 12.5 | 0.15 | 620 | EGXE100E□□331MJC5S |
| | 470 | 10× 12.5 | 0.15 | 620 | EGXE100E□□471MJC5S |
| | 1,000 | 10× 20 | 0.075 | 950 | EGXE100E□□102MJ20S |
| | 2,200 | 12.5× 25 | 0.040 | 1,350 | EGXE100E□□222MK25S |
| | 3,300 | 16× 25 | 0.031 | 1,620 | EGXE100E□□332ML25S |
| | 4,700 | 16× 31.5 | 0.025 | 1,860 | EGXE100E□□472MLN3S |
| 16 | 100 | 8× 12 | 0.32 | 340 | EGXE160E□□101MH12D |
| | 220 | 10× 12.5 | 0.15 | 620 | EGXE160E□□221MJC5S |
| | 330 | 10× 12.5 | 0.15 | 620 | EGXE160E□□331MJC5S |
| | 470 | 10× 16 | 0.094 | 790 | EGXE160E□□471MJ16S |
| | 1,000 | 12.5× 20 | 0.058 | 1,080 | EGXE160E□□102MK20S |
| | 2,200 | 16× 25 | 0.031 | 1,620 | EGXE160E□□222ML25S |
| | 3,300 | 16× 31.5 | 0.025 | 1,860 | EGXE160E□□332MLN3S |
| 25 | 100 | 8× 12 | 0.32 | 340 | EGXE250E□□101MH12D |
| | 220 | 10× 12.5 | 0.15 | 620 | EGXE250E□□221MJC5S |
| | 330 | 10× 16 | 0.094 | 790 | EGXE250E□□331MJ16S |
| | 470 | 10× 20 | 0.075 | 950 | EGXE250E□□471MJ20S |
| | 1,000 | 12.5× 25 | 0.040 | 1,350 | EGXE250E□□102MK25S |
| | 2,200 | 16× 31.5 | 0.025 | 1,860 | EGXE250E□□222MLN3S |
| 35 | 100 | 8× 12 | 0.32 | 340 | EGXE350E□□101MH12D |
| | 100 | 10× 12.5 | 0.15 | 620 | EGXE350E□□101MJC5S |
| | 220 | 10× 16 | 0.094 | 790 | EGXE350E□□221MJ16S |
| | 330 | 10× 20 | 0.075 | 950 | EGXE350E□□331MJ20S |
| | 470 | 12.5× 20 | 0.058 | 1,080 | EGXE350E□□471MK20S |
| | 1,000 | 16× 25 | 0.031 | 1,620 | EGXE350E□□102ML25S |
| 50 | 10 | 8× 12 | 0.75 | 180 | EGXE500E□□100MH12D |
| | 22 | 8× 12 | 0.50 | 250 | EGXE500E□□220MH12D |
| | 33 | 8× 12 | 0.50 | 280 | EGXE500E□□330MH12D |
| | 47 | 8× 12 | 0.50 | 280 | EGXE500E□□470MH12D |
| | 100 | 10× 12.5 | 0.20 | 520 | EGXE500E□□101MJC5S |
| | 220 | 10× 20 | 0.098 | 880 | EGXE500E□□221MJ20S |
| | 330 | 12.5× 20 | 0.081 | 990 | EGXE500E□□331MK20S |
| | 470 | 12.5× 25 | 0.059 | 1,150 | EGXE500E□□471MK25S |
| | 1,000 | 16× 31.5 | 0.032 | 1,590 | EGXE500E□□102MLN3S |
| 63 | 33 | 8× 12 | 1.5 | 150 | EGXE630E□□330MH12D |
| | 47 | 10× 12.5 | 0.59 | 530 | EGXE630E□□470MJC5S |
| | 100 | 10× 16 | 0.41 | 690 | EGXE630E□□101MJ16S |
| | 220 | 12.5× 20 | 0.16 | 1,050 | EGXE630E□□221MK20S |
| | 330 | 12.5× 25 | 0.12 | 1,290 | EGXE630E□□331MK25S |
| | 470 | 12.5× 30 | 0.097 | 1,460 | EGXE630E□□471MK30S |
| | 1,000 | 16× 31.5 | 0.059 | 1,850 | EGXE630E□□102MLN3S |
| 80 | 22 | 8× 12 | 1.5 | 150 | EGXE800E□□220MH12D |
| | 33 | 10× 12.5 | 0.8 | 480 | EGXE800E□□330MJC5S |
| 80 | 47 | 10×12.5 | 0.80 | 480 | EGXE800E□□470MJC5S |
| | 100 | 10×20 | 0.39 | 790 | EGXE800E□□101MJ20S |
| | 220 | 12.5×25 | 0.18 | 1,240 | EGXE800E□□221MK25S |
| | 330 | 12.5×30 | 0.16 | 1,390 | EGXE800E□□331MK30S |
| | 470 | 16×25 | 0.11 | 1,500 | EGXE800E□□471ML25S |
| 100 | 4.7 | 8×12 | 2.0 | 130 | EGXE101E□□4R7MH12D |
| | 10 | 8×12 | 1.5 | 150 | EGXE101E□□100MH12D |
| | 22 | 10×12.5 | 0.80 | 480 | EGXE101E□□220MJC5S |
| | 33 | 10×12.5 | 0.80 | 480 | EGXE101E□□330MJC5S |
| | 47 | 10×16 | 0.55 | 630 | EGXE101E□□470MJ16S |
| | 100 | 12.5×20 | 0.25 | 990 | EGXE101E□□101MK20S |
| | 220 | 16×25 | 0.11 | 1,500 | EGXE101E□□221ML25S |
| | 330 | 16×31.5 | 0.079 | 1,790 | EGXE101E□□331MLN3S |
| 160 | 22 | 10×20 | — | 115 | EGXE161E□□220MJ20S |
| | 33 | 10×25 | — | 154 | EGXE161E□□330MJ25S |
| | 47 | 12.5×20 | — | 187 | EGXE161E□□470MK20S |
| | 68 | 12.5×25 | — | 245 | EGXE161E□□680MK25S |
| | 100 | 16×25 | — | 329 | EGXE161E□□101ML25S |
| | 150 | 16×31.5 | — | 434 | EGXE161E□□151MLN3S |
| 200 | 10 | 10×20 | — | 78 | EGXE201E□□100MJ20S |
| | 22 | 10×25 | — | 126 | EGXE201E□□220MJ25S |
| | 33 | 12.5×20 | — | 157 | EGXE201E□□330MK20S |
| | 47 | 12.5×25 | — | 204 | EGXE201E□□470MK25S |
| | 68 | 16×20 | — | 250 | EGXE201E□□680ML20S |
| | 100 | 16×25 | — | 329 | EGXE201E□□101ML25S |
| 250 | 10 | 10×20 | — | 78 | EGXE251E□□100MJ20S |
| | 22 | 12.5×20 | — | 128 | EGXE251E□□220MK20S |
| | 33 | 12.5×25 | — | 171 | EGXE251E□□330MK25S |
| | 47 | 16×25 | — | 225 | EGXE251E□□470ML25S |
| | 68 | 16×31.5 | — | 292 | EGXE251E□□680MLN3S |
| 350 | 4.7 | 10×20 | — | 53 | EGXE351E□□4R7MJ20S |
| | 10 | 10×25 | — | 85 | EGXE351E□□100MJ25S |
| | 22 | 12.5×25 | — | 139 | EGXE351E□□220MK25S |
| | 33 | 16×25 | — | 189 | EGXE351E□□330ML25S |
| | 47 | 16×31.5 | — | 243 | EGXE351E□□470MLN3S |
| 400 | 4.7 | 10×20 | — | 53 | EGXE401E□□4R7MJ20S |
| | 10 | 10×25 | — | 86 | EGXE401E□□100MJ25S |
| | 22 | 12.5×30 | — | 142 | EGXE401E□□220MK30S |
| | 33 | 16×25 | — | 189 | EGXE401E□□330ML25S |
| | 47 | 16×31.5 | — | 243 | EGXE401E□□470MLN3S |
| 450 | 4.7 | 10×25 | — | 58 | EGXE451E□□4R7MJ25S |
| | 10 | 12.5×20 | — | 86 | EGXE451E□□100MK20S |
| | 22 | 16×25 | — | 154 | EGXE451E□□220ML25S |
| | 33 | 16×31.5 | — | 203 | EGXE451E□□330MLN3S |

□□ : Enter the appropriate lead forming or taping code.

(Note1) Ripple current frequency

10 to 100V = 100kHz

160 to 450V = 120Hz

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●(10 to 100Vdc) Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 4.7 to 100 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 470 | 0.50 | 0.85 | 0.94 | 1.00 |
| 1,000 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,300 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 | 0.85 | 0.95 | 0.98 | 1.00 |

●(160 to 450Vdc) Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|---|---|---|---|---|---|---|
| 4.7 to 33 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 47 to 150 | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, 125℃

# GXL Series

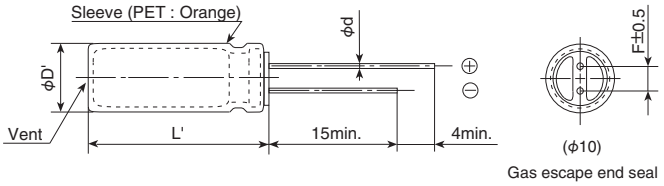
- Long-Life version of GXE series
- For automobile modules and other high temperature applications
- Endurance with ripple current : 5,000 hours at 125℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| Category Temperature Range | −40 to +125℃ | | | | | | |
| Rated Voltage Range | 10 to 50Vdc | | | | | | |
| Capacitance Tolerance | ±20% (M) | | | | | | (at 20℃, 120Hz) |
| Leakage Current | I=0.03CV or 4μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃, 1 minute) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 6 | 4 | 4 | 4 | 4 | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 125℃. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |

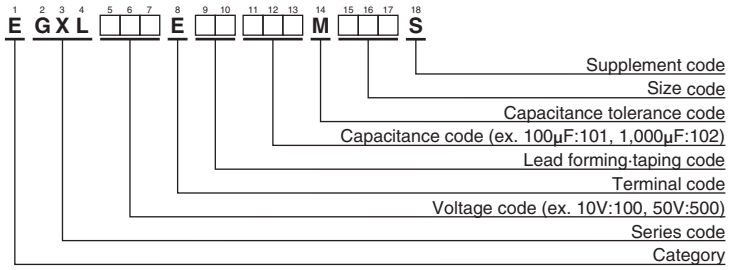
## ◆DIMENSIONS [mm]

- Terminal Code : E




| ϕD | 10 |
|---|---|
| ϕd | 0.6 |
| F | 5.0 |
| ϕD' | ϕD+0.5max. |
| L' | L+1.5max. |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, 125℃

## GXL Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/125℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 10 | 330 | 10×12.5 | 0.17 | 800 | EGXL100E□□331MJC5S |
| | 470 | 10×12.5 | 0.17 | 800 | EGXL100E□□471MJC5S |
| | 1,000 | 10×20 | 0.094 | 1,300 | EGXL100E□□102MJ20S |
| 16 | 220 | 10×12.5 | 0.17 | 800 | EGXL160E□□221MJC5S |
| | 330 | 10×12.5 | 0.17 | 800 | EGXL160E□□331MJC5S |
| | 470 | 10×16 | 0.12 | 1,050 | EGXL160E□□471MJ16S |
| 25 | 220 | 10×12.5 | 0.17 | 800 | EGXL250E□□221MJC5S |
| | 330 | 10×16 | 0.12 | 1,050 | EGXL250E□□331MJ16S |
| | 470 | 10×20 | 0.094 | 1,300 | EGXL250E□□471MJ20S |
| 35 | 100 | 10×12.5 | 0.17 | 800 | EGXL350E□□101MJC5S |
| | 220 | 10×16 | 0.12 | 1,050 | EGXL350E□□221MJ16S |
| | 330 | 10×20 | 0.094 | 1,300 | EGXL350E□□331MJ20S |
| 50 | 100 | 10×12.5 | 0.30 | 590 | EGXL500E□□101MJC5S |
| | 220 | 10×20 | 0.19 | 970 | EGXL500E□□221MJ20S |

□□ : Enter the appropriate lead forming or taping code.

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) \ Frequency(Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 100 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 470 | 0.50 | 0.85 | 0.94 | 1.00 |
| 1,000 | 0.60 | 0.87 | 0.95 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, 135℃

# GXH Series

- For automobile modules and other high temperature applications
- Endurance with ripple current : 1,500 to 2,000 hours at 135℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

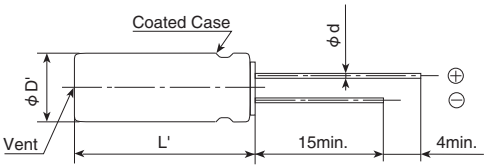
GXE → Higher temperature → **GXH**

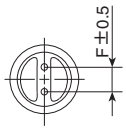
## ◆SPECIFICATIONS

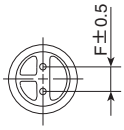
| Items | Characteristics | | | | | | |
|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +135℃ | | | | | | |
| **Rated Voltage Range** | 10 to 50Vdc | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.03CV or 4μA, whichever is greater.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | (at 20℃, 1 minute) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | |
| | tanδ (Max.) | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase. | | | | | | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | |
| | Z(−25℃)/Z(+20℃) | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 6 | 4 | 4 | 4 | 4 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified time at 135℃. | | | | | | |
| | Time | φ10 : 1,500hours φ12.5 & φ16 : 2,000hours | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 135℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | |
| | Capacitance change | ≦±30% of the initial value | | | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | | | |
| | Leakage current | ≦The initial specified value | | | | | |

## ◆DIMENSIONS [mm]

- Terminal Code : E



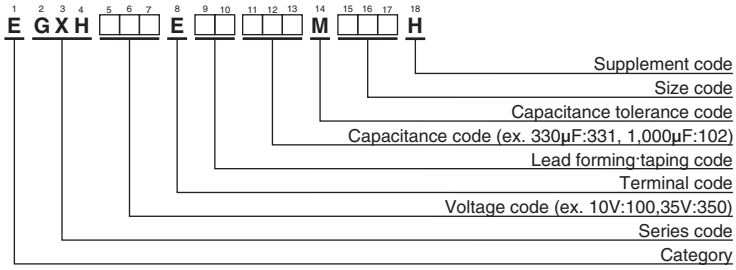




Gas escape end seal

| φD | 10 | 12.5 | 16 |
|---|---|---|---|
| φd | 0.6 | 0.6 | 0.8 |
| F | 5.0 | 5.0 | 7.5 |
| φD' | φD+0.5max. | | |
| L' | L+2.0max. | | |

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (radial lead type)"

## ◆MARKING

EX) 35V470μF

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, 135℃

## GXH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD× L(mm) | Impedance (Ωmax/20℃, 100kHz) | Rated ripple current (mArms/135℃, 100kHz) | Part No. |
|---|---|---|---|---|---|
| 10 | 330 | 10 × 12.5 | 0.15 | 620 | EGXH100E□□331MJC5H |
| | 470 | 10 × 12.5 | 0.15 | 620 | EGXH100E□□471MJC5H |
| | 1,000 | 10 × 20 | 0.075 | 950 | EGXH100E□□102MJ20H |
| | 2,200 | 12.5 × 25 | 0.040 | 1,350 | EGXH100E□□222MK25H |
| | 3,300 | 16 × 25 | 0.031 | 1,620 | EGXH100E□□332ML25H |
| | 4,700 | 16 × 31.5 | 0.025 | 1,860 | EGXH100E□□472MLN3H |
| 16 | 220 | 10 × 12.5 | 0.15 | 620 | EGXH160E□□221MJC5H |
| | 330 | 10 × 12.5 | 0.15 | 620 | EGXH160E□□331MJC5H |
| | 470 | 10 × 16 | 0.094 | 790 | EGXH160E□□471MJ16H |
| | 1,000 | 12.5 × 20 | 0.058 | 1,080 | EGXH160E□□102MK20H |
| | 2,200 | 16 × 25 | 0.031 | 1,620 | EGXH160E□□222ML25H |
| | 3,300 | 16 × 31.5 | 0.025 | 1,860 | EGXH160E□□332MLN3H |
| 25 | 220 | 10 × 12.5 | 0.15 | 620 | EGXH250E□□221MJC5H |
| | 330 | 10 × 16 | 0.094 | 790 | EGXH250E□□331MJ16H |
| | 470 | 10 × 20 | 0.075 | 950 | EGXH250E□□471MJ20H |
| | 1,000 | 12.5 × 25 | 0.040 | 1,350 | EGXH250E□□102MK25H |
| | 2,200 | 16 × 31.5 | 0.025 | 1,860 | EGXH250E□□222MLN3H |
| 35 | 100 | 10 × 12.5 | 0.15 | 620 | EGXH350E□□101MJC5H |
| | 220 | 10 × 16 | 0.094 | 790 | EGXH350E□□221MJ16H |
| | 330 | 10 × 20 | 0.075 | 950 | EGXH350E□□331MJ20H |
| | 470 | 12.5 × 20 | 0.058 | 1,080 | EGXH350E□□471MK20H |
| | 1,000 | 16 × 25 | 0.031 | 1,620 | EGXH350E□□102ML25H |
| 50 | 100 | 10 × 12.5 | 0.20 | 520 | EGXH500E□□101MJC5H |
| | 220 | 10 × 20 | 0.098 | 880 | EGXH500E□□221MJ20H |
| | 330 | 12.5 × 20 | 0.081 | 990 | EGXH500E□□331MK20H |
| | 470 | 12.5 × 25 | 0.059 | 1,150 | EGXH500E□□471MK25H |
| | 1,000 | 16 × 31.5 | 0.032 | 1,590 | EGXH500E□□102MLN3H |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 100 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 470 | 0.50 | 0.85 | 0.94 | 1.00 |
| 1,000 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,300 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For airbag module, 105℃

# LBG Series

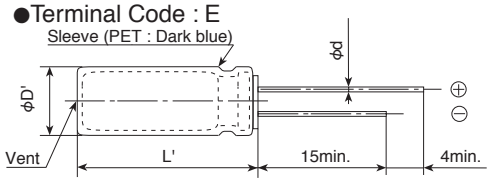
- For airbag application
- High capacitance, low impedance, and good low temperature behavior
- Endurance with ripple current : 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

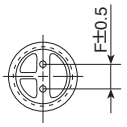
## ◆SPECIFICATIONS

| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −55 to +105℃ | | | |
| **Rated Voltage Range** | 25 & 35Vdc | | | |
| **Capacitance Range** | 1,000 to 11,000μF | | | (at 20℃, 120Hz) |
| **Capacitance Tolerance** | 0 to +30% (A) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.01CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 2 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 25V | 35V | |
| | tanδ (Max.) | 0.20 | 0.16 | |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. | | | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 25V | 35V | |
| | Z(−55℃)/Z(+20℃) | 3 | 3 | |
| | Impedance at -40℃ and 20℃ 100kHz in the STANDARD RATINGS | | | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : E




Gas escape end seal

| φD | 12.5 | 14.5 | 16 | 18 |
|---|---|---|---|---|
| φd | 0.6 | 0.8 | 0.8 | 0.8 |
| F | 5.0 | 7.5 | 7.5 | 7.5 |
| φD' | φD+0.5max. | | | |
| L' | L+1.5max. | | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | L | B | G | | | | E | | | | | | A | | | | S |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 1,000μF:102, 11,000μF:113)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 16V:160, 35V:350)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For airbag module, 105℃

## LBG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Impedance (Ωmax/100kHz) | | Rated ripple current (mArms/105℃,100kHz) | Part No. |
|---|---|---|---|---|---|---|
| | | | 20℃ | -40℃ | | |
| 25 | 1,700 | 12.5 × 20 | 0.057 | 0.29 | 1,700 | ELBG250E□□172AK20S |
| | 2,400 | 12.5 × 25 | 0.045 | 0.23 | 2,000 | ELBG250E□□242AK25S |
| | 2,400 | 14.5 × 20 | 0.051 | 0.26 | 2,000 | ELBG250E□□242AU20S |
| | 2,800 | 12.5 × 30 | 0.039 | 0.20 | 2,300 | ELBG250E□□282AK30S |
| | 3,000 | 16 × 20 | 0.044 | 0.22 | 2,250 | ELBG250E□□302AL20S |
| | 3,400 | 14.5 × 25 | 0.041 | 0.21 | 2,400 | ELBG250E□□342AU25S |
| | 3,500 | 12.5 × 35 | 0.033 | 0.17 | 2,700 | ELBG250E□□352AK35S |
| | 4,200 | 16 × 25 | 0.033 | 0.17 | 2,600 | ELBG250E□□422AL25S |
| | 4,200 | 18 × 20 | 0.042 | 0.21 | 2,500 | ELBG250E□□422AM20S |
| | 4,500 | 12.5 × 40 | 0.027 | 0.14 | 3,100 | ELBG250E□□452AK40S |
| | 4,600 | 14.5 × 31.5 | 0.032 | 0.16 | 2,700 | ELBG250E□□462AUN3S |
| | 5,400 | 14.5 × 35.5 | 0.028 | 0.14 | 3,100 | ELBG250E□□542AUP1S |
| | 5,600 | 16 × 31.5 | 0.026 | 0.13 | 3,200 | ELBG250E□□562ALN3S |
| | 6,000 | 18 × 25 | 0.030 | 0.15 | 2,800 | ELBG250E□□602AM25S |
| | 6,400 | 14.5 × 40 | 0.025 | 0.13 | 3,400 | ELBG250E□□642AU40S |
| | 6,600 | 16 × 35.5 | 0.023 | 0.12 | 3,500 | ELBG250E□□662ALP1S |
| | 7,800 | 16 × 40 | 0.021 | 0.11 | 3,800 | ELBG250E□□782AL40S |
| | 7,900 | 18 × 31.5 | 0.024 | 0.12 | 3,500 | ELBG250E□□792AMN3S |
| | 9,200 | 18 × 35.5 | 0.022 | 0.11 | 3,700 | ELBG250E□□922AMP1S |
| | 11,000 | 18 × 40 | 0.020 | 0.10 | 4,000 | ELBG250E□□113AM40S |
| 35 | 1,000 | 12.5 × 20 | 0.057 | 0.29 | 1,700 | ELBG350E□□102AK20S |
| | 1,400 | 12.5 × 25 | 0.045 | 0.23 | 2,000 | ELBG350E□□142AK25S |
| | 1,400 | 14.5 × 20 | 0.051 | 0.26 | 2,000 | ELBG350E□□142AU20S |
| | 1,600 | 12.5 × 30 | 0.039 | 0.20 | 2,300 | ELBG350E□□162AK30S |
| | 1,800 | 16 × 20 | 0.044 | 0.22 | 2,250 | ELBG350E□□182AL20S |
| | 2,000 | 14.5 × 25 | 0.041 | 0.21 | 2,400 | ELBG350E□□202AU25S |
| | 2,100 | 12.5 × 35 | 0.033 | 0.17 | 2,700 | ELBG350E□□212AK35S |
| | 2,500 | 16 × 25 | 0.033 | 0.17 | 2,600 | ELBG350E□□252AL25S |
| | 2,500 | 18 × 20 | 0.042 | 0.21 | 2,500 | ELBG350E□□252AM20S |
| | 2,700 | 12.5 × 40 | 0.027 | 0.14 | 3,100 | ELBG350E□□272AK40S |
| | 2,800 | 14.5 × 31.5 | 0.032 | 0.16 | 2,700 | ELBG350E□□282AUN3S |
| | 3,200 | 14.5 × 35.5 | 0.028 | 0.14 | 3,100 | ELBG350E□□322AUP1S |
| | 3,400 | 16 × 31.5 | 0.026 | 0.13 | 3,200 | ELBG350E□□342ALN3S |
| | 3,600 | 18 × 25 | 0.030 | 0.15 | 2,800 | ELBG350E□□362AM25S |
| | 3,800 | 14.5 × 40 | 0.025 | 0.13 | 3,400 | ELBG350E□□382AU40S |
| | 4,000 | 16 × 35.5 | 0.023 | 0.12 | 3,500 | ELBG350E□□402ALP1S |
| | 4,700 | 16 × 40 | 0.021 | 0.11 | 3,800 | ELBG350E□□472AL40S |
| | 4,800 | 18 × 31.5 | 0.024 | 0.12 | 3,500 | ELBG350E□□482AMN3S |
| | 5,600 | 18 × 35.5 | 0.022 | 0.11 | 3,700 | ELBG350E□□562AMP1S |
| | 6,700 | 18 × 40 | 0.020 | 0.10 | 4,000 | ELBG350E□□672AM40S |

□□ : Enter the appropriate lead forming or taping code.

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance (μF) \ Frequency (Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 1,000 to 2,000 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,100 to 3,800 | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,000 to 11,000 | 0.85 | 0.95 | 0.98 | 1.00 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For photo flash

## PH Series

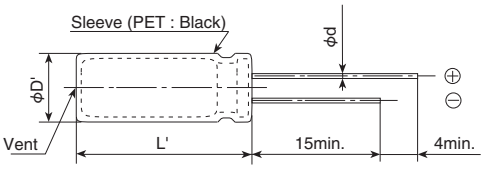
●RoHS Compliant

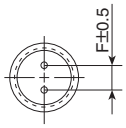
## ◆SPECIFICATIONS

| Items | Characteristics | |
|---|---|---|
| Category Temperature Range | −20 to +65℃ | |
| Rated Voltage Range | 300, 315, 330Vdc | |
| Capacitance Tolerance | −10 to +20% (V) | (at 20℃, 120Hz) |
| Leakage Current | I=1×C<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF) | (at 20℃ after 5 minutes) |
| Dissipation Factor (tanδ) | 0.06max. | (at 20℃, 120Hz) |
| Charge and Discharge Characteristics | The following specifications shall be satisfied when the capacitors are restored to 20℃ after charge and discharge are repeated 5,000 times at room temperature (5 to 35℃). Discharge resistance or Xenon tube : 0.7 to 1.0Ω. | |
| | Capacitance change | ≦±10% of the initial value |
| | D.F. (tanδ) | ≦150% of the initial specified value |
| | Leakage current | ≦150% of the initial specified value |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 65℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | |
| | Capacitance change | ≦±10% of the initial value |
| | D.F. (tanδ) | ≦150% of the initial specified value |
| | Leakage current | ≦150% of the initial specified value |

## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 6.0 to 7.5 | 8.0 to 8.5 | 9.0 to 9.5 | 10.0 to 14.0 | 14.5 to 18.0 |
|---|---|---|---|---|---|
| φd | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 |
| F | 2.5 | 3.5 | 4 | 5 | 7.5 |
| φD' | φD+0.5max. | | | | |
| L' | L+1.0max. | | | | |

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | P | H | − | | | | E | | | | | | | | | | S |

Supplement code
Size code (L code)
Size code (φD code)
Nominal capacitance code (ex. 50μF:500,100μF:101)
Lead forming·taping code
Terminal code
Rated voltage code (ex. 315V:3B1,330V:331)
Series code
Category

Please refer to "Product code guide (radial lead type)"

●Size Code

φD code (14th, 15th)

| φD(mm) | φD code | |
|---|---|---|
| | 14th | 15th |
| 6.0 | 6 | 0 |
| 6.5 | 6 | 5 |
| 7.0 | 7 | 0 |
| 7.5 | 7 | 5 |
| 8.0 | 8 | 0 |
| 8.5 | 8 | 5 |
| 9.0 | 9 | 0 |
| 9.5 | 9 | 5 |
| 10.0 | A | 0 |
| 10.5 | A | 5 |
| 11.0 | B | 0 |
| 11.5 | B | 5 |
| 12.0 | C | 0 |
| 12.5 | C | 5 |
| 13.0 | D | 0 |
| 13.5 | D | 5 |
| 14.0 | E | 0 |
| 14.5 | E | 5 |
| 15.0 | F | 0 |
| 15.5 | F | 5 |
| 16.0 | G | 0 |
| 16.5 | G | 5 |
| 17.0 | H | 0 |
| 17.5 | H | 5 |
| 18.0 | J | 0 |

L code (16th, 17th)

| L(mm) | L code | |
|---|---|---|
| | 16th | 17th |
| 15.0 | 1 | 5 |
| 16.0 | 1 | 6 |
| 17.0 | 1 | 7 |
| 18.0 | 1 | 8 |
| 19.0 | 1 | 9 |
| 20.0 | 2 | 0 |
| 21.0 | 2 | 1 |
| 22.0 | 2 | 2 |
| 23.0 | 2 | 3 |
| 24.0 | 2 | 4 |
| 25.0 | 2 | 5 |
| 26.0 | 2 | 6 |
| 27.0 | 2 | 7 |
| 28.0 | 2 | 8 |
| 29.0 | 2 | 9 |
| 30.0 | 3 | 0 |
| 31.0 | 3 | 1 |
| 32.0 | 3 | 2 |
| 33.0 | 3 | 3 |
| 34.0 | 3 | 4 |
| 35.0 | 3 | 5 |
| 36.0 | 3 | 6 |
| 37.0 | 3 | 7 |
| 38.0 | 3 | 8 |
| 39.0 | 3 | 9 |
| 40.0 | 4 | 0 |
| 41.0 | 4 | 1 |
| 42.0 | 4 | 2 |
| 43.0 | 4 | 3 |
| 44.0 | 4 | 4 |
| 45.0 | 4 | 5 |

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CAT. No. E1001M

NIPPON CHEMI-CON

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For photo flash

## PH Series

### ◆RATINGS (REFERENCE)

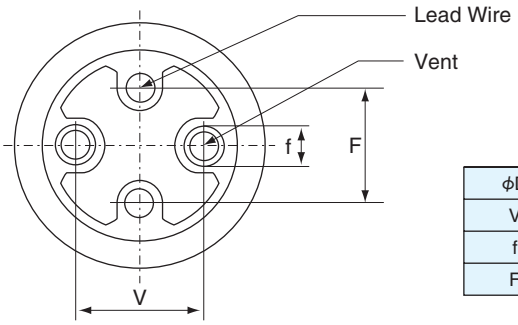
| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Part No. |
|---|---|---|---|---|
| 315 | 86 | 10×30 | 0.06 | EPH-3B1E□□860A030S |
| | 122 | 10×40 | 0.06 | EPH-3B1E□□121A040S |
| | 144 | 12.5×30 | 0.06 | EPH-3B1E□□1E1C530S |
| | 209 | 12.5×40 | 0.06 | EPH-3B1E□□211C540S |
| 330 | 80 | 10×30 | 0.06 | EPH-331E□□800A030S |
| | 114 | 10×40 | 0.06 | EPH-331E□□1B1A040S |
| | 137 | 12.5×30 | 0.06 | EPH-331E□□1D1C530S |
| | 194 | 12.5×40 | 0.06 | EPH-331E□□1K1C540S |

□□ : Enter the appropriate lead forming or taping code.

●Products of vents on the sealing rubber

DIMENSIONS[mm]

<In the case of diameter 10mm>




| φD | 10 |
|---|---|
| V | (4.6) |
| f | (1.8) |
| F | 5±0.5 |

Products of vent on rubber type, please make clearance about 1mm minimum between rubber and board. If it is difficult to make clearance 1mm minimum between rubber and board, please arrange gas escaping hole on the board (same position and 40% minimum diameter from the vent).
The products of dual vents on rubber, requires placement one or two gas escaping hole on the board.

●Products of a vent on the case

Please make the following open space over the vent so that the vent can operate correctly.

| Case diameter | Clearance |
|---|---|
| φ6 to 16mm | 2mm minimum |
| φ16.5mm and up | 3mm minimum |

Above part numbers are only reference.
Please consult with us about detail specifications (rated voltage, capacitance, case size, type of rubber, etc...).

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# Snap-in Aluminum Electrolytic Capacitors

## (Large Capacitors)

# PART NUMBERING SYSTEM

## Product code guide (Snap-in type)

**(Example : KMM series, 400V-220μF, φ30×30L)**

Please refer to the following table

| Contents | Code |
|---|---|
| Polar | E |

| Series | Code |
|---|---|
| KMM | KMM |

| Type | Code |
|---|---|
| Snap-in | VS |
| Snap-in | VN |
| Flat terminal for PCB | LI |
| For Connector | LR |
| Horizontal | LC |
| Straight | VR |

| Tol.(%) | Code |
|---|---|
| ±20 | M |

| Sleeve material | Terminal plating material | Code |
|---|---|---|
| PET | Sn | S |
| Pb-free PVC | | M |

| 1 | 2 3 4 | 5 6 7 | 8 9 | 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| E | KMM | 401 | VS | N | 221 | M | R30 | S |
| Category | Series code | Voltage code | Terminal code | Dummy terminal code | Capacitance code | Capacitance tolerance | Size code | Supplement code |

| Voltage(V) | Code |
|---|---|
| 6.3 | 6R3 |
| 10 | 100 |
| 25 | 250 |
| 100 | 101 |
| 250 | 251 |
| 315 | 3B1 |
| ⋮ | ⋮ |

| Terminal # | Code |
|---|---|
| 0 | N |
| 1 | S |
| 2 | D |
| 3 | T |

| Cap.(μF) | Code |
|---|---|
| 39 | 390 |
| 47 | 470 |
| 100 | 101 |
| 470 | 471 |
| 1,000 | 102 |
| 4,700 | 472 |
| 10,000 | 103 |
| ⋮ | ⋮ |

| φD(mm) | Code |
|---|---|
| 20 | N |
| 22 | P |
| 25.4 | Q |
| 30 | R |
| 35 | A |
| 40 | B |

| L(mm) | Code |
|---|---|
| 15 | 15 |
| 20 | 20 |
| 25 | 25 |
| 30 | 30 |
| 35 | 35 |
| 40 | 40 |
| 45 | 45 |
| 50 | 50 |
| 55 | 55 |
| 60 | 60 |

*Refer to the appendix (Part number) for codes not listed here.

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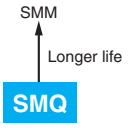
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

## SMQ Series

- Endurance with ripple current : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

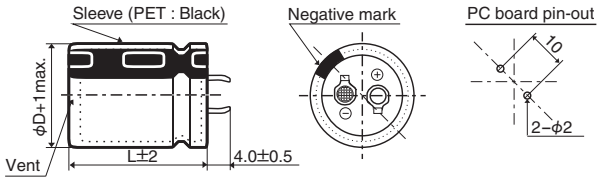


## ◆SPECIFICATIONS

| Items | Characteristics | | | | |
|---|---|---|---|---|---|
| **Category Temperature Range** | −25 to +85℃ | | | | |
| **Rated Voltage Range** | 160 to 450Vdc | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 160 to 250V | 315 to 400V | 420 & 450V | |
| | tanδ (Max.) | 0.15 | 0.15 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 160 to 250V | 315 to 400V | 420 & 450V | |
| | Z(−25℃)/Z(+20℃) | 4 | 8 | 8 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D. F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | |
| | Capacitance change | ≦±15% of the initial value | | | |
| | D. F. (tanδ) | ≦150% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |

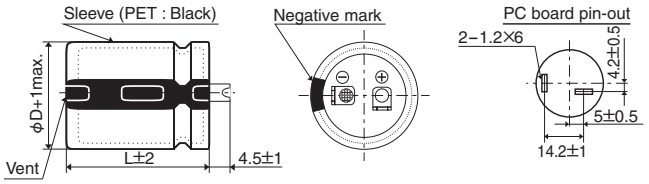
## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

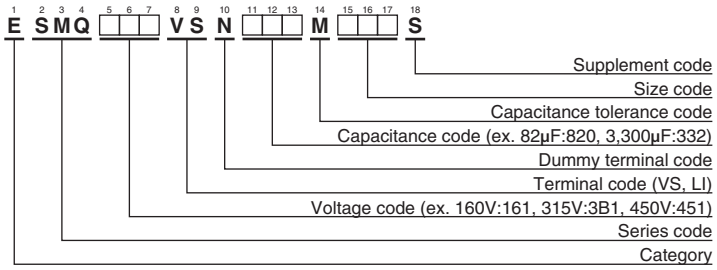



The standard design has no plastic disc.

●Terminal Code : LI (φ35)




## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

## SMQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 560 | 22×25 | 0.15 | 2.25 | ESMQ161VSN561MP25S |
| | 680 | 22×30 | 0.15 | 2.50 | ESMQ161VSN681MP30S |
| | 820 | 22×35 | 0.15 | 2.75 | ESMQ161VSN821MP35S |
| | 1,000 | 22×40 | 0.15 | 3.00 | ESMQ161VSN102MP40S |
| | 1,000 | 25.4×30 | 0.15 | 3.00 | ESMQ161VSN102MQ30S |
| | 1,200 | 22×45 | 0.15 | 3.25 | ESMQ161VSN122MP45S |
| | 1,200 | 25.4×35 | 0.15 | 3.25 | ESMQ161VSN122MQ35S |
| | 1,200 | 30×25 | 0.15 | 3.25 | ESMQ161VSN122MR25S |
| | 1,500 | 22×50 | 0.15 | 3.73 | ESMQ161VSN152MP50S |
| | 1,500 | 25.4×40 | 0.15 | 3.73 | ESMQ161VSN152MQ40S |
| | 1,500 | 30×30 | 0.15 | 3.73 | ESMQ161VSN152MR30S |
| | 1,500 | 35×25 | 0.15 | 3.73 | ESMQ161VSN152MA25S |
| | 1,800 | 25.4×45 | 0.15 | 4.20 | ESMQ161VSN182MQ45S |
| | 1,800 | 30×35 | 0.15 | 4.20 | ESMQ161VSN182MR35S |
| | 1,800 | 35×30 | 0.15 | 4.20 | ESMQ161VSN182MA30S |
| | 2,200 | 30×40 | 0.15 | 4.78 | ESMQ161VSN222MR40S |
| | 2,200 | 35×35 | 0.15 | 4.78 | ESMQ161VSN222MA35S |
| | 2,700 | 35×40 | 0.15 | 5.45 | ESMQ161VSN272MA40S |
| | 3,300 | 35×45 | 0.15 | 5.75 | ESMQ161VSN332MA45S |
| | 3,900 | 35×50 | 0.15 | 6.00 | ESMQ161VSN392MA50S |
| 180 | 470 | 22×25 | 0.15 | 2.08 | ESMQ181VSN471MP25S |
| | 560 | 22×30 | 0.15 | 2.25 | ESMQ181VSN561MP30S |
| | 680 | 22×30 | 0.15 | 2.50 | ESMQ181VSN681MP30S |
| | 680 | 25.4×25 | 0.15 | 2.50 | ESMQ181VSN681MQ25S |
| | 820 | 22×35 | 0.15 | 2.75 | ESMQ181VSN821MP35S |
| | 820 | 25.4×30 | 0.15 | 2.75 | ESMQ181VSN821MQ30S |
| | 1,000 | 22×45 | 0.15 | 3.00 | ESMQ181VSN102MP45S |
| | 1,000 | 25.4×35 | 0.15 | 3.00 | ESMQ181VSN102MQ35S |
| | 1,000 | 30×25 | 0.15 | 3.00 | ESMQ181VSN102MR25S |
| | 1,200 | 22×50 | 0.15 | 3.31 | ESMQ181VSN122MP50S |
| | 1,200 | 25.4×40 | 0.15 | 3.31 | ESMQ181VSN122MQ40S |
| | 1,200 | 30×30 | 0.15 | 3.31 | ESMQ181VSN122MR30S |
| | 1,200 | 35×25 | 0.15 | 3.31 | ESMQ181VSN122MA25S |
| | 1,500 | 25.4×45 | 0.15 | 3.83 | ESMQ181VSN152MQ45S |
| | 1,500 | 30×35 | 0.15 | 3.83 | ESMQ181VSN152MR35S |
| | 1,500 | 35×30 | 0.15 | 3.83 | ESMQ181VSN152MA30S |
| | 1,800 | 25.4×50 | 0.15 | 4.32 | ESMQ181VSN182MQ50S |
| | 1,800 | 30×40 | 0.15 | 4.32 | ESMQ181VSN182MR40S |
| | 1,800 | 35×30 | 0.15 | 4.32 | ESMQ181VSN182MA30S |
| | 2,200 | 30×45 | 0.15 | 4.92 | ESMQ181VSN222MR45S |
| | 2,200 | 35×40 | 0.15 | 4.92 | ESMQ181VSN222MA40S |
| | 2,700 | 35×45 | 0.15 | 5.52 | ESMQ181VSN272MA45S |
| | 3,300 | 35×50 | 0.15 | 5.75 | ESMQ181VSN332MA50S |
| 200 | 390 | 22×25 | 0.15 | 1.68 | ESMQ201VSN391MP25S |
| | 470 | 22×30 | 0.15 | 1.85 | ESMQ201VSN471MP30S |
| | 560 | 22×30 | 0.15 | 2.43 | ESMQ201VSN561MP30S |
| | 560 | 25.4×25 | 0.15 | 2.43 | ESMQ201VSN561MQ25S |
| | 680 | 22×35 | 0.15 | 2.68 | ESMQ201VSN681MP35S |
| | 680 | 25.4×30 | 0.15 | 2.68 | ESMQ201VSN681MQ30S |
| | 820 | 22×40 | 0.15 | 2.93 | ESMQ201VSN821MP40S |
| | 820 | 25.4×30 | 0.15 | 2.93 | ESMQ201VSN821MQ30S |
| | 820 | 30×25 | 0.15 | 2.93 | ESMQ201VSN821MR25S |
| | 1,000 | 22×45 | 0.15 | 3.25 | ESMQ201VSN102MP45S |
| | 1,000 | 25.4×35 | 0.15 | 3.25 | ESMQ201VSN102MQ35S |
| | 1,000 | 30×30 | 0.15 | 3.25 | ESMQ201VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 3.25 | ESMQ201VSN102MA25S |
| | 1,200 | 25.4×40 | 0.15 | 3.50 | ESMQ201VSN122MQ40S |
| | 1,200 | 30×30 | 0.15 | 3.50 | ESMQ201VSN122MR30S |
| | 1,200 | 35×30 | 0.15 | 3.50 | ESMQ201VSN122MA30S |
| | 1,500 | 25.4×50 | 0.15 | 3.87 | ESMQ201VSN152MQ50S |
| | 1,500 | 30×35 | 0.15 | 3.87 | ESMQ201VSN152MR35S |
| | 1,500 | 35×30 | 0.15 | 3.87 | ESMQ201VSN152MA30S |
| | 1,800 | 30×45 | 0.15 | 4.32 | ESMQ201VSN182MR45S |
| | 1,800 | 35×35 | 0.15 | 4.32 | ESMQ201VSN182MA35S |
| | 2,200 | 30×50 | 0.15 | 4.92 | ESMQ201VSN222MR50S |
| | 2,200 | 35×40 | 0.15 | 4.92 | ESMQ201VSN222MA40S |
| | 2,700 | 35×50 | 0.15 | 5.45 | ESMQ201VSN272MA50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 250 | 270 | 22×25 | 0.15 | 1.31 | ESMQ251VSN271MP25S |
| | 330 | 22×30 | 0.15 | 1.75 | ESMQ251VSN331MP30S |
| | 390 | 22×30 | 0.15 | 1.91 | ESMQ251VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.91 | ESMQ251VSN391MQ25S |
| | 470 | 22×35 | 0.15 | 2.11 | ESMQ251VSN471MP35S |
| | 470 | 25.4×30 | 0.15 | 2.11 | ESMQ251VSN471MQ30S |
| | 560 | 22×40 | 0.15 | 2.25 | ESMQ251VSN561MP40S |
| | 560 | 25.4×30 | 0.15 | 2.25 | ESMQ251VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 2.25 | ESMQ251VSN561MR25S |
| | 680 | 22×45 | 0.15 | 2.50 | ESMQ251VSN681MP45S |
| | 680 | 25.4×35 | 0.15 | 2.50 | ESMQ251VSN681MQ35S |
| | 680 | 30×30 | 0.15 | 2.50 | ESMQ251VSN681MR30S |
| | 820 | 22×50 | 0.15 | 2.77 | ESMQ251VSN821MP50S |
| | 820 | 25.4×40 | 0.15 | 2.77 | ESMQ251VSN821MQ40S |
| | 820 | 30×30 | 0.15 | 2.77 | ESMQ251VSN821MR30S |
| | 820 | 35×25 | 0.15 | 2.77 | ESMQ251VSN821MA25S |
| | 1,000 | 25.4×45 | 0.15 | 3.32 | ESMQ251VSN102MQ45S |
| | 1,000 | 30×35 | 0.15 | 3.32 | ESMQ251VSN102MR35S |
| | 1,000 | 35×30 | 0.15 | 3.32 | ESMQ251VSN102MA30S |
| | 1,200 | 30×40 | 0.15 | 3.53 | ESMQ251VSN122MR40S |
| | 1,200 | 35×35 | 0.15 | 3.53 | ESMQ251VSN122MA35S |
| | 1,500 | 30×50 | 0.15 | 4.04 | ESMQ251VSN152MR50S |
| | 1,500 | 35×40 | 0.15 | 4.04 | ESMQ251VSN152MA40S |
| | 1,800 | 35×45 | 0.15 | 4.55 | ESMQ251VSN182MA45S |
| 315 | 180 | 22×25 | 0.15 | 1.21 | ESMQ3B1VSN181MP25S |
| | 220 | 22×30 | 0.15 | 1.41 | ESMQ3B1VSN221MP30S |
| | 270 | 22×30 | 0.15 | 1.60 | ESMQ3B1VSN271MP30S |
| | 330 | 22×40 | 0.15 | 1.82 | ESMQ3B1VSN331MP40S |
| | 330 | 25.4×30 | 0.15 | 1.82 | ESMQ3B1VSN331MQ30S |
| | 330 | 30×25 | 0.15 | 1.82 | ESMQ3B1VSN331MR25S |
| | 390 | 22×45 | 0.15 | 2.01 | ESMQ3B1VSN391MP45S |
| | 390 | 25.4×35 | 0.15 | 2.01 | ESMQ3B1VSN391MQ35S |
| | 390 | 30×30 | 0.15 | 2.01 | ESMQ3B1VSN391MR30S |
| | 470 | 22×50 | 0.15 | 2.27 | ESMQ3B1VSN471MP50S |
| | 470 | 25.4×40 | 0.15 | 2.27 | ESMQ3B1VSN471MQ40S |
| | 470 | 30×30 | 0.15 | 2.27 | ESMQ3B1VSN471MR30S |
| | 470 | 35×25 | 0.15 | 2.27 | ESMQ3B1VSN471MA25S |
| | 560 | 25.4×45 | 0.15 | 2.56 | ESMQ3B1VSN561MQ45S |
| | 560 | 30×35 | 0.15 | 2.56 | ESMQ3B1VSN561MR35S |
| | 560 | 35×30 | 0.15 | 2.56 | ESMQ3B1VSN561MA30S |
| | 680 | 30×40 | 0.15 | 2.87 | ESMQ3B1VSN681MR40S |
| | 680 | 35×35 | 0.15 | 2.87 | ESMQ3B1VSN681MA35S |
| | 820 | 30×45 | 0.15 | 3.25 | ESMQ3B1VSN821MR45S |
| | 820 | 35×40 | 0.15 | 3.25 | ESMQ3B1VSN821MA40S |
| | 1,000 | 30×50 | 0.15 | 3.63 | ESMQ3B1VSN102MR50S |
| | 1,000 | 35×45 | 0.15 | 3.63 | ESMQ3B1VSN102MA45S |
| 350 | 150 | 22×25 | 0.15 | 1.12 | ESMQ351VSN151MP25S |
| | 180 | 22×30 | 0.15 | 1.22 | ESMQ351VSN181MP30S |
| | 220 | 22×35 | 0.15 | 1.44 | ESMQ351VSN221MP35S |
| | 270 | 22×40 | 0.15 | 1.66 | ESMQ351VSN271MP40S |
| | 270 | 25.4×30 | 0.15 | 1.66 | ESMQ351VSN271MQ30S |
| | 330 | 22×45 | 0.15 | 1.88 | ESMQ351VSN331MP45S |
| | 330 | 25.4×35 | 0.15 | 1.88 | ESMQ351VSN331MQ35S |
| | 390 | 22×50 | 0.15 | 2.06 | ESMQ351VSN391MP50S |
| | 390 | 25.4×40 | 0.15 | 2.06 | ESMQ351VSN391MQ40S |
| | 390 | 30×30 | 0.15 | 2.06 | ESMQ351VSN391MR30S |
| | 390 | 35×25 | 0.15 | 2.06 | ESMQ351VSN391MA25S |
| | 470 | 25.4×45 | 0.15 | 2.40 | ESMQ351VSN471MQ45S |
| | 470 | 30×35 | 0.15 | 2.40 | ESMQ351VSN471MR35S |
| | 470 | 35×30 | 0.15 | 2.40 | ESMQ351VSN471MA30S |
| | 560 | 25.4×50 | 0.15 | 2.60 | ESMQ351VSN561MQ50S |
| | 560 | 30×40 | 0.15 | 2.60 | ESMQ351VSN561MR40S |
| | 560 | 35×30 | 0.15 | 2.60 | ESMQ351VSN561MA30S |
| | 680 | 30×45 | 0.15 | 2.96 | ESMQ351VSN681MR45S |
| | 680 | 35×35 | 0.15 | 2.96 | ESMQ351VSN681MA35S |
| | 820 | 30×50 | 0.15 | 3.25 | ESMQ351VSN821MR50S |
| | 820 | 35×45 | 0.15 | 3.25 | ESMQ351VSN821MA45S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

## SMQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 1,000 | 35×50 | 0.15 | 3.54 | ESMQ351VSN102MA50S |
| 400 | 120 | 22×25 | 0.15 | 1.02 | ESMQ401VSN121MP25S |
| | 150 | 22×30 | 0.15 | 1.16 | ESMQ401VSN151MP30S |
| | 180 | 22×35 | 0.15 | 1.44 | ESMQ401VSN181MP35S |
| | 220 | 22×40 | 0.15 | 1.49 | ESMQ401VSN221MP40S |
| | 220 | 25.4×30 | 0.15 | 1.49 | ESMQ401VSN221MQ30S |
| | 270 | 22×45 | 0.15 | 1.67 | ESMQ401VSN271MP45S |
| | 270 | 25.4×35 | 0.15 | 1.67 | ESMQ401VSN271MQ35S |
| | 270 | 30×25 | 0.15 | 1.67 | ESMQ401VSN271MR25S |
| | 330 | 22×50 | 0.15 | 1.90 | ESMQ401VSN331MP50S |
| | 330 | 25.4×40 | 0.15 | 1.90 | ESMQ401VSN331MQ40S |
| | 330 | 30×30 | 0.15 | 1.90 | ESMQ401VSN331MR30S |
| | 330 | 35×25 | 0.15 | 1.90 | ESMQ401VSN331MA25S |
| | 390 | 25.4×45 | 0.15 | 2.13 | ESMQ401VSN391MQ45S |
| | 390 | 30×35 | 0.15 | 2.13 | ESMQ401VSN391MR35S |
| | 390 | 35×30 | 0.15 | 2.13 | ESMQ401VSN391MA30S |
| | 470 | 25.4×50 | 0.15 | 2.39 | ESMQ401VSN471MQ50S |
| | 470 | 30×40 | 0.15 | 2.39 | ESMQ401VSN471MR40S |
| | 470 | 35×30 | 0.15 | 2.39 | ESMQ401VSN471MA30S |
| | 560 | 30×45 | 0.15 | 2.69 | ESMQ401VSN561MR45S |
| | 560 | 35×35 | 0.15 | 2.69 | ESMQ401VSN561MA35S |
| | 680 | 30×50 | 0.15 | 2.96 | ESMQ401VSN681MR50S |
| | 680 | 35×40 | 0.15 | 2.96 | ESMQ401VSN681MA40S |
| | 820 | 35×45 | 0.15 | 3.25 | ESMQ401VSN821MA45S |
| 420 | 100 | 22×25 | 0.20 | 0.97 | ESMQ421VSN101MP25S |
| | 120 | 22×25 | 0.20 | 1.08 | ESMQ421VSN121MP25S |
| | 150 | 22×30 | 0.20 | 1.30 | ESMQ421VSN151MP30S |
| | 150 | 25.4×25 | 0.20 | 1.30 | ESMQ421VSN151MQ25S |
| | 180 | 22×35 | 0.20 | 1.48 | ESMQ421VSN181MP35S |
| | 180 | 25.4×30 | 0.20 | 1.48 | ESMQ421VSN181MQ30S |
| | 220 | 22×40 | 0.20 | 1.65 | ESMQ421VSN221MP40S |
| | 220 | 25.4×35 | 0.20 | 1.65 | ESMQ421VSN221MQ35S |
| | 220 | 30×25 | 0.20 | 1.65 | ESMQ421VSN221MR25S |
| | 270 | 22×50 | 0.20 | 1.94 | ESMQ421VSN271MP50S |
| | 270 | 25.4×35 | 0.20 | 1.94 | ESMQ421VSN271MQ35S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 270 | 30×30 | 0.20 | 1.94 | ESMQ421VSN271MR30S |
| | 330 | 25.4×45 | 0.20 | 2.17 | ESMQ421VSN331MQ45S |
| | 330 | 30×35 | 0.20 | 2.17 | ESMQ421VSN331MR35S |
| | 330 | 35×30 | 0.20 | 2.17 | ESMQ421VSN331MA30S |
| | 390 | 25.4×50 | 0.20 | 2.27 | ESMQ421VSN391MQ50S |
| | 390 | 30×35 | 0.20 | 2.27 | ESMQ421VSN391MR35S |
| | 390 | 35×30 | 0.20 | 2.27 | ESMQ421VSN391MA30S |
| | 470 | 30×40 | 0.20 | 2.61 | ESMQ421VSN471MR40S |
| | 470 | 35×35 | 0.20 | 2.61 | ESMQ421VSN471MA35S |
| | 560 | 30×50 | 0.20 | 2.82 | ESMQ421VSN561MR50S |
| | 560 | 35×40 | 0.20 | 2.82 | ESMQ421VSN561MA40S |
| | 680 | 35×45 | 0.20 | 3.11 | ESMQ421VSN681MA45S |
| 450 | 82 | 22×25 | 0.20 | 0.83 | ESMQ451VSN820MP25S |
| | 100 | 22×25 | 0.20 | 0.93 | ESMQ451VSN101MP25S |
| | 120 | 22×30 | 0.20 | 1.04 | ESMQ451VSN121MP30S |
| | 150 | 22×35 | 0.20 | 1.19 | ESMQ451VSN151MP35S |
| | 150 | 25.4×25 | 0.20 | 1.19 | ESMQ451VSN151MQ25S |
| | 180 | 22×40 | 0.20 | 1.35 | ESMQ451VSN181MP40S |
| | 180 | 25.4×30 | 0.20 | 1.35 | ESMQ451VSN181MQ30S |
| | 220 | 22×45 | 0.20 | 1.55 | ESMQ451VSN221MP45S |
| | 220 | 25.4×40 | 0.20 | 1.55 | ESMQ451VSN221MQ40S |
| | 220 | 30×30 | 0.20 | 1.55 | ESMQ451VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.55 | ESMQ451VSN221MA25S |
| | 270 | 22×50 | 0.20 | 1.78 | ESMQ451VSN271MP50S |
| | 270 | 25.4×40 | 0.20 | 1.78 | ESMQ451VSN271MQ40S |
| | 270 | 30×30 | 0.20 | 1.78 | ESMQ451VSN271MR30S |
| | 330 | 25.4×50 | 0.20 | 2.01 | ESMQ451VSN331MQ50S |
| | 330 | 30×40 | 0.20 | 2.01 | ESMQ451VSN331MR40S |
| | 330 | 35×30 | 0.20 | 2.01 | ESMQ451VSN331MA30S |
| | 390 | 30×40 | 0.20 | 2.24 | ESMQ451VSN391MR40S |
| | 390 | 35×35 | 0.20 | 2.24 | ESMQ451VSN391MA35S |
| | 470 | 30×45 | 0.20 | 2.53 | ESMQ451VSN471MR45S |
| | 470 | 35×40 | 0.20 | 2.53 | ESMQ451VSN471MA40S |
| | 560 | 30×50 | 0.20 | 2.82 | ESMQ451VSN561MR50S |
| | 560 | 35×45 | 0.20 | 2.82 | ESMQ451VSN561MA45S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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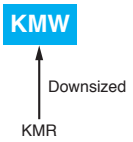
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

*New!*

# KMW Series



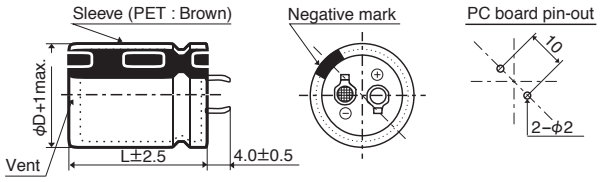
- Downsized from KMR series
- Endurance with ripple current : 2,000 hours at 105℃
- Rated voltage range : 400 to 450Vdc, Capacitance range : 120 to 1,000μF
- Non solvent resistant type
- **RoHS Compliant**

## ◆SPECIFICATIONS

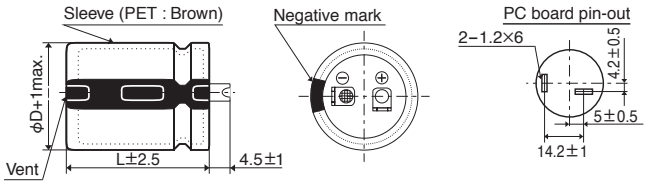
| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | |
| **Rated Voltage Range** | 160 to 450Vdc | | | |
| **Capacitance Tolerance** | ±20% (M) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 400V | 420 & 450V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 400 to 450V | | |
| | Z(−25℃)/Z(+20℃) | 8 | | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15% of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

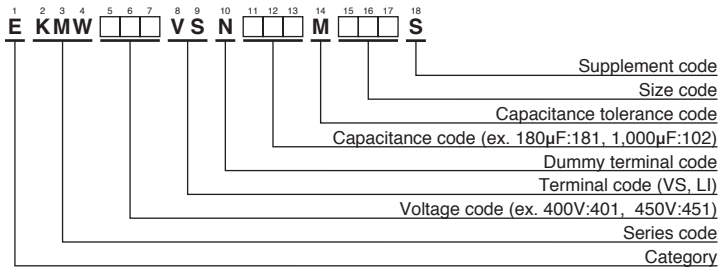



●Terminal Code : LI (φ35)




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

New!

## KMW Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 150 | 22×25 | 0.15 | 0.91 | EKMW401VSN151MP25S |
| | 180 | 22×30 | 0.15 | 1.04 | EKMW401VSN181MP30S |
| | 220 | 22×35 | 0.15 | 1.18 | EKMW401VSN221MP35S |
| | 220 | 25.4×25 | 0.15 | 1.15 | EKMW401VSN221MQ25S |
| | 270 | 25.4×30 | 0.15 | 1.31 | EKMW401VSN271MQ30S |
| | 330 | 22×45 | 0.15 | 1.50 | EKMW401VSN331MP45S |
| | 330 | 25.4×35 | 0.15 | 1.51 | EKMW401VSN331MQ35S |
| | 330 | 30×25 | 0.15 | 1.46 | EKMW401VSN331MR25S |
| | 390 | 22×50 | 0.15 | 1.67 | EKMW401VSN391MP50S |
| | 390 | 25.4×40 | 0.15 | 1.67 | EKMW401VSN391MQ40S |
| | 390 | 30×30 | 0.15 | 1.61 | EKMW401VSN391MR30S |
| | 390 | 35×25 | 0.15 | 1.40 | EKMW401VSN391MA25S |
| | 470 | 25.4×45 | 0.15 | 1.87 | EKMW401VSN471MQ45S |
| | 470 | 30×35 | 0.15 | 1.81 | EKMW401VSN471MR35S |
| | 560 | 30×40 | 0.15 | 2.03 | EKMW401VSN561MR40S |
| | 560 | 35×30 | 0.15 | 1.70 | EKMW401VSN561MA30S |
| | 680 | 30×45 | 0.15 | 2.29 | EKMW401VSN681MR45S |
| | 680 | 30×50 | 0.15 | 2.33 | EKMW401VSN681MR50S |
| | 680 | 35×35 | 0.15 | 1.90 | EKMW401VSN681MA35S |
| | 820 | 35×40 | 0.15 | 2.16 | EKMW401VSN821MA40S |
| | 1,000 | 35×50 | 0.15 | 2.50 | EKMW401VSN102MA50S |
| 420 | 120 | 22×25 | 0.20 | 0.78 | EKMW421VSN121MP25S |
| | 150 | 22×30 | 0.20 | 0.91 | EKMW421VSN151MP30S |
| | 180 | 25.4×25 | 0.20 | 1.02 | EKMW421VSN181MQ25S |
| | 220 | 25.4×30 | 0.20 | 1.16 | EKMW421VSN221MQ30S |
| | 270 | 22×45 | 0.20 | 1.30 | EKMW421VSN271MP45S |
| | 270 | 25.4×35 | 0.20 | 1.34 | EKMW421VSN271MQ35S |
| | 270 | 30×25 | 0.20 | 1.28 | EKMW421VSN271MR25S |
| | 330 | 22×50 | 0.20 | 1.47 | EKMW421VSN331MP50S |
| | 330 | 25.4×40 | 0.20 | 1.51 | EKMW421VSN331MQ40S |
| | 330 | 30×30 | 0.20 | 1.43 | EKMW421VSN331MR30S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 330 | 35×25 | 0.20 | 1.38 | EKMW421VSN331MA25S |
| | 390 | 25.4×45 | 0.20 | 1.67 | EKMW421VSN391MQ45S |
| | 390 | 25.4×50 | 0.20 | 1.70 | EKMW421VSN391MQ50S |
| | 390 | 30×35 | 0.20 | 1.59 | EKMW421VSN391MR35S |
| | 470 | 30×40 | 0.20 | 1.79 | EKMW421VSN471MR40S |
| | 470 | 35×30 | 0.20 | 1.67 | EKMW421VSN471MA30S |
| | 560 | 30×45 | 0.20 | 2.01 | EKMW421VSN561MR45S |
| | 560 | 35×35 | 0.20 | 1.85 | EKMW421VSN561MA35S |
| | 680 | 35×40 | 0.20 | 2.11 | EKMW421VSN681MA40S |
| 450 | 120 | 22×25 | 0.20 | 0.78 | EKMW451VSN121MP25S |
| | 150 | 22×30 | 0.20 | 0.91 | EKMW451VSN151MP30S |
| | 150 | 25.4×25 | 0.20 | 0.93 | EKMW451VSN151MQ25S |
| | 180 | 22×35 | 0.20 | 1.02 | EKMW451VSN181MP35S |
| | 180 | 25.4×30 | 0.20 | 1.05 | EKMW451VSN181MQ30S |
| | 220 | 22×40 | 0.20 | 1.15 | EKMW451VSN221MP40S |
| | 220 | 25.4×35 | 0.20 | 1.21 | EKMW451VSN221MQ35S |
| | 220 | 30×25 | 0.20 | 1.15 | EKMW451VSN221MR25S |
| | 270 | 22×50 | 0.20 | 1.36 | EKMW451VSN271MP50S |
| | 270 | 25.4×40 | 0.20 | 1.36 | EKMW451VSN271MQ40S |
| | 270 | 30×30 | 0.20 | 1.29 | EKMW451VSN271MR30S |
| | 330 | 25.4×45 | 0.20 | 1.54 | EKMW451VSN331MQ45S |
| | 330 | 30×35 | 0.20 | 1.46 | EKMW451VSN331MR35S |
| | 390 | 25.4×50 | 0.20 | 1.70 | EKMW451VSN391MQ50S |
| | 390 | 30×40 | 0.20 | 1.63 | EKMW451VSN391MR40S |
| | 390 | 35×30 | 0.20 | 1.52 | EKMW451VSN391MA30S |
| | 470 | 30×45 | 0.20 | 1.85 | EKMW451VSN471MR45S |
| | 470 | 35×35 | 0.20 | 1.77 | EKMW451VSN471MA35S |
| | 560 | 30×50 | 0.20 | 2.04 | EKMW451VSN561MR50S |
| | 560 | 35×40 | 0.20 | 2.02 | EKMW451VSN561MA40S |
| | 680 | 35×45 | 0.20 | 2.16 | EKMW451VSN681MA45S |
| | 820 | 35×50 | 0.20 | 2.42 | EKMW451VSN821MA50S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 400 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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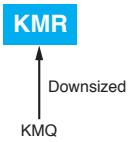
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

# KMR Series



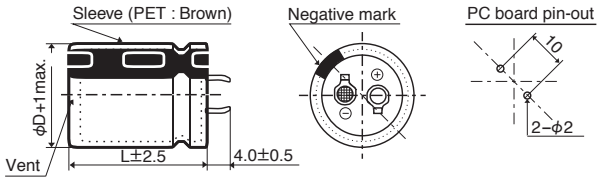
- Downsized 5mm in height from current snap-ins KMQ series
- Max. 50% up ripple current than same case size of KMQ series
- Endurance with ripple current : 2,000 hours at 105℃
- Rated voltage range : 160 to 450Vdc, Capacitance range : 100 to 3,300μF
- For inverter control, switching power supplies
- Non solvent resistant type
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | |
|---|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | | |
| **Rated Voltage Range** | 160 to 450Vdc | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 160 to 250V | 315 to 400V | 420 & 450V | |
| | tanδ (Max.) | 0.15 | 0.15 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 160 to 250V | 315 to 400V | 420 & 450V | |
| | Z(−25℃)/Z(+20℃) | 4 | 8 | 8 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | |
| | Capacitance change | ≦±15% of the initial value | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |

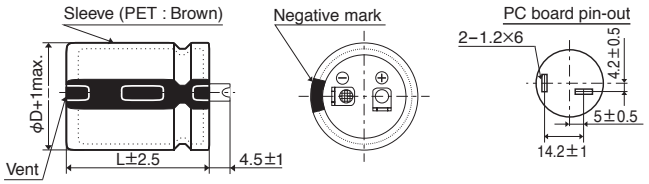
## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

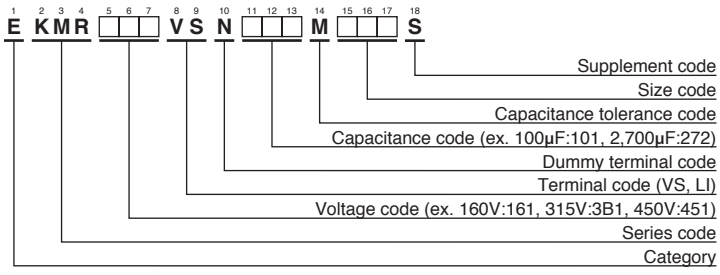



The standard design has no plastic disc.

●Terminal Code : LI (φ35)




## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMR Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|
| 160 | 560 | 22×25 | 1.58 | EKMR161VSN561MP25S |
| | 680 | 22×30 | 1.83 | EKMR161VSN681MP30S |
| | 820 | 22×35 | 2.06 | EKMR161VSN821MP35S |
| | 820 | 25.4×25 | 1.89 | EKMR161VSN821MQ25S |
| | 1,000 | 22×40 | 2.33 | EKMR161VSN102MP40S |
| | 1,000 | 25.4×30 | 2.15 | EKMR161VSN102MQ30S |
| | 1,000 | 30×25 | 1.90 | EKMR161VSN102MR25S |
| | 1,200 | 22×45 | 2.61 | EKMR161VSN122MP45S |
| | 1,200 | 22×50 | 2.69 | EKMR161VSN122MP50S |
| | 1,200 | 25.4×35 | 2.45 | EKMR161VSN122MQ35S |
| | 1,500 | 25.4×40 | 2.82 | EKMR161VSN152MQ40S |
| | 1,500 | 25.4×45 | 2.88 | EKMR161VSN152MQ45S |
| | 1,500 | 30×30 | 2.39 | EKMR161VSN152MR30S |
| | 1,500 | 35×25 | 2.17 | EKMR161VSN152MA25S |
| | 1,800 | 25.4×50 | 3.22 | EKMR161VSN182MQ50S |
| | 1,800 | 30×35 | 2.73 | EKMR161VSN182MR35S |
| | 1,800 | 30×40 | 2.82 | EKMR161VSN182MR40S |
| | 1,800 | 35×30 | 2.47 | EKMR161VSN182MA30S |
| | 2,200 | 30×45 | 3.23 | EKMR161VSN222MR45S |
| | 2,200 | 35×35 | 2.79 | EKMR161VSN222MA35S |
| | 2,700 | 30×50 | 3.66 | EKMR161VSN272MR50S |
| | 2,700 | 35×40 | 3.23 | EKMR161VSN272MA40S |
| | 3,300 | 35×45 | 3.68 | EKMR161VSN332MA45S |
| 180 | 470 | 22×25 | 1.45 | EKMR181VSN471MP25S |
| | 560 | 22×30 | 1.66 | EKMR181VSN561MP30S |
| | 680 | 22×35 | 1.87 | EKMR181VSN681MP35S |
| | 680 | 25.4×25 | 1.72 | EKMR181VSN681MQ25S |
| | 820 | 22×40 | 2.11 | EKMR181VSN821MP40S |
| | 820 | 25.4×30 | 1.94 | EKMR181VSN821MQ30S |
| | 1,000 | 22×45 | 2.38 | EKMR181VSN102MP45S |
| | 1,000 | 25.4×35 | 2.24 | EKMR181VSN102MQ35S |
| | 1,000 | 30×25 | 1.90 | EKMR181VSN102MR25S |
| | 1,200 | 22×50 | 2.69 | EKMR181VSN122MP50S |
| | 1,200 | 25.4×40 | 2.52 | EKMR181VSN122MQ40S |
| | 1,200 | 30×30 | 2.14 | EKMR181VSN122MR30S |
| | 1,200 | 35×25 | 1.94 | EKMR181VSN122MA25S |
| | 1,500 | 25.4×45 | 2.88 | EKMR181VSN152MQ45S |
| | 1,500 | 25.4×50 | 2.94 | EKMR181VSN152MQ50S |
| | 1,500 | 30×35 | 2.49 | EKMR181VSN152MR35S |
| | 1,800 | 30×40 | 2.82 | EKMR181VSN182MR40S |
| | 1,800 | 35×30 | 2.47 | EKMR181VSN182MA30S |
| | 2,200 | 30×45 | 3.23 | EKMR181VSN222MR45S |
| | 2,200 | 30×50 | 3.31 | EKMR181VSN222MR50S |
| | 2,200 | 35×35 | 2.79 | EKMR181VSN222MA35S |
| | 2,200 | 35×40 | 2.92 | EKMR181VSN222MA40S |
| | 2,700 | 35×45 | 3.33 | EKMR181VSN272MA45S |
| 200 | 560 | 22×30 | 1.66 | EKMR201VSN561MP30S |
| | 560 | 25.4×25 | 1.56 | EKMR201VSN561MQ25S |
| | 680 | 22×35 | 1.87 | EKMR201VSN681MP35S |
| | 680 | 25.4×30 | 1.77 | EKMR201VSN681MQ30S |
| | 820 | 22×40 | 2.11 | EKMR201VSN821MP40S |
| | 820 | 25.4×35 | 2.03 | EKMR201VSN821MQ35S |
| | 820 | 30×25 | 1.72 | EKMR201VSN821MR25S |
| | 1,000 | 22×50 | 2.45 | EKMR201VSN102MP50S |
| | 1,000 | 25.4×40 | 2.30 | EKMR201VSN102MQ40S |
| | 1,000 | 30×30 | 1.95 | EKMR201VSN102MR30S |
| | 1,200 | 25.4×45 | 2.58 | EKMR201VSN122MQ45S |
| | 1,200 | 30×35 | 2.23 | EKMR201VSN122MR35S |
| | 1,200 | 35×25 | 1.94 | EKMR201VSN122MA25S |
| | 1,500 | 25.4×50 | 2.94 | EKMR201VSN152MQ50S |
| | 1,500 | 30×40 | 2.58 | EKMR201VSN152MR40S |
| | 1,500 | 35×30 | 2.25 | EKMR201VSN152MA30S |
| | 1,800 | 30×45 | 2.92 | EKMR201VSN182MR45S |
| | 1,800 | 35×35 | 2.53 | EKMR201VSN182MA35S |
| | 2,200 | 30×50 | 3.31 | EKMR201VSN222MR50S |
| | 2,200 | 35×40 | 2.92 | EKMR201VSN222MA40S |
| | 2,700 | 35×45 | 3.33 | EKMR201VSN272MA45S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|
| 250 | 330 | 22×25 | 1.21 | EKMR251VSN331MP25S |
| | 390 | 22×30 | 1.38 | EKMR251VSN391MP30S |
| | 470 | 22×35 | 1.56 | EKMR251VSN471MP35S |
| | 560 | 22×40 | 1.74 | EKMR251VSN561MP40S |
| | 560 | 25.4×30 | 1.61 | EKMR251VSN561MQ30S |
| | 560 | 30×25 | 1.42 | EKMR251VSN561MR25S |
| | 680 | 22×45 | 1.97 | EKMR251VSN681MP45S |
| | 680 | 25.4×35 | 1.85 | EKMR251VSN681MQ35S |
| | 820 | 25.4×40 | 2.08 | EKMR251VSN821MQ40S |
| | 820 | 25.4×45 | 2.13 | EKMR251VSN821MQ45S |
| | 820 | 30×30 | 1.77 | EKMR251VSN821MR30S |
| | 820 | 35×25 | 1.60 | EKMR251VSN821MA25S |
| | 1,000 | 25.4×50 | 2.40 | EKMR251VSN102MQ50S |
| | 1,000 | 30×35 | 2.03 | EKMR251VSN102MR35S |
| | 1,200 | 30×40 | 2.31 | EKMR251VSN122MR40S |
| | 1,200 | 30×45 | 2.38 | EKMR251VSN122MR45S |
| | 1,200 | 35×35 | 2.06 | EKMR251VSN122MA35S |
| | 1,500 | 30×50 | 2.73 | EKMR251VSN152MR50S |
| | 1,500 | 35×40 | 2.41 | EKMR251VSN152MA40S |
| | 1,800 | 35×45 | 2.72 | EKMR251VSN182MA45S |
| | 2,200 | 35×50 | 3.10 | EKMR251VSN222MA50S |
| 315 | 180 | 22×25 | 0.91 | EKMR3B1VSN181MP25S |
| | 220 | 22×30 | 1.06 | EKMR3B1VSN221MP30S |
| | 270 | 22×35 | 1.20 | EKMR3B1VSN271MP35S |
| | 270 | 25.4×25 | 1.15 | EKMR3B1VSN271MQ25S |
| | 330 | 22×40 | 1.37 | EKMR3B1VSN331MP40S |
| | 330 | 25.4×30 | 1.30 | EKMR3B1VSN331MQ30S |
| | 390 | 22×45 | 1.52 | EKMR3B1VSN391MP45S |
| | 390 | 25.4×35 | 1.48 | EKMR3B1VSN391MQ35S |
| | 390 | 30×25 | 1.39 | EKMR3B1VSN391MR25S |
| | 470 | 22×50 | 1.72 | EKMR3B1VSN471MP50S |
| | 470 | 25.4×40 | 1.67 | EKMR3B1VSN471MQ40S |
| | 470 | 30×30 | 1.57 | EKMR3B1VSN471MR30S |
| | 470 | 35×25 | 1.52 | EKMR3B1VSN471MA25S |
| | 560 | 25.4×45 | 1.86 | EKMR3B1VSN561MQ45S |
| | 560 | 30×35 | 1.78 | EKMR3B1VSN561MR35S |
| | 680 | 25.4×50 | 2.10 | EKMR3B1VSN681MQ50S |
| | 680 | 30×40 | 2.03 | EKMR3B1VSN681MR40S |
| | 680 | 35×30 | 1.90 | EKMR3B1VSN681MA30S |
| | 820 | 30×45 | 2.31 | EKMR3B1VSN821MR45S |
| | 820 | 35×35 | 2.13 | EKMR3B1VSN821MA35S |
| | 1,000 | 30×50 | 2.61 | EKMR3B1VSN102MR50S |
| | 1,000 | 35×40 | 2.46 | EKMR3B1VSN102MA40S |
| | 1,200 | 35×45 | 2.78 | EKMR3B1VSN122MA45S |
| | 1,200 | 35×50 | 2.86 | EKMR3B1VSN122MA50S |
| 350 | 150 | 22×25 | 0.84 | EKMR351VSN151MP25S |
| | 220 | 22×30 | 1.06 | EKMR351VSN221MP30S |
| | 220 | 25.4×25 | 1.04 | EKMR351VSN221MQ25S |
| | 270 | 22×35 | 1.20 | EKMR351VSN271MP35S |
| | 270 | 25.4×30 | 1.18 | EKMR351VSN271MQ30S |
| | 330 | 22×40 | 1.37 | EKMR351VSN331MP40S |
| | 330 | 22×45 | 1.40 | EKMR351VSN331MP45S |
| | 330 | 25.4×35 | 1.36 | EKMR351VSN331MQ35S |
| | 330 | 30×25 | 1.28 | EKMR351VSN331MR25S |
| | 390 | 22×50 | 1.56 | EKMR351VSN391MP50S |
| | 390 | 25.4×40 | 1.52 | EKMR351VSN391MQ40S |
| | 390 | 30×30 | 1.43 | EKMR351VSN391MR30S |
| | 390 | 35×25 | 1.38 | EKMR351VSN391MA25S |
| | 470 | 25.4×45 | 1.71 | EKMR351VSN471MQ45S |
| | 560 | 25.4×50 | 1.90 | EKMR351VSN561MQ50S |
| | 560 | 30×35 | 1.78 | EKMR351VSN561MR35S |
| | 560 | 30×40 | 1.84 | EKMR351VSN561MR40S |
| | 560 | 35×30 | 1.72 | EKMR351VSN561MA30S |
| | 680 | 30×45 | 2.10 | EKMR351VSN681MR45S |
| | 680 | 35×35 | 1.94 | EKMR351VSN681MA35S |
| | 820 | 30×50 | 2.36 | EKMR351VSN821MR50S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Downsized snap-ins, 105℃

## KMR Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|
| 350 | 820 | 35×40 | 2.23 | EKMR351VSN821MA40S |
| | 1,000 | 35×45 | 2.54 | EKMR351VSN102MA45S |
| | 1,200 | 35×50 | 2.86 | EKMR351VSN122MA50S |
| 400 | 120 | 22×25 | 0.75 | EKMR401VSN121MP25S |
| | 180 | 22×30 | 0.96 | EKMR401VSN181MP30S |
| | 180 | 25.4×25 | 0.94 | EKMR401VSN181MQ25S |
| | 220 | 22×35 | 1.09 | EKMR401VSN221MP35S |
| | 220 | 25.4×30 | 1.07 | EKMR401VSN221MQ30S |
| | 270 | 22×40 | 1.24 | EKMR401VSN271MP40S |
| | 270 | 22×45 | 1.26 | EKMR401VSN271MP45S |
| | 270 | 25.4×35 | 1.23 | EKMR401VSN271MQ35S |
| | 270 | 30×25 | 1.16 | EKMR401VSN271MR25S |
| | 330 | 22×50 | 1.44 | EKMR401VSN331MP50S |
| | 330 | 25.4×40 | 1.40 | EKMR401VSN331MQ40S |
| | 330 | 30×30 | 1.31 | EKMR401VSN331MR30S |
| | 330 | 35×25 | 1.27 | EKMR401VSN331MA25S |
| | 390 | 25.4×45 | 1.55 | EKMR401VSN391MQ45S |
| | 390 | 30×35 | 1.49 | EKMR401VSN391MR35S |
| | 470 | 25.4×50 | 1.74 | EKMR401VSN471MQ50S |
| | 470 | 30×40 | 1.69 | EKMR401VSN471MR40S |
| | 470 | 35×30 | 1.58 | EKMR401VSN471MA30S |
| | 560 | 30×45 | 1.91 | EKMR401VSN561MR45S |
| | 560 | 35×35 | 1.76 | EKMR401VSN561MA35S |
| | 680 | 30×50 | 2.15 | EKMR401VSN681MR50S |
| | 680 | 35×40 | 2.03 | EKMR401VSN681MA40S |
| | 820 | 35×45 | 2.30 | EKMR401VSN821MA45S |
| | 820 | 35×50 | 2.37 | EKMR401VSN821MA50S |
| | 1,000 | 35×50 | 2.50 | EKMR401VSN102MA50S |
| 420 | 120 | 35×50 | 0.78 | EKMR421VSN121MP25S |
| | 150 | 22×30 | 0.91 | EKMR421VSN151MP30S |
| | 150 | 25.4×25 | 0.89 | EKMR421VSN151MQ25S |
| | 180 | 22×35 | 1.03 | EKMR421VSN181MP35S |
| | 180 | 25.4×30 | 1.00 | EKMR421VSN181MQ30S |
| | 220 | 22×40 | 1.16 | EKMR421VSN221MP40S |
| | 220 | 22×45 | 1.19 | EKMR421VSN221MP45S |
| | 220 | 25.4×35 | 1.16 | EKMR421VSN221MQ35S |
| | 220 | 30×25 | 1.11 | EKMR421VSN221MR25S |
| | 270 | 22×50 | 1.36 | EKMR421VSN271MP50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|
| 420 | 270 | 25.4×40 | 1.32 | EKMR421VSN271MQ40S |
| | 270 | 30×30 | 1.26 | EKMR421VSN271MR30S |
| | 270 | 35×25 | 1.26 | EKMR421VSN271MA25S |
| | 330 | 25.4×45 | 1.49 | EKMR421VSN331MQ45S |
| | 330 | 30×35 | 1.45 | EKMR421VSN331MR35S |
| | 390 | 25.4×50 | 1.66 | EKMR421VSN391MQ50S |
| | 390 | 30×40 | 1.63 | EKMR421VSN391MR40S |
| | 390 | 35×30 | 1.58 | EKMR421VSN391MA30S |
| | 470 | 30×45 | 1.85 | EKMR421VSN471MR45S |
| | 470 | 35×35 | 1.77 | EKMR421VSN471MA35S |
| | 560 | 30×50 | 2.07 | EKMR421VSN561MR50S |
| | 560 | 35×40 | 2.02 | EKMR421VSN561MA40S |
| | 680 | 35×45 | 2.29 | EKMR421VSN681MA45S |
| | 820 | 35×50 | 2.59 | EKMR421VSN821MA50S |
| 450 | 100 | 22×25 | 0.71 | EKMR451VSN101MP25S |
| | 120 | 22×30 | 0.82 | EKMR451VSN121MP30S |
| | 150 | 22×35 | 0.94 | EKMR451VSN151MP35S |
| | 150 | 25.4×25 | 0.89 | EKMR451VSN151MQ25S |
| | 180 | 22×40 | 1.05 | EKMR451VSN181MP40S |
| | 180 | 25.4×30 | 1.00 | EKMR451VSN181MQ30S |
| | 220 | 22×45 | 1.19 | EKMR451VSN221MP45S |
| | 220 | 25.4×35 | 1.16 | EKMR451VSN221MQ35S |
| | 220 | 30×25 | 1.11 | EKMR451VSN221MR25S |
| | 270 | 22×50 | 1.36 | EKMR451VSN271MP50S |
| | 270 | 25.4×40 | 1.32 | EKMR451VSN271MQ40S |
| | 270 | 25.4×45 | 1.35 | EKMR451VSN271MQ45S |
| | 270 | 30×30 | 1.26 | EKMR451VSN271MR30S |
| | 270 | 35×25 | 1.26 | EKMR451VSN271MA25S |
| | 330 | 25.4×50 | 1.52 | EKMR451VSN331MQ50S |
| | 330 | 30×35 | 1.45 | EKMR451VSN331MR35S |
| | 330 | 35×30 | 1.45 | EKMR451VSN331MA30S |
| | 390 | 30×40 | 1.63 | EKMR451VSN391MR40S |
| | 470 | 30×45 | 1.85 | EKMR451VSN471MR45S |
| | 470 | 30×50 | 1.90 | EKMR451VSN471MR50S |
| | 470 | 35×35 | 1.77 | EKMR451VSN471MA35S |
| | 560 | 35×40 | 2.02 | EKMR451VSN561MA40S |
| | 560 | 35×45 | 2.08 | EKMR451VSN561MA45S |
| | 680 | 35×50 | 2.36 | EKMR451VSN681MA50S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMQ Series

- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

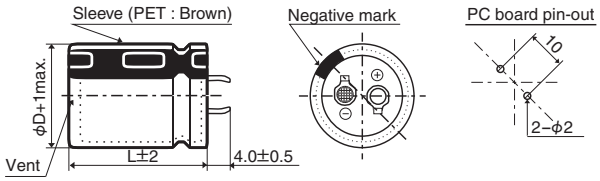
KMR
↑ Downsized
KMQ

## ◆SPECIFICATIONS

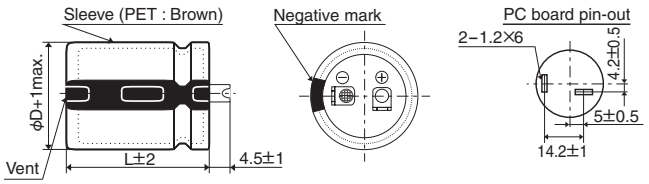
| Items | Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ (35&50Vdc), −25 to +105℃ (160 to 450Vdc) | | | | | | | | |
| **Rated Voltage Range** | 35&50Vdc, 160 to 450Vdc | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 35V | | 50V | | 160 to 250V | 315 to 400V | 420 & 450V | |
| | Nominal capacitance (μF) | 10,000>C | C≧10,000 | 10,000>C | C≧10,000 | — | — | — | |
| | tanδ (Max.) | 0.30 | 0.35 | 0.25 | 0.30 | 0.15 | 0.15 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 35&50V | 160 to 250V | 315 to 450V | | | | | |
| | Z(−25℃)/Z(+20℃) | 4 | 4 | 8 | | | | | |
| | Z(−40℃)/Z(+20℃) | 10 | — | — | | | | | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | |
| | Capacitance change | ≦±15% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

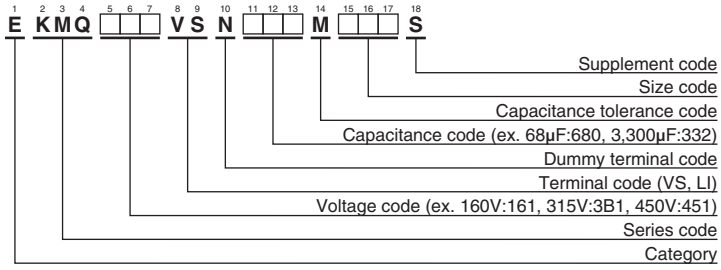



●Terminal Code : LI (φ35)




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 4,700 | 22×25 | 0.30 | 1.87 | EKMQ350VSN472MP25S |
| | 5,600 | 22×25 | 0.30 | 2.04 | EKMQ350VSN562MP25S |
| | 5,600 | 25.4×25 | 0.30 | 2.00 | EKMQ350VSN562MQ25S |
| | 6,800 | 22×30 | 0.30 | 2.36 | EKMQ350VSN682MP30S |
| | 6,800 | 25.4×25 | 0.30 | 2.21 | EKMQ350VSN682MQ25S |
| | 8,200 | 22×35 | 0.30 | 2.65 | EKMQ350VSN822MP35S |
| | 8,200 | 25.4×30 | 0.30 | 2.49 | EKMQ350VSN822MQ30S |
| | 8,200 | 30×25 | 0.30 | 2.62 | EKMQ350VSN822MR25S |
| | 10,000 | 22×40 | 0.35 | 3.00 | EKMQ350VSN103MP40S |
| | 10,000 | 25.4×35 | 0.35 | 2.88 | EKMQ350VSN103MQ35S |
| | 10,000 | 30×25 | 0.35 | 2.90 | EKMQ350VSN103MR25S |
| | 12,000 | 22×50 | 0.35 | 3.47 | EKMQ350VSN123MP50S |
| | 12,000 | 25.4×35 | 0.35 | 3.15 | EKMQ350VSN123MQ35S |
| | 12,000 | 30×30 | 0.35 | 3.25 | EKMQ350VSN123MR30S |
| | 12,000 | 35×25 | 0.35 | 3.20 | EKMQ350VSN123MA25S |
| | 15,000 | 25.4×40 | 0.35 | 3.61 | EKMQ350VSN153MQ40S |
| | 15,000 | 30×35 | 0.35 | 3.78 | EKMQ350VSN153MR35S |
| | 15,000 | 35×25 | 0.35 | 3.60 | EKMQ350VSN153MA25S |
| | 18,000 | 25.4×50 | 0.35 | 4.14 | EKMQ350VSN183MQ50S |
| | 18,000 | 30×40 | 0.35 | 4.30 | EKMQ350VSN183MR40S |
| | 18,000 | 35×30 | 0.35 | 4.10 | EKMQ350VSN183MA30S |
| | 22,000 | 30×50 | 0.35 | 5.00 | EKMQ350VSN223MR50S |
| | 22,000 | 35×35 | 0.35 | 4.64 | EKMQ350VSN223MA35S |
| | 27,000 | 35×40 | 0.35 | 5.37 | EKMQ350VSN273MA40S |
| | 33,000 | 35×50 | 0.35 | 6.00 | EKMQ350VSN333MA50S |
| 50 | 2,700 | 22×25 | 0.25 | 1.65 | EKMQ500VSN272MP25S |
| | 3,300 | 22×30 | 0.25 | 1.92 | EKMQ500VSN332MP30S |
| | 3,300 | 25.4×25 | 0.25 | 1.76 | EKMQ500VSN332MQ25S |
| | 3,900 | 22×30 | 0.25 | 2.08 | EKMQ500VSN392MP30S |
| | 3,900 | 25.4×25 | 0.25 | 2.04 | EKMQ500VSN392MQ25S |
| | 4,700 | 22×35 | 0.25 | 2.43 | EKMQ500VSN472MP35S |
| | 4,700 | 25.4×30 | 0.25 | 2.50 | EKMQ500VSN472MQ30S |
| | 4,700 | 30×25 | 0.25 | 2.29 | EKMQ500VSN472MR25S |
| | 5,600 | 22×40 | 0.25 | 2.63 | EKMQ500VSN562MP40S |
| | 5,600 | 25.4×35 | 0.25 | 2.61 | EKMQ500VSN562MQ35S |
| | 5,600 | 30×25 | 0.25 | 2.80 | EKMQ500VSN562MR25S |
| | 6,800 | 22×50 | 0.25 | 3.05 | EKMQ500VSN682MP50S |
| | 6,800 | 25.4×40 | 0.25 | 2.94 | EKMQ500VSN682MQ40S |
| | 6,800 | 30×30 | 0.25 | 3.30 | EKMQ500VSN682MR30S |
| | 6,800 | 35×25 | 0.25 | 2.77 | EKMQ500VSN682MA25S |
| | 8,200 | 25.4×45 | 0.25 | 3.60 | EKMQ500VSN822MQ45S |
| | 8,200 | 30×35 | 0.25 | 3.60 | EKMQ500VSN822MR35S |
| | 8,200 | 35×30 | 0.25 | 3.60 | EKMQ500VSN822MA30S |
| | 10,000 | 25.4×50 | 0.30 | 4.00 | EKMQ500VSN103MQ50S |
| | 10,000 | 30×40 | 0.30 | 4.00 | EKMQ500VSN103MR40S |
| | 10,000 | 35×30 | 0.30 | 4.00 | EKMQ500VSN103MA30S |
| | 12,000 | 30×50 | 0.30 | 4.29 | EKMQ500VSN123MR50S |
| | 12,000 | 35×35 | 0.30 | 4.37 | EKMQ500VSN123MA35S |
| | 15,000 | 35×40 | 0.30 | 4.50 | EKMQ500VSN153MA40S |
| | 18,000 | 35×50 | 0.30 | 5.30 | EKMQ500VSN183MA50S |
| 160 | 470 | 22×25 | 0.15 | 1.40 | EKMQ161VSN471MP25S |
| | 560 | 22×30 | 0.15 | 1.50 | EKMQ161VSN561MP30S |
| | 680 | 22×30 | 0.15 | 1.70 | EKMQ161VSN681MP30S |
| | 680 | 25.4×25 | 0.15 | 1.70 | EKMQ161VSN681MQ25S |
| | 820 | 22×35 | 0.15 | 2.00 | EKMQ161VSN821MP35S |
| | 820 | 25.4×30 | 0.15 | 2.00 | EKMQ161VSN821MQ30S |
| | 820 | 30×25 | 0.15 | 2.00 | EKMQ161VSN821MR25S |
| | 1,000 | 22×40 | 0.15 | 2.20 | EKMQ161VSN102MP40S |
| | 1,000 | 25.4×35 | 0.15 | 2.20 | EKMQ161VSN102MQ35S |
| | 1,000 | 30×25 | 0.15 | 2.20 | EKMQ161VSN102MR25S |
| | 1,200 | 25.4×40 | 0.15 | 2.30 | EKMQ161VSN122MQ40S |
| | 1,200 | 30×30 | 0.15 | 2.30 | EKMQ161VSN122MR30S |
| | 1,200 | 35×25 | 0.15 | 2.30 | EKMQ161VSN122MA25S |
| | 1,500 | 25.4×45 | 0.15 | 2.50 | EKMQ161VSN152MQ45S |
| | 1,500 | 30×35 | 0.15 | 2.50 | EKMQ161VSN152MR35S |
| | 1,500 | 35×30 | 0.15 | 2.50 | EKMQ161VSN152MA30S |
| | 1,800 | 25.4×50 | 0.15 | 2.70 | EKMQ161VSN182MQ50S |
| 160 | 1,800 | 30×40 | 0.15 | 2.70 | EKMQ161VSN182MR40S |
| | 1,800 | 35×30 | 0.15 | 2.70 | EKMQ161VSN182MA30S |
| | 2,200 | 30×45 | 0.15 | 2.90 | EKMQ161VSN222MR45S |
| | 2,200 | 35×35 | 0.15 | 2.90 | EKMQ161VSN222MA35S |
| | 2,700 | 30×50 | 0.15 | 3.10 | EKMQ161VSN272MR50S |
| | 2,700 | 35×40 | 0.15 | 3.10 | EKMQ161VSN272MA40S |
| | 3,300 | 35×50 | 0.15 | 3.30 | EKMQ161VSN332MA50S |
| 180 | 390 | 22×25 | 0.15 | 1.30 | EKMQ181VSN391MP25S |
| | 470 | 22×30 | 0.15 | 1.40 | EKMQ181VSN471MP30S |
| | 560 | 22×30 | 0.15 | 1.50 | EKMQ181VSN561MP30S |
| | 560 | 25.4×25 | 0.15 | 1.50 | EKMQ181VSN561MQ25S |
| | 680 | 22×35 | 0.15 | 1.70 | EKMQ181VSN681MP35S |
| | 680 | 25.4×30 | 0.15 | 1.70 | EKMQ181VSN681MQ30S |
| | 820 | 22×40 | 0.15 | 2.00 | EKMQ181VSN821MP40S |
| | 820 | 25.4×30 | 0.15 | 2.00 | EKMQ181VSN821MQ30S |
| | 820 | 30×25 | 0.15 | 2.00 | EKMQ181VSN821MR25S |
| | 1,000 | 22×45 | 0.15 | 2.20 | EKMQ181VSN102MP45S |
| | 1,000 | 25.4×40 | 0.15 | 2.20 | EKMQ181VSN102MQ40S |
| | 1,000 | 30×30 | 0.15 | 2.20 | EKMQ181VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.20 | EKMQ181VSN102MA25S |
| | 1,200 | 25.4×45 | 0.15 | 2.30 | EKMQ181VSN122MQ45S |
| | 1,200 | 30×35 | 0.15 | 2.30 | EKMQ181VSN122MR35S |
| | 1,200 | 35×30 | 0.15 | 2.30 | EKMQ181VSN122MA30S |
| | 1,500 | 25.4×50 | 0.15 | 2.50 | EKMQ181VSN152MQ50S |
| | 1,500 | 30×40 | 0.15 | 2.50 | EKMQ181VSN152MR40S |
| | 1,500 | 35×30 | 0.15 | 2.50 | EKMQ181VSN152MA30S |
| | 1,800 | 30×45 | 0.15 | 2.70 | EKMQ181VSN182MR45S |
| | 1,800 | 35×35 | 0.15 | 2.70 | EKMQ181VSN182MA35S |
| | 2,200 | 30×50 | 0.15 | 2.90 | EKMQ181VSN222MR50S |
| | 2,200 | 35×40 | 0.15 | 2.90 | EKMQ181VSN222MA40S |
| | 2,700 | 35×50 | 0.15 | 3.10 | EKMQ181VSN272MA50S |
| 200 | 390 | 22×25 | 0.15 | 1.31 | EKMQ201VSN391MP25S |
| | 470 | 22×30 | 0.15 | 1.45 | EKMQ201VSN471MP30S |
| | 560 | 22×30 | 0.15 | 1.67 | EKMQ201VSN561MP30S |
| | 560 | 25.4×25 | 0.15 | 1.67 | EKMQ201VSN561MQ25S |
| | 680 | 22×40 | 0.15 | 1.75 | EKMQ201VSN681MP40S |
| | 680 | 25.4×30 | 0.15 | 1.75 | EKMQ201VSN681MQ30S |
| | 820 | 22×45 | 0.15 | 2.04 | EKMQ201VSN821MP45S |
| | 820 | 25.4×35 | 0.15 | 2.04 | EKMQ201VSN821MQ35S |
| | 820 | 30×25 | 0.15 | 2.04 | EKMQ201VSN821MR25S |
| | 1,000 | 22×50 | 0.15 | 2.30 | EKMQ201VSN102MP50S |
| | 1,000 | 25.4×45 | 0.15 | 2.30 | EKMQ201VSN102MQ45S |
| | 1,000 | 30×30 | 0.15 | 2.30 | EKMQ201VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.30 | EKMQ201VSN102MA25S |
| | 1,200 | 25.4×50 | 0.15 | 2.65 | EKMQ201VSN122MQ50S |
| | 1,200 | 30×35 | 0.15 | 2.65 | EKMQ201VSN122MR35S |
| | 1,200 | 35×30 | 0.15 | 2.65 | EKMQ201VSN122MA30S |
| | 1,500 | 30×40 | 0.15 | 2.80 | EKMQ201VSN152MR40S |
| | 1,500 | 35×30 | 0.15 | 2.80 | EKMQ201VSN152MA30S |
| | 1,800 | 30×45 | 0.15 | 3.08 | EKMQ201VSN182MR45S |
| | 1,800 | 35×40 | 0.15 | 3.08 | EKMQ201VSN182MA40S |
| | 2,200 | 35×45 | 0.15 | 3.48 | EKMQ201VSN222MA45S |
| 250 | 220 | 22×25 | 0.15 | 1.00 | EKMQ251VSN221MP25S |
| | 270 | 22×25 | 0.15 | 1.10 | EKMQ251VSN271MP25S |
| | 330 | 22×30 | 0.15 | 1.20 | EKMQ251VSN331MP30S |
| | 330 | 25.4×25 | 0.15 | 1.20 | EKMQ251VSN331MQ25S |
| | 390 | 22×35 | 0.15 | 1.30 | EKMQ251VSN391MP35S |
| | 390 | 25.4×25 | 0.15 | 1.30 | EKMQ251VSN391MQ25S |
| | 470 | 22×40 | 0.15 | 1.40 | EKMQ251VSN471MP40S |
| | 470 | 25.4×30 | 0.15 | 1.40 | EKMQ251VSN471MQ30S |
| | 470 | 30×25 | 0.15 | 1.40 | EKMQ251VSN471MR25S |
| | 560 | 22×45 | 0.15 | 1.50 | EKMQ251VSN561MP45S |
| | 560 | 25.4×35 | 0.15 | 1.50 | EKMQ251VSN561MQ35S |
| | 560 | 30×25 | 0.15 | 1.50 | EKMQ251VSN561MR25S |
| | 680 | 22×50 | 0.15 | 1.70 | EKMQ251VSN681MP50S |
| | 680 | 25.4×40 | 0.15 | 1.70 | EKMQ251VSN681MQ40S |
| | 680 | 30×30 | 0.15 | 1.70 | EKMQ251VSN681MR30S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 250 | 680 | 35×25 | 0.15 | 1.70 | EKMQ251VSN681MA25S |
| | 820 | 25.4×45 | 0.15 | 2.00 | EKMQ251VSN821MQ45S |
| | 820 | 30×35 | 0.15 | 2.00 | EKMQ251VSN821MR35S |
| | 820 | 35×30 | 0.15 | 2.00 | EKMQ251VSN821MA30S |
| | 1,000 | 30×40 | 0.15 | 2.20 | EKMQ251VSN102MR40S |
| | 1,000 | 35×30 | 0.15 | 2.20 | EKMQ251VSN102MA30S |
| | 1,200 | 30×45 | 0.15 | 2.30 | EKMQ251VSN122MR45S |
| | 1,200 | 35×35 | 0.15 | 2.30 | EKMQ251VSN122MA35S |
| | 1,500 | 35×45 | 0.15 | 2.50 | EKMQ251VSN152MA45S |
| | 1,800 | 35×50 | 0.15 | 2.70 | EKMQ251VSN182MA50S |
| 315 | 150 | 22×25 | 0.15 | 0.82 | EKMQ3B1VSN151MP25S |
| | 180 | 22×30 | 0.15 | 0.90 | EKMQ3B1VSN181MP30S |
| | 220 | 22×30 | 0.15 | 1.00 | EKMQ3B1VSN221MP30S |
| | 220 | 25.4×25 | 0.15 | 1.00 | EKMQ3B1VSN221MQ25S |
| | 270 | 22×35 | 0.15 | 1.10 | EKMQ3B1VSN271MP35S |
| | 270 | 25.4×30 | 0.15 | 1.10 | EKMQ3B1VSN271MQ30S |
| | 330 | 22×45 | 0.15 | 1.20 | EKMQ3B1VSN331MP45S |
| | 330 | 25.4×35 | 0.15 | 1.20 | EKMQ3B1VSN331MQ35S |
| | 330 | 30×25 | 0.15 | 1.20 | EKMQ3B1VSN331MR25S |
| | 390 | 22×45 | 0.15 | 1.30 | EKMQ3B1VSN391MP45S |
| | 390 | 25.4×40 | 0.15 | 1.30 | EKMQ3B1VSN391MQ40S |
| | 390 | 30×30 | 0.15 | 1.30 | EKMQ3B1VSN391MR30S |
| | 390 | 35×25 | 0.15 | 1.30 | EKMQ3B1VSN391MA25S |
| | 470 | 25.4×45 | 0.15 | 1.40 | EKMQ3B1VSN471MQ45S |
| | 470 | 30×35 | 0.15 | 1.40 | EKMQ3B1VSN471MR35S |
| | 470 | 35×25 | 0.15 | 1.40 | EKMQ3B1VSN471MA25S |
| | 560 | 25.4×50 | 0.15 | 1.50 | EKMQ3B1VSN561MQ50S |
| | 560 | 30×40 | 0.15 | 1.50 | EKMQ3B1VSN561MR40S |
| | 560 | 35×30 | 0.15 | 1.50 | EKMQ3B1VSN561MA30S |
| | 680 | 30×45 | 0.15 | 1.70 | EKMQ3B1VSN681MR45S |
| | 680 | 35×35 | 0.15 | 1.70 | EKMQ3B1VSN681MA35S |
| | 820 | 30×50 | 0.15 | 2.00 | EKMQ3B1VSN821MR50S |
| | 820 | 35×40 | 0.15 | 2.00 | EKMQ3B1VSN821MA40S |
| | 1,000 | 35×45 | 0.15 | 2.30 | EKMQ3B1VSN102MA45S |
| 350 | 120 | 22×25 | 0.15 | 0.75 | EKMQ351VSN121MP25S |
| | 150 | 22×30 | 0.15 | 0.82 | EKMQ351VSN151MP30S |
| | 180 | 22×30 | 0.15 | 0.90 | EKMQ351VSN181MP30S |
| | 180 | 25.4×25 | 0.15 | 0.90 | EKMQ351VSN181MQ25S |
| | 220 | 22×35 | 0.15 | 1.00 | EKMQ351VSN221MP35S |
| | 220 | 25.4×30 | 0.15 | 1.00 | EKMQ351VSN221MQ30S |
| | 270 | 22×40 | 0.15 | 1.10 | EKMQ351VSN271MP40S |
| | 270 | 25.4×30 | 0.15 | 1.10 | EKMQ351VSN271MQ30S |
| | 270 | 30×25 | 0.15 | 1.10 | EKMQ351VSN271MR25S |
| | 330 | 22×45 | 0.15 | 1.20 | EKMQ351VSN331MP45S |
| | 330 | 25.4×40 | 0.15 | 1.20 | EKMQ351VSN331MQ40S |
| | 330 | 30×30 | 0.15 | 1.20 | EKMQ351VSN331MR30S |
| | 390 | 25.4×45 | 0.15 | 1.30 | EKMQ351VSN391MQ45S |
| | 390 | 30×35 | 0.15 | 1.30 | EKMQ351VSN391MR35S |
| | 470 | 25.4×50 | 0.15 | 1.40 | EKMQ351VSN471MQ50S |
| | 470 | 30×35 | 0.15 | 1.40 | EKMQ351VSN471MR35S |
| | 470 | 35×30 | 0.15 | 1.40 | EKMQ351VSN471MA30S |
| | 560 | 30×45 | 0.15 | 1.50 | EKMQ351VSN561MR45S |
| | 560 | 35×35 | 0.15 | 1.50 | EKMQ351VSN561MA35S |
| | 680 | 30×50 | 0.15 | 1.70 | EKMQ351VSN681MR50S |
| | 680 | 35×40 | 0.15 | 1.70 | EKMQ351VSN681MA40S |
| | 820 | 35×45 | 0.15 | 1.90 | EKMQ351VSN821MA45S |
| 400 | 100 | 22×25 | 0.15 | 0.70 | EKMQ401VSN101MP25S |
| | 120 | 22×30 | 0.15 | 0.75 | EKMQ401VSN121MP30S |
| | 150 | 22×30 | 0.15 | 0.88 | EKMQ401VSN151MP30S |
| | 150 | 25.4×25 | 0.15 | 0.88 | EKMQ401VSN151MQ25S |
| | 180 | 22×35 | 0.15 | 0.95 | EKMQ401VSN181MP35S |
| | 180 | 25.4×30 | 0.15 | 0.95 | EKMQ401VSN181MQ30S |
| | 220 | 22×45 | 0.15 | 1.10 | EKMQ401VSN221MP45S |
| | 220 | 25.4×35 | 0.15 | 1.10 | EKMQ401VSN221MQ35S |
| | 220 | 30×25 | 0.15 | 1.10 | EKMQ401VSN221MR25S |
| | 270 | 22×50 | 0.15 | 1.22 | EKMQ401VSN271MP50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 270 | 25.4×40 | 0.15 | 1.22 | EKMQ401VSN271MQ40S |
| | 270 | 30×30 | 0.15 | 1.22 | EKMQ401VSN271MR30S |
| | 270 | 35×25 | 0.15 | 1.22 | EKMQ401VSN271MA25S |
| | 330 | 25.4×45 | 0.15 | 1.44 | EKMQ401VSN331MQ45S |
| | 330 | 30×35 | 0.15 | 1.44 | EKMQ401VSN331MR35S |
| | 330 | 35×30 | 0.15 | 1.44 | EKMQ401VSN331MA30S |
| | 390 | 25.4×50 | 0.15 | 1.55 | EKMQ401VSN391MQ50S |
| | 390 | 30×40 | 0.15 | 1.55 | EKMQ401VSN391MR40S |
| | 390 | 35×30 | 0.15 | 1.55 | EKMQ401VSN391MA30S |
| | 470 | 30×45 | 0.15 | 1.68 | EKMQ401VSN471MR45S |
| | 470 | 35×35 | 0.15 | 1.68 | EKMQ401VSN471MA35S |
| | 560 | 30×50 | 0.15 | 1.90 | EKMQ401VSN561MR50S |
| | 560 | 35×40 | 0.15 | 1.90 | EKMQ401VSN561MA40S |
| | 680 | 35×45 | 0.15 | 2.12 | EKMQ401VSN681MA45S |
| 420 | 82 | 22×25 | 0.20 | 0.64 | EKMQ421VSN820MP25S |
| | 100 | 22×25 | 0.20 | 0.66 | EKMQ421VSN101MP25S |
| | 100 | 25.4×25 | 0.20 | 0.66 | EKMQ421VSN101MQ25S |
| | 120 | 22×30 | 0.20 | 0.81 | EKMQ421VSN121MP30S |
| | 120 | 25.4×25 | 0.20 | 0.81 | EKMQ421VSN121MQ25S |
| | 150 | 22×35 | 0.20 | 0.84 | EKMQ421VSN151MP35S |
| | 150 | 25.4×30 | 0.20 | 0.84 | EKMQ421VSN151MQ30S |
| | 150 | 30×25 | 0.20 | 0.84 | EKMQ421VSN151MR25S |
| | 180 | 22×40 | 0.20 | 0.91 | EKMQ421VSN181MP40S |
| | 180 | 25.4×30 | 0.20 | 0.91 | EKMQ421VSN181MQ30S |
| | 180 | 30×25 | 0.20 | 0.91 | EKMQ421VSN181MR25S |
| | 220 | 22×45 | 0.20 | 1.05 | EKMQ421VSN221MP45S |
| | 220 | 25.4×35 | 0.20 | 1.05 | EKMQ421VSN221MQ35S |
| | 220 | 30×30 | 0.20 | 1.05 | EKMQ421VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.05 | EKMQ421VSN221MA25S |
| | 270 | 25.4×40 | 0.20 | 1.25 | EKMQ421VSN271MQ40S |
| | 270 | 30×30 | 0.20 | 1.25 | EKMQ421VSN271MR30S |
| | 270 | 35×25 | 0.20 | 1.25 | EKMQ421VSN271MA25S |
| | 330 | 25.4×50 | 0.20 | 1.42 | EKMQ421VSN331MQ50S |
| | 330 | 30×35 | 0.20 | 1.42 | EKMQ421VSN331MR35S |
| | 330 | 35×30 | 0.20 | 1.42 | EKMQ421VSN331MA30S |
| | 390 | 30×40 | 0.20 | 1.61 | EKMQ421VSN391MR40S |
| | 390 | 35×35 | 0.20 | 1.61 | EKMQ421VSN391MA35S |
| | 470 | 30×45 | 0.20 | 1.86 | EKMQ421VSN471MR45S |
| | 470 | 35×40 | 0.20 | 1.86 | EKMQ421VSN471MA40S |
| | 560 | 35×45 | 0.20 | 2.10 | EKMQ421VSN561MA45S |
| | 680 | 35×50 | 0.20 | 2.20 | EKMQ421VSN681MA50S |
| 450 | 68 | 22×25 | 0.20 | 0.50 | EKMQ451VSN680MP25S |
| | 82 | 22×30 | 0.20 | 0.56 | EKMQ451VSN820MP30S |
| | 100 | 22×30 | 0.20 | 0.64 | EKMQ451VSN101MP30S |
| | 100 | 25.4×25 | 0.20 | 0.64 | EKMQ451VSN101MQ25S |
| | 120 | 22×35 | 0.20 | 0.72 | EKMQ451VSN121MP35S |
| | 120 | 25.4×30 | 0.20 | 0.72 | EKMQ451VSN121MQ30S |
| | 150 | 22×40 | 0.20 | 0.79 | EKMQ451VSN151MP40S |
| | 150 | 25.4×30 | 0.20 | 0.79 | EKMQ451VSN151MQ30S |
| | 150 | 30×25 | 0.20 | 0.79 | EKMQ451VSN151MR25S |
| | 180 | 22×45 | 0.20 | 0.87 | EKMQ451VSN181MP45S |
| | 180 | 25.4×40 | 0.20 | 0.87 | EKMQ451VSN181MQ40S |
| | 180 | 30×30 | 0.20 | 0.87 | EKMQ451VSN181MR30S |
| | 220 | 25.4×45 | 0.20 | 1.00 | EKMQ451VSN221MQ45S |
| | 220 | 30×30 | 0.20 | 1.00 | EKMQ451VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.00 | EKMQ451VSN221MA25S |
| | 270 | 25.4×50 | 0.20 | 1.19 | EKMQ451VSN271MQ50S |
| | 270 | 30×40 | 0.20 | 1.19 | EKMQ451VSN271MR40S |
| | 270 | 35×30 | 0.20 | 1.19 | EKMQ451VSN271MA30S |
| | 330 | 30×45 | 0.20 | 1.38 | EKMQ451VSN331MR45S |
| | 330 | 35×35 | 0.20 | 1.38 | EKMQ451VSN331MA35S |
| | 390 | 30×50 | 0.20 | 1.55 | EKMQ451VSN391MR50S |
| | 390 | 35×40 | 0.20 | 1.55 | EKMQ451VSN391MA40S |
| | 470 | 35×45 | 0.20 | 1.74 | EKMQ451VSN471MA45S |
| | 560 | 35×50 | 0.20 | 1.90 | EKMQ451VSN561MA50S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMQ Series

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 35, 50Vdc | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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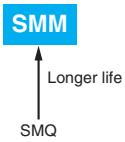
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

# SMM Series

- Longer life from SMQ series
- Endurance with ripple current : 3,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

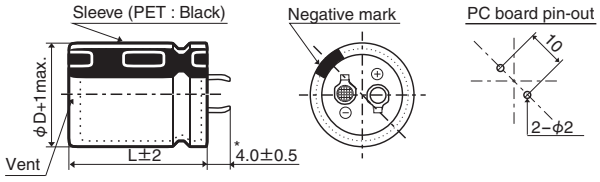


## ◆SPECIFICATIONS

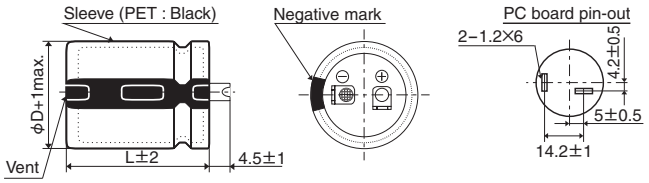
| Items | Characteristics | | | |
|---|---|---|---|---|
| Category Temperature Range | −25 to +85℃ | | | |
| Rated Voltage Range | 160 to 450Vdc | | | |
| Capacitance Tolerance | ±20% (M) | | | (at 20℃, 120Hz) |
| Leakage Current | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | Z(−25℃)/Z(+20℃) | 4 | 8 | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 85℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15% of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ20 to φ35) : Standard



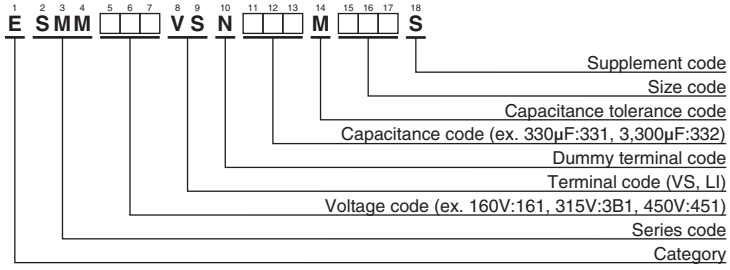

●Terminal Code : LI (φ35)




*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

## SMM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 270 | 20×25 | 0.15 | 1.28 | ESMM161VSN271MN25S |
| | 270 | 22×20 | 0.15 | 1.30 | ESMM161VSN271MP20S |
| | 330 | 20×25 | 0.15 | 1.55 | ESMM161VSN331MN25S |
| | 390 | 20×30 | 0.15 | 1.63 | ESMM161VSN391MN30S |
| | 390 | 22×25 | 0.15 | 1.63 | ESMM161VSN391MP25S |
| | 390 | 25.4×20 | 0.15 | 1.62 | ESMM161VSN391MQ20S |
| | 470 | 20×30 | 0.15 | 1.90 | ESMM161VSN471MN30S |
| | 470 | 22×30 | 0.15 | 1.86 | ESMM161VSN471MP30S |
| | 470 | 25.4×25 | 0.15 | 1.86 | ESMM161VSN471MQ25S |
| | 560 | 20×35 | 0.15 | 2.14 | ESMM161VSN561MN35S |
| | 560 | 22×30 | 0.15 | 2.15 | ESMM161VSN561MP30S |
| | 560 | 25.4×25 | 0.15 | 2.15 | ESMM161VSN561MQ25S |
| | 560 | 30×20 | 0.15 | 2.05 | ESMM161VSN561MR20S |
| | 680 | 20×40 | 0.15 | 2.35 | ESMM161VSN681MN40S |
| | 680 | 22×35 | 0.15 | 2.35 | ESMM161VSN681MP35S |
| | 680 | 25.4×30 | 0.15 | 2.33 | ESMM161VSN681MQ30S |
| | 680 | 30×25 | 0.15 | 2.33 | ESMM161VSN681MR25S |
| | 680 | 35×20 | 0.15 | 2.26 | ESMM161VSN681MA20S |
| | 820 | 20×45 | 0.15 | 2.64 | ESMM161VSN821MN45S |
| | 820 | 22×40 | 0.15 | 2.68 | ESMM161VSN821MP40S |
| | 820 | 25.4×30 | 0.15 | 2.65 | ESMM161VSN821MQ30S |
| | 820 | 30×25 | 0.15 | 2.64 | ESMM161VSN821MR25S |
| | 820 | 35×20 | 0.15 | 2.49 | ESMM161VSN821MA20S |
| | 1,000 | 22×45 | 0.15 | 3.02 | ESMM161VSN102MP45S |
| | 1,000 | 25.4×35 | 0.15 | 3.00 | ESMM161VSN102MQ35S |
| | 1,000 | 30×30 | 0.15 | 2.96 | ESMM161VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 3.13 | ESMM161VSN102MA25S |
| | 1,200 | 22×50 | 0.15 | 3.47 | ESMM161VSN122MP50S |
| | 1,200 | 25.4×40 | 0.15 | 3.43 | ESMM161VSN122MQ40S |
| | 1,200 | 30×30 | 0.15 | 3.41 | ESMM161VSN122MR30S |
| | 1,200 | 35×25 | 0.15 | 3.40 | ESMM161VSN122MA25S |
| | 1,500 | 25.4×50 | 0.15 | 3.96 | ESMM161VSN152MQ50S |
| | 1,500 | 30×35 | 0.15 | 3.96 | ESMM161VSN152MR35S |
| | 1,500 | 35×30 | 0.15 | 3.94 | ESMM161VSN152MA30S |
| | 1,800 | 30×40 | 0.15 | 4.31 | ESMM161VSN182MR40S |
| | 1,800 | 35×35 | 0.15 | 4.28 | ESMM161VSN182MA35S |
| | 2,200 | 30×50 | 0.15 | 4.96 | ESMM161VSN222MR50S |
| | 2,200 | 35×40 | 0.15 | 4.96 | ESMM161VSN222MA40S |
| | 2,700 | 35×45 | 0.15 | 5.57 | ESMM161VSN272MA45S |
| | 3,300 | 35×50 | 0.15 | 6.21 | ESMM161VSN332MA50S |
| 180 | 220 | 22×20 | 0.15 | 1.18 | ESMM181VSN221MP20S |
| | 270 | 20×25 | 0.15 | 1.29 | ESMM181VSN271MN25S |
| | 330 | 20×30 | 0.15 | 1.77 | ESMM181VSN331MN30S |
| | 330 | 22×25 | 0.15 | 1.77 | ESMM181VSN331MP25S |
| | 330 | 25.4×20 | 0.15 | 1.49 | ESMM181VSN331MQ20S |
| | 390 | 20×30 | 0.15 | 1.84 | ESMM181VSN391MN30S |
| | 390 | 22×25 | 0.15 | 1.84 | ESMM181VSN391MP25S |
| | 470 | 20×35 | 0.15 | 1.91 | ESMM181VSN471MN35S |
| | 470 | 22×30 | 0.15 | 1.91 | ESMM181VSN471MP30S |
| | 470 | 25.4×25 | 0.15 | 2.08 | ESMM181VSN471MQ25S |
| | 470 | 30×20 | 0.15 | 1.88 | ESMM181VSN471MR20S |
| | 560 | 20×40 | 0.15 | 2.15 | ESMM181VSN561MN40S |
| | 560 | 22×35 | 0.15 | 2.25 | ESMM181VSN561MP35S |
| | 560 | 25.4×25 | 0.15 | 2.25 | ESMM181VSN561MQ25S |
| | 680 | 20×45 | 0.15 | 2.41 | ESMM181VSN681MN45S |
| | 680 | 22×35 | 0.15 | 2.48 | ESMM181VSN681MP35S |
| | 680 | 25.4×30 | 0.15 | 2.50 | ESMM181VSN681MQ30S |
| | 680 | 30×25 | 0.15 | 2.46 | ESMM181VSN681MR25S |
| | 680 | 35×20 | 0.15 | 2.26 | ESMM181VSN681MA20S |
| | 820 | 20×50 | 0.15 | 2.72 | ESMM181VSN821MN50S |
| | 820 | 22×40 | 0.15 | 2.86 | ESMM181VSN821MP40S |
| | 820 | 25.4×35 | 0.15 | 2.75 | ESMM181VSN821MQ35S |
| | 820 | 30×25 | 0.15 | 2.69 | ESMM181VSN821MR25S |
| | 1,000 | 22×50 | 0.15 | 3.10 | ESMM181VSN102MP50S |
| | 1,000 | 25.4×40 | 0.15 | 3.06 | ESMM181VSN102MQ40S |
| | 1,000 | 30×30 | 0.15 | 3.10 | ESMM181VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.98 | ESMM181VSN102MA25S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 180 | 1,200 | 25.4×45 | 0.15 | 3.63 | ESMM181VSN122MQ45S |
| | 1,200 | 30×35 | 0.15 | 3.55 | ESMM181VSN122MR35S |
| | 1,200 | 35×30 | 0.15 | 3.49 | ESMM181VSN122MA30S |
| | 1,500 | 30×40 | 0.15 | 4.10 | ESMM181VSN152MR40S |
| | 1,500 | 35×35 | 0.15 | 4.02 | ESMM181VSN152MA35S |
| | 1,800 | 30×45 | 0.15 | 4.55 | ESMM181VSN182MR45S |
| | 1,800 | 35×35 | 0.15 | 4.54 | ESMM181VSN182MA35S |
| | 2,200 | 35×40 | 0.15 | 4.83 | ESMM181VSN222MA40S |
| | 2,700 | 35×50 | 0.15 | 5.30 | ESMM181VSN272MA50S |
| 200 | 220 | 20×25 | 0.15 | 1.19 | ESMM201VSN221MN25S |
| | 220 | 22×20 | 0.15 | 1.18 | ESMM201VSN221MP20S |
| | 270 | 20×25 | 0.15 | 1.39 | ESMM201VSN271MN25S |
| | 270 | 22×25 | 0.15 | 1.37 | ESMM201VSN271MP25S |
| | 270 | 25.4×20 | 0.15 | 1.35 | ESMM201VSN271MQ20S |
| | 330 | 20×30 | 0.15 | 1.56 | ESMM201VSN331MN30S |
| | 330 | 22×25 | 0.15 | 1.51 | ESMM201VSN331MP25S |
| | 330 | 25.4×20 | 0.15 | 1.49 | ESMM201VSN331MQ20S |
| | 390 | 20×35 | 0.15 | 1.74 | ESMM201VSN391MN35S |
| | 390 | 22×30 | 0.15 | 1.73 | ESMM201VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.71 | ESMM201VSN391MQ25S |
| | 390 | 30×20 | 0.15 | 1.71 | ESMM201VSN391MR20S |
| | 470 | 20×35 | 0.15 | 2.03 | ESMM201VSN471MN35S |
| | 470 | 22×30 | 0.15 | 1.97 | ESMM201VSN471MP30S |
| | 470 | 25.4×25 | 0.15 | 1.95 | ESMM201VSN471MQ25S |
| | 470 | 30×20 | 0.15 | 1.88 | ESMM201VSN471MR20S |
| | 560 | 20×40 | 0.15 | 2.18 | ESMM201VSN561MN40S |
| | 560 | 22×35 | 0.15 | 2.18 | ESMM201VSN561MP35S |
| | 560 | 25.4×30 | 0.15 | 2.15 | ESMM201VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 2.15 | ESMM201VSN561MR25S |
| | 560 | 35×20 | 0.15 | 2.05 | ESMM201VSN561MA20S |
| | 680 | 20×50 | 0.15 | 2.48 | ESMM201VSN681MN50S |
| | 680 | 22×40 | 0.15 | 2.48 | ESMM201VSN681MP40S |
| | 680 | 25.4×30 | 0.15 | 2.48 | ESMM201VSN681MQ30S |
| | 680 | 30×25 | 0.15 | 2.48 | ESMM201VSN681MR25S |
| | 680 | 35×20 | 0.15 | 2.36 | ESMM201VSN681MA20S |
| | 820 | 22×45 | 0.15 | 2.81 | ESMM201VSN821MP45S |
| | 820 | 25.4×35 | 0.15 | 2.79 | ESMM201VSN821MQ35S |
| | 820 | 30×30 | 0.15 | 2.80 | ESMM201VSN821MR30S |
| | 820 | 35×25 | 0.15 | 2.83 | ESMM201VSN821MA25S |
| | 1,000 | 22×50 | 0.15 | 3.28 | ESMM201VSN102MP50S |
| | 1,000 | 25.4×40 | 0.15 | 3.28 | ESMM201VSN102MQ40S |
| | 1,000 | 30×35 | 0.15 | 3.15 | ESMM201VSN102MR35S |
| | 1,000 | 35×30 | 0.15 | 3.26 | ESMM201VSN102MA30S |
| | 1,200 | 25.4×45 | 0.15 | 3.61 | ESMM201VSN122MQ45S |
| | 1,200 | 30×35 | 0.15 | 3.61 | ESMM201VSN122MR35S |
| | 1,200 | 35×30 | 0.15 | 3.57 | ESMM201VSN122MA30S |
| | 1,500 | 30×45 | 0.15 | 4.13 | ESMM201VSN152MR45S |
| | 1,500 | 35×35 | 0.15 | 4.06 | ESMM201VSN152MA35S |
| | 1,800 | 30×50 | 0.15 | 4.60 | ESMM201VSN182MR50S |
| | 1,800 | 35×40 | 0.15 | 4.59 | ESMM201VSN182MA40S |
| | 2,200 | 35×45 | 0.15 | 5.25 | ESMM201VSN222MA45S |
| 220 | 180 | 22×20 | 0.15 | 1.06 | ESMM221VSN181MP20S |
| | 220 | 20×25 | 0.15 | 1.25 | ESMM221VSN221MN25S |
| | 270 | 20×30 | 0.15 | 1.46 | ESMM221VSN271MN30S |
| | 270 | 22×25 | 0.15 | 1.47 | ESMM221VSN271MP25S |
| | 270 | 25.4×20 | 0.15 | 1.35 | ESMM221VSN271MQ20S |
| | 330 | 20×35 | 0.15 | 1.64 | ESMM221VSN331MN35S |
| | 330 | 22×30 | 0.15 | 1.70 | ESMM221VSN331MP30S |
| | 330 | 25.4×25 | 0.15 | 1.69 | ESMM221VSN331MQ25S |
| | 330 | 30×20 | 0.15 | 1.58 | ESMM221VSN331MR20S |
| | 390 | 20×35 | 0.15 | 1.84 | ESMM221VSN391MN35S |
| | 390 | 22×30 | 0.15 | 1.89 | ESMM221VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.84 | ESMM221VSN391MQ25S |
| | 390 | 30×20 | 0.15 | 1.71 | ESMM221VSN391MR20S |
| | 470 | 20×40 | 0.15 | 2.12 | ESMM221VSN471MN40S |
| | 470 | 22×35 | 0.15 | 2.08 | ESMM221VSN471MP35S |
| | 470 | 25.4×30 | 0.15 | 2.08 | ESMM221VSN471MQ30S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

## SMM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 220 | 470 | 30×25 | 0.15 | 2.12 | ESMM221VSN471MR25S |
| | 470 | 35×20 | 0.15 | 1.88 | ESMM221VSN471MA20S |
| | 560 | 20×50 | 0.15 | 2.33 | ESMM221VSN561MN50S |
| | 560 | 22×40 | 0.15 | 2.33 | ESMM221VSN561MP40S |
| | 560 | 25.4×35 | 0.15 | 2.38 | ESMM221VSN561MQ35S |
| | 560 | 30×25 | 0.15 | 2.31 | ESMM221VSN561MR25S |
| | 560 | 35×20 | 0.15 | 2.14 | ESMM221VSN561MA20S |
| | 680 | 22×45 | 0.15 | 2.63 | ESMM221VSN681MP45S |
| | 680 | 25.4×35 | 0.15 | 2.68 | ESMM221VSN681MQ35S |
| | 680 | 30×30 | 0.15 | 2.62 | ESMM221VSN681MR30S |
| | 680 | 35×25 | 0.15 | 2.58 | ESMM221VSN681MA25S |
| | 820 | 25.4×45 | 0.15 | 3.01 | ESMM221VSN821MQ45S |
| | 820 | 30×35 | 0.15 | 2.99 | ESMM221VSN821MR35S |
| | 820 | 35×30 | 0.15 | 2.79 | ESMM221VSN821MA30S |
| | 1,000 | 25.4×50 | 0.15 | 3.40 | ESMM221VSN102MQ50S |
| | 1,000 | 30×35 | 0.15 | 3.42 | ESMM221VSN102MR35S |
| | 1,000 | 35×30 | 0.15 | 3.29 | ESMM221VSN102MA30S |
| | 1,200 | 30×40 | 0.15 | 3.88 | ESMM221VSN122MR40S |
| | 1,200 | 35×35 | 0.15 | 3.68 | ESMM221VSN122MA35S |
| | 1,500 | 30×50 | 0.15 | 4.44 | ESMM221VSN152MR50S |
| | 1,500 | 35×40 | 0.15 | 4.10 | ESMM221VSN152MA40S |
| | 1,800 | 35×45 | 0.15 | 4.52 | ESMM221VSN182MA45S |
| 250 | 150 | 22×20 | 0.15 | 0.97 | ESMM251VSN151MP20S |
| | 180 | 20×25 | 0.15 | 1.20 | ESMM251VSN181MN25S |
| | 180 | 22×20 | 0.15 | 1.06 | ESMM251VSN181MP20S |
| | 220 | 20×25 | 0.15 | 1.26 | ESMM251VSN221MN25S |
| | 220 | 22×25 | 0.15 | 1.24 | ESMM251VSN221MP25S |
| | 220 | 25.4×20 | 0.15 | 1.22 | ESMM251VSN221MQ20S |
| | 270 | 20×30 | 0.15 | 1.42 | ESMM251VSN271MN30S |
| | 270 | 22×25 | 0.15 | 1.50 | ESMM251VSN271MP25S |
| | 330 | 20×35 | 0.15 | 1.68 | ESMM251VSN331MN35S |
| | 330 | 22×30 | 0.15 | 1.66 | ESMM251VSN331MP30S |
| | 330 | 25.4×25 | 0.15 | 1.61 | ESMM251VSN331MQ25S |
| | 330 | 30×20 | 0.15 | 1.58 | ESMM251VSN331MR20S |
| | 390 | 20×40 | 0.15 | 1.92 | ESMM251VSN391MN40S |
| | 390 | 22×35 | 0.15 | 1.88 | ESMM251VSN391MP35S |
| | 390 | 25.4×30 | 0.15 | 1.88 | ESMM251VSN391MQ30S |
| | 390 | 30×25 | 0.15 | 1.86 | ESMM251VSN391MR25S |
| | 390 | 35×20 | 0.15 | 1.71 | ESMM251VSN391MA20S |
| | 470 | 20×50 | 0.15 | 2.06 | ESMM251VSN471MN50S |
| | 470 | 22×35 | 0.15 | 2.15 | ESMM251VSN471MP35S |
| | 470 | 25.4×35 | 0.15 | 2.15 | ESMM251VSN471MQ35S |
| | 470 | 30×25 | 0.15 | 2.05 | ESMM251VSN471MR25S |
| | 470 | 35×20 | 0.15 | 1.88 | ESMM251VSN471MA20S |
| | 560 | 22×40 | 0.15 | 2.48 | ESMM251VSN561MP40S |
| | 560 | 25.4×35 | 0.15 | 2.35 | ESMM251VSN561MQ35S |
| | 560 | 30×25 | 0.15 | 2.35 | ESMM251VSN561MR25S |
| | 680 | 22×50 | 0.15 | 2.61 | ESMM251VSN681MP50S |
| | 680 | 25.4×40 | 0.15 | 2.67 | ESMM251VSN681MQ40S |
| | 680 | 30×30 | 0.15 | 2.71 | ESMM251VSN681MR30S |
| | 680 | 35×25 | 0.15 | 2.58 | ESMM251VSN681MA25S |
| | 820 | 25.4×45 | 0.15 | 3.01 | ESMM251VSN821MQ45S |
| | 820 | 30×35 | 0.15 | 2.98 | ESMM251VSN821MR35S |
| | 820 | 35×30 | 0.15 | 2.96 | ESMM251VSN821MA30S |
| | 1,000 | 30×40 | 0.15 | 3.56 | ESMM251VSN102MR40S |
| | 1,000 | 35×35 | 0.15 | 3.48 | ESMM251VSN102MA35S |
| | 1,200 | 30×45 | 0.15 | 3.99 | ESMM251VSN122MR45S |
| | 1,200 | 35×35 | 0.15 | 3.84 | ESMM251VSN122MA35S |
| | 1,500 | 35×40 | 0.15 | 4.33 | ESMM251VSN152MA40S |
| | 1,800 | 35×50 | 0.15 | 4.54 | ESMM251VSN182MA50S |
| 315 | 100 | 22×20 | 0.15 | 0.79 | ESMM3B1VSN101MP20S |
| | 120 | 20×25 | 0.15 | 0.89 | ESMM3B1VSN121MN25S |
| | 120 | 25.4×20 | 0.15 | 0.90 | ESMM3B1VSN121MQ20S |
| | 150 | 20×30 | 0.15 | 1.05 | ESMM3B1VSN151MN30S |
| | 150 | 22×25 | 0.15 | 1.06 | ESMM3B1VSN151MP25S |
| | 150 | 25.4×20 | 0.15 | 1.00 | ESMM3B1VSN151MQ20S |
| | 180 | 20×35 | 0.15 | 1.18 | ESMM3B1VSN181MN35S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 315 | 180 | 22×30 | 0.15 | 1.29 | ESMM3B1VSN181MP30S |
| | 180 | 25.4×25 | 0.15 | 1.38 | ESMM3B1VSN181MQ25S |
| | 180 | 30×20 | 0.15 | 1.16 | ESMM3B1VSN181MR20S |
| | 220 | 20×35 | 0.15 | 1.30 | ESMM3B1VSN221MN35S |
| | 220 | 22×30 | 0.15 | 1.41 | ESMM3B1VSN221MP30S |
| | 220 | 25.4×25 | 0.15 | 1.47 | ESMM3B1VSN221MQ25S |
| | 220 | 30×20 | 0.15 | 1.28 | ESMM3B1VSN221MR20S |
| | 270 | 20×45 | 0.15 | 1.52 | ESMM3B1VSN271MN45S |
| | 270 | 22×35 | 0.15 | 1.68 | ESMM3B1VSN271MP35S |
| | 270 | 25.4×30 | 0.15 | 1.70 | ESMM3B1VSN271MQ30S |
| | 270 | 30×25 | 0.15 | 1.55 | ESMM3B1VSN271MR25S |
| | 270 | 35×20 | 0.15 | 1.43 | ESMM3B1VSN271MA20S |
| | 330 | 20×50 | 0.15 | 1.73 | ESMM3B1VSN331MN50S |
| | 330 | 22×40 | 0.15 | 1.91 | ESMM3B1VSN331MP40S |
| | 330 | 25.4×35 | 0.15 | 1.94 | ESMM3B1VSN331MQ35S |
| | 330 | 30×25 | 0.15 | 1.98 | ESMM3B1VSN331MR25S |
| | 390 | 22×45 | 0.15 | 2.07 | ESMM3B1VSN391MP45S |
| | 390 | 25.4×40 | 0.15 | 2.11 | ESMM3B1VSN391MQ40S |
| | 390 | 30×30 | 0.15 | 2.15 | ESMM3B1VSN391MR30S |
| | 390 | 35×25 | 0.15 | 1.95 | ESMM3B1VSN391MA25S |
| | 470 | 25.4×45 | 0.15 | 2.31 | ESMM3B1VSN471MQ45S |
| | 470 | 30×35 | 0.15 | 2.38 | ESMM3B1VSN471MR35S |
| | 470 | 35×30 | 0.15 | 2.46 | ESMM3B1VSN471MA30S |
| | 560 | 25.4×50 | 0.15 | 2.46 | ESMM3B1VSN561MQ50S |
| | 560 | 30×35 | 0.15 | 2.63 | ESMM3B1VSN561MR35S |
| | 560 | 35×30 | 0.15 | 2.69 | ESMM3B1VSN561MA30S |
| | 680 | 30×45 | 0.15 | 2.82 | ESMM3B1VSN681MR45S |
| | 680 | 35×35 | 0.15 | 3.05 | ESMM3B1VSN681MA35S |
| | 820 | 30×50 | 0.15 | 3.28 | ESMM3B1VSN821MR50S |
| | 820 | 35×40 | 0.15 | 3.45 | ESMM3B1VSN821MA40S |
| | 1,000 | 35×45 | 0.15 | 3.59 | ESMM3B1VSN102MA45S |
| 350 | 82 | 22×20 | 0.15 | 0.72 | ESMM351VSN820MP20S |
| | 100 | 20×25 | 0.15 | 0.81 | ESMM351VSN101MN25S |
| | 120 | 20×30 | 0.15 | 0.96 | ESMM351VSN121MN30S |
| | 120 | 22×25 | 0.15 | 1.04 | ESMM351VSN121MP25S |
| | 120 | 25.4×20 | 0.15 | 0.90 | ESMM351VSN121MQ20S |
| | 150 | 20×30 | 0.15 | 1.10 | ESMM351VSN151MN30S |
| | 150 | 22×30 | 0.15 | 1.20 | ESMM351VSN151MP30S |
| | 150 | 25.4×25 | 0.15 | 1.22 | ESMM351VSN151MQ25S |
| | 150 | 30×20 | 0.15 | 1.06 | ESMM351VSN151MR20S |
| | 180 | 20×35 | 0.15 | 1.24 | ESMM351VSN181MN35S |
| | 180 | 22×30 | 0.15 | 1.34 | ESMM351VSN181MP30S |
| | 180 | 25.4×25 | 0.15 | 1.37 | ESMM351VSN181MQ25S |
| | 180 | 30×20 | 0.15 | 1.16 | ESMM351VSN181MR20S |
| | 220 | 20×45 | 0.15 | 1.37 | ESMM351VSN221MN45S |
| | 220 | 22×35 | 0.15 | 1.47 | ESMM351VSN221MP35S |
| | 220 | 25.4×30 | 0.15 | 1.53 | ESMM351VSN221MQ30S |
| | 220 | 30×25 | 0.15 | 1.54 | ESMM351VSN221MR25S |
| | 220 | 35×20 | 0.15 | 1.29 | ESMM351VSN221MA20S |
| | 270 | 20×50 | 0.15 | 1.56 | ESMM351VSN271MN50S |
| | 270 | 22×40 | 0.15 | 1.70 | ESMM351VSN271MP40S |
| | 270 | 25.4×35 | 0.15 | 1.73 | ESMM351VSN271MQ35S |
| | 270 | 30×25 | 0.15 | 1.80 | ESMM351VSN271MR25S |
| | 270 | 35×20 | 0.15 | 1.49 | ESMM351VSN271MA20S |
| | 330 | 22×45 | 0.15 | 1.87 | ESMM351VSN331MP45S |
| | 330 | 25.4×35 | 0.15 | 1.97 | ESMM351VSN331MQ35S |
| | 330 | 30×30 | 0.15 | 2.03 | ESMM351VSN331MR30S |
| | 330 | 35×25 | 0.15 | 1.80 | ESMM351VSN331MA25S |
| | 390 | 25.4×40 | 0.15 | 2.14 | ESMM351VSN391MQ40S |
| | 390 | 30×35 | 0.15 | 2.23 | ESMM351VSN391MR35S |
| | 390 | 35×30 | 0.15 | 2.30 | ESMM351VSN391MA30S |
| | 470 | 25.4×50 | 0.15 | 2.55 | ESMM351VSN471MQ50S |
| | 470 | 30×35 | 0.15 | 2.53 | ESMM351VSN471MR35S |
| | 470 | 35×30 | 0.15 | 2.55 | ESMM351VSN471MA30S |
| | 560 | 30×40 | 0.15 | 2.73 | ESMM351VSN561MR40S |
| | 560 | 35×35 | 0.15 | 2.75 | ESMM351VSN561MA35S |
| | 680 | 30×50 | 0.15 | 3.15 | ESMM351VSN681MR50S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

## SMM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 680 | 35×40 | 0.15 | 3.15 | ESMM351VSN681MA40S |
| | 820 | 35×45 | 0.15 | 3.47 | ESMM351VSN821MA45S |
| | 1,000 | 35×50 | 0.15 | 3.60 | ESMM351VSN102MA50S |
| 400 | 68 | 20×25 | 0.15 | 0.75 | ESMM401VSN680MN25S |
| | 68 | 22×20 | 0.15 | 0.65 | ESMM401VSN680MP20S |
| | 82 | 20×25 | 0.15 | 0.82 | ESMM401VSN820MN25S |
| | 82 | 22×25 | 0.15 | 0.84 | ESMM401VSN820MP25S |
| | 82 | 25.4×20 | 0.15 | 0.74 | ESMM401VSN820MQ20S |
| | 100 | 20×30 | 0.15 | 0.95 | ESMM401VSN101MN30S |
| | 100 | 22×25 | 0.15 | 0.99 | ESMM401VSN101MP25S |
| | 100 | 25.4×20 | 0.15 | 0.82 | ESMM401VSN101MQ20S |
| | 120 | 20×35 | 0.15 | 1.07 | ESMM401VSN121MN35S |
| | 120 | 22×30 | 0.15 | 1.09 | ESMM401VSN121MP30S |
| | 120 | 25.4×25 | 0.15 | 1.13 | ESMM401VSN121MQ25S |
| | 120 | 30×20 | 0.15 | 0.95 | ESMM401VSN121MR20S |
| | 150 | 20×40 | 0.15 | 1.22 | ESMM401VSN151MN40S |
| | 150 | 22×35 | 0.15 | 1.24 | ESMM401VSN151MP35S |
| | 150 | 25.4×30 | 0.15 | 1.27 | ESMM401VSN151MQ30S |
| | 150 | 30×25 | 0.15 | 1.20 | ESMM401VSN151MR25S |
| | 180 | 20×45 | 0.15 | 1.28 | ESMM401VSN181MN45S |
| | 180 | 22×40 | 0.15 | 1.41 | ESMM401VSN181MP40S |
| | 180 | 25.4×30 | 0.15 | 1.44 | ESMM401VSN181MQ30S |
| | 180 | 30×25 | 0.15 | 1.52 | ESMM401VSN181MR25S |
| | 180 | 35×20 | 0.15 | 1.16 | ESMM401VSN181MA20S |
| | 220 | 20×50 | 0.15 | 1.41 | ESMM401VSN221MN50S |
| | 220 | 22×45 | 0.15 | 1.58 | ESMM401VSN221MP45S |
| | 220 | 25.4×35 | 0.15 | 1.64 | ESMM401VSN221MQ35S |
| | 220 | 30×30 | 0.15 | 1.66 | ESMM401VSN221MR30S |
| | 220 | 35×25 | 0.15 | 1.47 | ESMM401VSN221MA25S |
| | 270 | 22×50 | 0.15 | 1.65 | ESMM401VSN271MP50S |
| | 270 | 25.4×40 | 0.15 | 1.79 | ESMM401VSN271MQ40S |
| | 270 | 30×30 | 0.15 | 1.82 | ESMM401VSN271MR30S |
| | 270 | 35×25 | 0.15 | 1.63 | ESMM401VSN271MA25S |
| | 330 | 25.4×45 | 0.15 | 2.00 | ESMM401VSN331MQ45S |
| | 330 | 30×35 | 0.15 | 2.05 | ESMM401VSN331MR35S |
| | 330 | 35×30 | 0.15 | 2.05 | ESMM401VSN331MA30S |
| | 390 | 25.4×50 | 0.15 | 2.12 | ESMM401VSN391MQ50S |
| | 390 | 30×40 | 0.15 | 2.26 | ESMM401VSN391MR40S |
| | 390 | 35×35 | 0.15 | 2.28 | ESMM401VSN391MA35S |
| | 470 | 30×45 | 0.15 | 2.51 | ESMM401VSN471MR45S |
| | 470 | 35×35 | 0.15 | 2.54 | ESMM401VSN471MA35S |
| | 560 | 30×50 | 0.15 | 2.85 | ESMM401VSN561MR50S |
| | 560 | 35×40 | 0.15 | 2.85 | ESMM401VSN561MA40S |
| | 680 | 35×50 | 0.15 | 3.10 | ESMM401VSN681MA50S |
| 420 | 47 | 22×20 | 0.20 | 0.54 | ESMM421VSN470MP20S |
| | 56 | 20×25 | 0.20 | 0.58 | ESMM421VSN560MN25S |
| | 56 | 22×20 | 0.20 | 0.59 | ESMM421VSN560MP20S |
| | 68 | 20×25 | 0.20 | 0.70 | ESMM421VSN680MN25S |
| | 68 | 25.4×20 | 0.20 | 0.68 | ESMM421VSN680MQ20S |
| | 82 | 20×30 | 0.20 | 0.80 | ESMM421VSN820MN30S |
| | 82 | 22×25 | 0.20 | 0.85 | ESMM421VSN820MP25S |
| | 82 | 25.4×20 | 0.20 | 0.74 | ESMM421VSN820MQ20S |
| | 100 | 20×35 | 0.20 | 0.90 | ESMM421VSN101MN35S |
| | 100 | 22×30 | 0.20 | 0.97 | ESMM421VSN101MP30S |
| | 100 | 25.4×25 | 0.20 | 0.98 | ESMM421VSN101MQ25S |
| | 100 | 30×20 | 0.20 | 0.87 | ESMM421VSN101MR20S |
| | 120 | 20×35 | 0.20 | 1.04 | ESMM421VSN121MN35S |
| | 120 | 22×30 | 0.20 | 1.07 | ESMM421VSN121MP30S |
| | 120 | 25.4×25 | 0.20 | 1.08 | ESMM421VSN121MQ25S |
| | 120 | 30×20 | 0.20 | 0.95 | ESMM421VSN121MR20S |
| | 150 | 20×40 | 0.20 | 1.17 | ESMM421VSN151MN40S |
| | 150 | 22×35 | 0.20 | 1.21 | ESMM421VSN151MP35S |
| | 150 | 25.4×30 | 0.20 | 1.26 | ESMM421VSN151MQ30S |
| | 150 | 30×25 | 0.20 | 1.30 | ESMM421VSN151MR25S |
| | 150 | 35×20 | 0.20 | 1.11 | ESMM421VSN151MA20S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 180 | 20×50 | 0.20 | 1.27 | ESMM421VSN181MN50S |
| | 180 | 22×40 | 0.20 | 1.33 | ESMM421VSN181MP40S |
| | 180 | 25.4×35 | 0.20 | 1.42 | ESMM421VSN181MQ35S |
| | 180 | 30×25 | 0.20 | 1.48 | ESMM421VSN181MR25S |
| | 180 | 35×20 | 0.20 | 1.16 | ESMM421VSN181MA20S |
| | 220 | 22×45 | 0.20 | 1.55 | ESMM421VSN221MP45S |
| | 220 | 25.4×35 | 0.20 | 1.58 | ESMM421VSN221MQ35S |
| | 220 | 30×30 | 0.20 | 1.65 | ESMM421VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.47 | ESMM421VSN221MA25S |
| | 270 | 25.4×40 | 0.20 | 1.74 | ESMM421VSN271MQ40S |
| | 270 | 30×35 | 0.20 | 1.90 | ESMM421VSN271MR35S |
| | 270 | 35×30 | 0.20 | 1.94 | ESMM421VSN271MA30S |
| | 330 | 25.4×50 | 0.20 | 2.20 | ESMM421VSN331MQ50S |
| | 330 | 30×35 | 0.20 | 1.98 | ESMM421VSN331MR35S |
| | 330 | 35×35 | 0.20 | 2.17 | ESMM421VSN331MA35S |
| | 390 | 30×40 | 0.20 | 2.22 | ESMM421VSN391MR40S |
| | 390 | 35×35 | 0.20 | 2.27 | ESMM421VSN391MA35S |
| | 470 | 30×45 | 0.20 | 2.50 | ESMM421VSN471MR45S |
| | 470 | 35×40 | 0.20 | 2.61 | ESMM421VSN471MA40S |
| | 560 | 35×45 | 0.20 | 2.95 | ESMM421VSN561MA45S |
| | 680 | 35×50 | 0.20 | 3.15 | ESMM421VSN681MA50S |
| 450 | 47 | 22×20 | 0.20 | 0.54 | ESMM451VSN470MP20S |
| | 56 | 20×25 | 0.20 | 0.61 | ESMM451VSN560MN25S |
| | 56 | 22×20 | 0.20 | 0.59 | ESMM451VSN560MP20S |
| | 68 | 20×30 | 0.20 | 0.71 | ESMM451VSN680MN30S |
| | 68 | 22×25 | 0.20 | 0.71 | ESMM451VSN680MP25S |
| | 68 | 25.4×20 | 0.20 | 0.68 | ESMM451VSN680MQ20S |
| | 82 | 20×35 | 0.20 | 0.80 | ESMM451VSN820MN35S |
| | 82 | 22×25 | 0.20 | 0.86 | ESMM451VSN820MP25S |
| | 82 | 25.4×20 | 0.20 | 0.74 | ESMM451VSN820MQ20S |
| | 82 | 30×20 | 0.20 | 0.79 | ESMM451VSN820MR20S |
| | 100 | 20×35 | 0.20 | 0.88 | ESMM451VSN101MN35S |
| | 100 | 22×30 | 0.20 | 0.95 | ESMM451VSN101MP30S |
| | 100 | 25.4×25 | 0.20 | 0.97 | ESMM451VSN101MQ25S |
| | 100 | 30×20 | 0.20 | 0.87 | ESMM451VSN101MR20S |
| | 120 | 20×40 | 0.20 | 0.99 | ESMM451VSN121MN40S |
| | 120 | 22×35 | 0.20 | 1.07 | ESMM451VSN121MP35S |
| | 120 | 25.4×30 | 0.20 | 1.09 | ESMM451VSN121MQ30S |
| | 120 | 30×25 | 0.20 | 1.12 | ESMM451VSN121MR25S |
| | 120 | 35×20 | 0.20 | 0.99 | ESMM451VSN121MA20S |
| | 150 | 20×45 | 0.20 | 1.13 | ESMM451VSN151MN45S |
| | 150 | 22×40 | 0.20 | 1.18 | ESMM451VSN151MP40S |
| | 150 | 25.4×30 | 0.20 | 1.25 | ESMM451VSN151MQ30S |
| | 150 | 30×25 | 0.20 | 1.29 | ESMM451VSN151MR25S |
| | 150 | 35×20 | 0.20 | 1.06 | ESMM451VSN151MA20S |
| | 180 | 22×45 | 0.20 | 1.32 | ESMM451VSN181MP45S |
| | 180 | 25.4×35 | 0.20 | 1.40 | ESMM451VSN181MQ35S |
| | 180 | 30×30 | 0.20 | 1.45 | ESMM451VSN181MR30S |
| | 180 | 35×25 | 0.20 | 1.33 | ESMM451VSN181MA25S |
| | 220 | 22×50 | 0.20 | 1.48 | ESMM451VSN221MP50S |
| | 220 | 25.4×40 | 0.20 | 1.59 | ESMM451VSN221MQ40S |
| | 220 | 30×30 | 0.20 | 1.64 | ESMM451VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.66 | ESMM451VSN221MA25S |
| | 270 | 25.4×45 | 0.20 | 1.73 | ESMM451VSN271MQ45S |
| | 270 | 30×35 | 0.20 | 1.89 | ESMM451VSN271MR35S |
| | 270 | 35×30 | 0.20 | 1.90 | ESMM451VSN271MA30S |
| | 330 | 25.4×50 | 0.20 | 2.12 | ESMM451VSN331MQ50S |
| | 330 | 30×40 | 0.20 | 2.12 | ESMM451VSN331MR40S |
| | 330 | 35×35 | 0.20 | 2.15 | ESMM451VSN331MA35S |
| | 390 | 30×45 | 0.20 | 2.35 | ESMM451VSN391MR45S |
| | 390 | 35×40 | 0.20 | 2.38 | ESMM451VSN391MA40S |
| | 470 | 30×50 | 0.20 | 2.65 | ESMM451VSN471MR50S |
| | 470 | 35×45 | 0.20 | 2.68 | ESMM451VSN471MA45S |
| | 560 | 35×50 | 0.20 | 2.88 | ESMM451VSN561MA50S |

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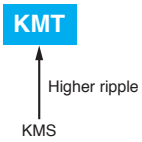
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

High ripple snap-ins, 105℃

*New!*

# KMT Series



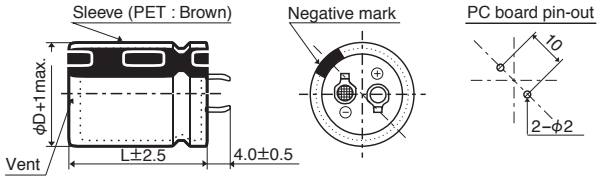
- Higher ripple current from KMS series
- Endurance with ripple current : 3,000 hours at 105℃
- Rated voltage range : 420, 450Vdc, Capacitance range : 82 to 680μF
- For inverter control, switching power supplies
- Non solvent resistant type
- **RoHS Compliant**

## ◆SPECIFICATIONS

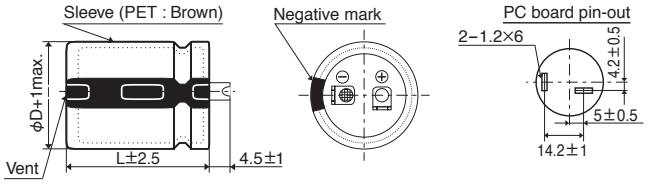
| Items | Characteristics | | |
|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | |
| **Rated Voltage Range** | 420, 450Vdc | | |
| **Capacitance Tolerance** | ±20% (M) | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 420 & 450V | |
| | tanδ (Max.) | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 420 & 450V | |
| | Z(−25℃)/Z(+20℃) | 8 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃. | | |
| | Capacitance change | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | |
| | Capacitance change | ≦±15% of the initial value | |
| | D.F. (tanδ) | ≦150% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

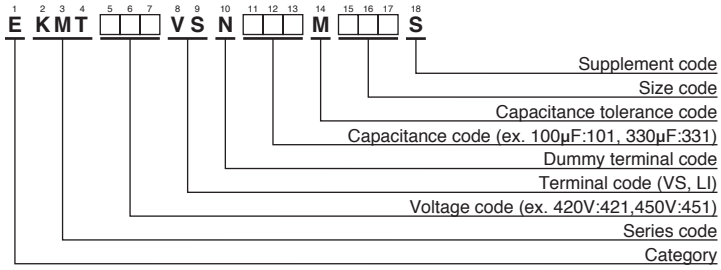



●Terminal Code : LI (φ35)




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

High ripple snap-ins, 105℃

New!

## KMT Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 100 | 22×25 | 0.20 | 0.89 | EKMT421VSN101MP25S |
| | 120 | 22×30 | 0.20 | 1.06 | EKMT421VSN121MP30S |
| | 120 | 25.4×25 | 0.20 | 1.09 | EKMT421VSN121MQ25S |
| | 150 | 22×35 | 0.20 | 1.21 | EKMT421VSN151MP35S |
| | 180 | 22×40 | 0.20 | 1.34 | EKMT421VSN181MP40S |
| | 180 | 25.4×30 | 0.20 | 1.28 | EKMT421VSN181MQ30S |
| | 180 | 30×25 | 0.20 | 1.42 | EKMT421VSN181MR25S |
| | 220 | 22×45 | 0.20 | 1.47 | EKMT421VSN221MP45S |
| | 220 | 22×50 | 0.20 | 1.60 | EKMT421VSN221MP50S |
| | 220 | 25.4×35 | 0.20 | 1.47 | EKMT421VSN221MQ35S |
| | 220 | 30×30 | 0.20 | 1.64 | EKMT421VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.64 | EKMT421VSN221MA25S |
| | 270 | 25.4×40 | 0.20 | 1.63 | EKMT421VSN271MQ40S |
| | 270 | 25.4×45 | 0.20 | 1.79 | EKMT421VSN271MQ45S |
| | 270 | 30×35 | 0.20 | 1.87 | EKMT421VSN271MR35S |
| | 330 | 25.4×50 | 0.20 | 1.93 | EKMT421VSN331MQ50S |
| | 330 | 30×40 | 0.20 | 2.10 | EKMT421VSN331MR40S |
| | 330 | 35×30 | 0.20 | 2.05 | EKMT421VSN331MA30S |
| | 390 | 30×45 | 0.20 | 2.32 | EKMT421VSN391MR45S |
| | 390 | 35×35 | 0.20 | 2.32 | EKMT421VSN391MA35S |
| | 470 | 30×50 | 0.20 | 2.51 | EKMT421VSN471MR50S |
| | 470 | 35×40 | 0.20 | 2.62 | EKMT421VSN471MA40S |
| | 560 | 35×45 | 0.20 | 2.88 | EKMT421VSN561MA45S |
| | 680 | 35×50 | 0.20 | 3.10 | EKMT421VSN681MA50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 82 | 22×25 | 0.20 | 0.81 | EKMT451VSN820MP25S |
| | 100 | 22×30 | 0.20 | 0.97 | EKMT451VSN101MP30S |
| | 100 | 25.4×25 | 0.20 | 1.04 | EKMT451VSN101MQ25S |
| | 120 | 22×35 | 0.20 | 1.08 | EKMT451VSN121MP35S |
| | 150 | 22×40 | 0.20 | 1.22 | EKMT451VSN151MP40S |
| | 150 | 25.4×35 | 0.20 | 1.31 | EKMT451VSN151MQ35S |
| | 150 | 30×25 | 0.20 | 1.31 | EKMT451VSN151MR25S |
| | 180 | 22×45 | 0.20 | 1.35 | EKMT451VSN181MP45S |
| | 180 | 22×50 | 0.20 | 1.42 | EKMT451VSN181MP50S |
| | 180 | 25.4×40 | 0.20 | 1.35 | EKMT451VSN181MQ40S |
| | 180 | 30×30 | 0.20 | 1.49 | EKMT451VSN181MR30S |
| | 180 | 35×25 | 0.20 | 1.60 | EKMT451VSN181MA25S |
| | 220 | 25.4×45 | 0.20 | 1.55 | EKMT451VSN221MQ45S |
| | 220 | 30×35 | 0.20 | 1.71 | EKMT451VSN221MR35S |
| | 270 | 25.4×50 | 0.20 | 1.74 | EKMT451VSN271MQ50S |
| | 270 | 30×40 | 0.20 | 1.90 | EKMT451VSN271MR40S |
| | 270 | 35×30 | 0.20 | 1.90 | EKMT451VSN271MA30S |
| | 330 | 30×45 | 0.20 | 2.20 | EKMT451VSN331MR45S |
| | 330 | 35×35 | 0.20 | 2.20 | EKMT451VSN331MA35S |
| | 390 | 30×50 | 0.20 | 2.40 | EKMT451VSN391MR50S |
| | 390 | 35×40 | 0.20 | 2.42 | EKMT451VSN391MA40S |
| | 470 | 35×45 | 0.20 | 2.67 | EKMT451VSN471MA45S |
| | 560 | 35×50 | 0.20 | 2.85 | EKMT451VSN561MA50S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 420, 450Vdc | 0.68 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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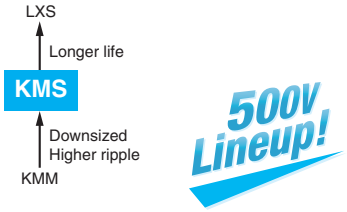
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMS Series

- For solar power generation
- Endurance with ripple current : 105℃ 3,000 hours
- Rated voltage range : 160 to 500V
- Capacitance range : 47 to 3,300μF
- Non solvent resistant type
- **RoHS Compliant**

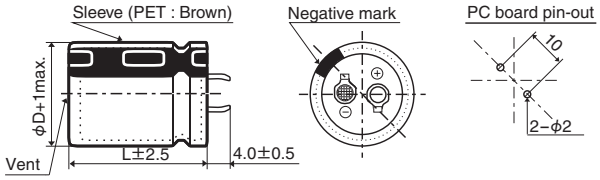


## ◆SPECIFICATIONS

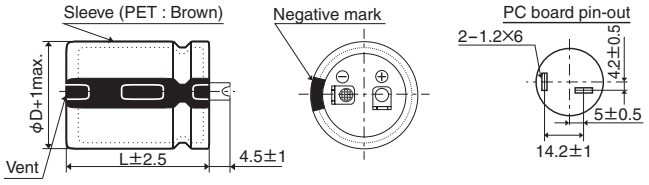
| Items | Characteristics | | | |
|---|---|---|---|---|
| Category Temperature Range | −25 to +105℃ | | | |
| Rated Voltage Range | 160 to 500Vdc | | | |
| Capacitance Tolerance | ±20% (M) | | | (at 20℃, 120Hz) |
| Leakage Current | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 160 to 400V | 420 to 500V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 160 to 400V | 420 to 500V | |
| | Z(−25℃)/Z(+20℃) | 4 | 8 | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15% of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

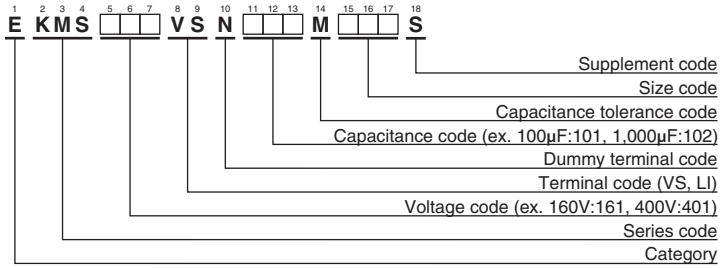



●Terminal Code : LI (φ35)




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMS Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 470 | 22×25 | 0.15 | 1.47 | EKMS161VSN471MP25S |
| | 680 | 22×30 | 0.15 | 1.86 | EKMS161VSN681MP30S |
| | 680 | 25.4×25 | 0.15 | 1.84 | EKMS161VSN681MQ25S |
| | 820 | 22×35 | 0.15 | 2.09 | EKMS161VSN821MP35S |
| | 820 | 25.4×30 | 0.15 | 2.08 | EKMS161VSN821MQ30S |
| | 1,000 | 22×40 | 0.15 | 2.35 | EKMS161VSN102MP40S |
| | 1,000 | 22×45 | 0.15 | 2.40 | EKMS161VSN102MP45S |
| | 1,000 | 25.4×35 | 0.15 | 2.40 | EKMS161VSN102MQ35S |
| | 1,000 | 30×25 | 0.15 | 2.50 | EKMS161VSN102MR25S |
| | 1,200 | 22×50 | 0.15 | 2.69 | EKMS161VSN122MP50S |
| | 1,200 | 25.4×40 | 0.15 | 2.68 | EKMS161VSN122MQ40S |
| | 1,200 | 30×30 | 0.15 | 2.77 | EKMS161VSN122MR30S |
| | 1,200 | 35×25 | 0.15 | 2.91 | EKMS161VSN122MA25S |
| | 1,500 | 25.4×45 | 0.15 | 3.05 | EKMS161VSN152MQ45S |
| | 1,500 | 30×35 | 0.15 | 3.17 | EKMS161VSN152MR35S |
| | 1,800 | 25.4×50 | 0.15 | 3.40 | EKMS161VSN182MQ50S |
| | 1,800 | 30×40 | 0.15 | 3.57 | EKMS161VSN182MR40S |
| | 1,800 | 35×30 | 0.15 | 3.62 | EKMS161VSN182MA30S |
| | 2,200 | 30×45 | 0.15 | 4.05 | EKMS161VSN222MR45S |
| | 2,200 | 35×35 | 0.15 | 4.07 | EKMS161VSN222MA35S |
| | 2,700 | 30×50 | 0.15 | 4.56 | EKMS161VSN272MR50S |
| | 2,700 | 35×40 | 0.15 | 4.67 | EKMS161VSN272MA40S |
| | 2,700 | 35×45 | 0.15 | 4.78 | EKMS161VSN272MA45S |
| | 3,300 | 35×50 | 0.15 | 5.40 | EKMS161VSN332MA50S |
| 180 | 390 | 22×25 | 0.15 | 1.34 | EKMS181VSN391MP25S |
| | 560 | 22×30 | 0.15 | 1.68 | EKMS181VSN561MP30S |
| | 560 | 25.4×25 | 0.15 | 1.67 | EKMS181VSN561MQ25S |
| | 680 | 22×35 | 0.15 | 1.90 | EKMS181VSN681MP35S |
| | 820 | 22×40 | 0.15 | 2.13 | EKMS181VSN821MP40S |
| | 820 | 25.4×30 | 0.15 | 2.08 | EKMS181VSN821MQ30S |
| | 820 | 30×25 | 0.15 | 2.26 | EKMS181VSN821MR25S |
| | 1,000 | 22×45 | 0.15 | 2.40 | EKMS181VSN102MP45S |
| | 1,000 | 22×50 | 0.15 | 2.45 | EKMS181VSN102MP50S |
| | 1,000 | 25.4×35 | 0.15 | 2.40 | EKMS181VSN102MQ35S |
| | 1,000 | 25.4×40 | 0.15 | 2.45 | EKMS181VSN102MQ40S |
| | 1,000 | 30×30 | 0.15 | 2.52 | EKMS181VSN102MR30S |
| | 1,200 | 25.4×45 | 0.15 | 2.73 | EKMS181VSN122MQ45S |
| | 1,200 | 30×35 | 0.15 | 2.83 | EKMS181VSN122MR35S |
| | 1,200 | 35×25 | 0.15 | 2.91 | EKMS181VSN122MA25S |
| | 1,500 | 25.4×50 | 0.15 | 3.10 | EKMS181VSN152MQ50S |
| | 1,500 | 30×40 | 0.15 | 3.26 | EKMS181VSN152MR40S |
| | 1,500 | 35×30 | 0.15 | 3.31 | EKMS181VSN152MA30S |
| | 1,800 | 30×45 | 0.15 | 3.66 | EKMS181VSN182MR45S |
| | 1,800 | 35×35 | 0.15 | 3.68 | EKMS181VSN182MA35S |
| | 2,200 | 30×50 | 0.15 | 4.11 | EKMS181VSN222MR50S |
| | 2,200 | 35×40 | 0.15 | 4.22 | EKMS181VSN222MA40S |
| | 2,700 | 35×45 | 0.15 | 4.78 | EKMS181VSN272MA45S |
| | 2,700 | 35×50 | 0.15 | 4.88 | EKMS181VSN272MA50S |
| 200 | 390 | 22×25 | 0.15 | 1.34 | EKMS201VSN391MP25S |
| | 470 | 22×30 | 0.15 | 1.54 | EKMS201VSN471MP30S |
| | 560 | 22×35 | 0.15 | 1.72 | EKMS201VSN561MP35S |
| | 560 | 25.4×25 | 0.15 | 1.67 | EKMS201VSN561MQ25S |
| | 680 | 22×40 | 0.15 | 1.94 | EKMS201VSN681MP40S |
| | 680 | 25.4×30 | 0.15 | 1.89 | EKMS201VSN681MQ30S |
| | 820 | 22×45 | 0.15 | 2.17 | EKMS201VSN821MP45S |
| | 820 | 25.4×35 | 0.15 | 2.17 | EKMS201VSN821MQ35S |
| | 820 | 30×25 | 0.15 | 2.26 | EKMS201VSN821MR25S |
| | 1,000 | 22×50 | 0.15 | 2.45 | EKMS201VSN102MP50S |
| | 1,000 | 25.4×40 | 0.15 | 2.45 | EKMS201VSN102MQ40S |
| | 1,000 | 30×30 | 0.15 | 2.52 | EKMS201VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.66 | EKMS201VSN102MA25S |
| | 1,200 | 25.4×45 | 0.15 | 2.73 | EKMS201VSN122MQ45S |
| | 1,200 | 25.4×50 | 0.15 | 2.78 | EKMS201VSN122MQ50S |
| | 1,200 | 30×35 | 0.15 | 2.83 | EKMS201VSN122MR35S |
| | 1,200 | 35×30 | 0.15 | 2.96 | EKMS201VSN122MA30S |
| | 1,500 | 30×40 | 0.15 | 3.26 | EKMS201VSN152MR40S |
| | 1,500 | 35×35 | 0.15 | 3.36 | EKMS201VSN152MA35S |
| 200 | 1,800 | 30×45 | 0.15 | 3.66 | EKMS201VSN182MR45S |
| | 1,800 | 30×50 | 0.15 | 3.72 | EKMS201VSN182MR50S |
| | 1,800 | 35×40 | 0.15 | 3.81 | EKMS201VSN182MA40S |
| | 2,200 | 35×45 | 0.15 | 4.32 | EKMS201VSN222MA45S |
| | 2,700 | 35×50 | 0.15 | 4.88 | EKMS201VSN272MA50S |
| 250 | 270 | 22×25 | 0.15 | 1.11 | EKMS251VSN271MP25S |
| | 330 | 22×30 | 0.15 | 1.29 | EKMS251VSN331MP30S |
| | 390 | 22×35 | 0.15 | 1.44 | EKMS251VSN391MP35S |
| | 390 | 25.4×25 | 0.15 | 1.40 | EKMS251VSN391MQ25S |
| | 470 | 22×40 | 0.15 | 1.61 | EKMS251VSN471MP40S |
| | 470 | 25.4×30 | 0.15 | 1.57 | EKMS251VSN471MQ30S |
| | 560 | 22×45 | 0.15 | 1.79 | EKMS251VSN561MP45S |
| | 560 | 25.4×35 | 0.15 | 1.79 | EKMS251VSN561MQ35S |
| | 560 | 30×25 | 0.15 | 1.87 | EKMS251VSN561MR25S |
| | 680 | 22×50 | 0.15 | 2.02 | EKMS251VSN681MP50S |
| | 680 | 25.4×40 | 0.15 | 2.02 | EKMS251VSN681MQ40S |
| | 680 | 30×30 | 0.15 | 2.08 | EKMS251VSN681MR30S |
| | 680 | 35×25 | 0.15 | 2.19 | EKMS251VSN681MA25S |
| | 820 | 25.4×45 | 0.15 | 2.26 | EKMS251VSN821MQ45S |
| | 820 | 30×35 | 0.15 | 2.34 | EKMS251VSN821MR35S |
| | 1,000 | 25.4×50 | 0.15 | 2.53 | EKMS251VSN102MQ50S |
| | 1,000 | 30×40 | 0.15 | 2.66 | EKMS251VSN102MR40S |
| | 1,000 | 35×30 | 0.15 | 2.70 | EKMS251VSN102MA30S |
| | 1,200 | 30×45 | 0.15 | 2.99 | EKMS251VSN122MR45S |
| | 1,200 | 30×50 | 0.15 | 3.04 | EKMS251VSN122MR50S |
| | 1,200 | 35×35 | 0.15 | 3.00 | EKMS251VSN122MA35S |
| | 1,500 | 35×40 | 0.15 | 3.48 | EKMS251VSN152MA40S |
| | 1,500 | 35×45 | 0.15 | 3.56 | EKMS251VSN152MA45S |
| | 1,800 | 35×50 | 0.15 | 3.98 | EKMS251VSN182MA50S |
| 315 | 180 | 22×25 | 0.15 | 0.95 | EKMS3B1VSN181MP25S |
| | 220 | 22×30 | 0.15 | 1.10 | EKMS3B1VSN221MP30S |
| | 220 | 25.4×25 | 0.15 | 1.10 | EKMS3B1VSN221MQ25S |
| | 270 | 22×35 | 0.15 | 1.24 | EKMS3B1VSN271MP35S |
| | 330 | 22×40 | 0.15 | 1.40 | EKMS3B1VSN331MP40S |
| | 330 | 25.4×30 | 0.15 | 1.38 | EKMS3B1VSN331MQ30S |
| | 330 | 30×25 | 0.15 | 1.43 | EKMS3B1VSN331MR25S |
| | 390 | 22×45 | 0.15 | 1.56 | EKMS3B1VSN391MP45S |
| | 390 | 22×50 | 0.15 | 1.59 | EKMS3B1VSN391MP50S |
| | 390 | 25.4×35 | 0.15 | 1.57 | EKMS3B1VSN391MQ35S |
| | 470 | 25.4×40 | 0.15 | 1.76 | EKMS3B1VSN471MQ40S |
| | 470 | 30×30 | 0.15 | 1.73 | EKMS3B1VSN471MR30S |
| | 470 | 35×25 | 0.15 | 1.82 | EKMS3B1VSN471MA25S |
| | 560 | 25.4×45 | 0.15 | 1.96 | EKMS3B1VSN561MQ45S |
| | 560 | 25.4×50 | 0.15 | 1.99 | EKMS3B1VSN561MQ50S |
| | 560 | 30×35 | 0.15 | 1.93 | EKMS3B1VSN561MR35S |
| | 560 | 35×30 | 0.15 | 2.02 | EKMS3B1VSN561MA30S |
| | 680 | 30×40 | 0.15 | 2.19 | EKMS3B1VSN681MR40S |
| | 680 | 35×35 | 0.15 | 2.26 | EKMS3B1VSN681MA35S |
| | 820 | 30×45 | 0.15 | 2.47 | EKMS3B1VSN821MR45S |
| | 820 | 30×50 | 0.15 | 2.51 | EKMS3B1VSN821MR50S |
| | 820 | 35×40 | 0.15 | 2.57 | EKMS3B1VSN821MA40S |
| | 1,000 | 35×45 | 0.15 | 2.91 | EKMS3B1VSN102MA45S |
| | 1,200 | 35×50 | 0.15 | 3.25 | EKMS3B1VSN122MA50S |
| 400 | 120 | 22×25 | 0.15 | 0.77 | EKMS401VSN121MP25S |
| | 150 | 22×30 | 0.15 | 0.90 | EKMS401VSN151MP30S |
| | 180 | 22×35 | 0.15 | 1.02 | EKMS401VSN181MP35S |
| | 180 | 25.4×25 | 0.15 | 0.99 | EKMS401VSN181MQ25S |
| | 220 | 22×40 | 0.15 | 1.15 | EKMS401VSN221MP40S |
| | 220 | 25.4×30 | 0.15 | 1.13 | EKMS401VSN221MQ30S |
| | 270 | 22×45 | 0.15 | 1.29 | EKMS401VSN271MP45S |
| | 270 | 25.4×35 | 0.15 | 1.30 | EKMS401VSN271MQ35S |
| | 270 | 30×25 | 0.15 | 1.29 | EKMS401VSN271MR25S |
| | 330 | 22×50 | 0.15 | 1.47 | EKMS401VSN331MP50S |
| | 330 | 25.4×40 | 0.15 | 1.47 | EKMS401VSN331MQ40S |
| | 330 | 30×30 | 0.15 | 1.45 | EKMS401VSN331MR30S |
| | 330 | 35×25 | 0.15 | 1.52 | EKMS401VSN331MA25S |
| | 390 | 25.4×45 | 0.15 | 1.63 | EKMS401VSN391MQ45S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

## KMS Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 390 | 25.4×50 | 0.15 | 1.66 | EKMS401VSN391MQ50S |
| | 390 | 30×35 | 0.15 | 1.61 | EKMS401VSN391MR35S |
| | 470 | 30×40 | 0.15 | 1.82 | EKMS401VSN471MR40S |
| | 470 | 35×30 | 0.15 | 1.85 | EKMS401VSN471MA30S |
| | 560 | 30×45 | 0.15 | 2.04 | EKMS401VSN561MR45S |
| | 560 | 30×50 | 0.15 | 2.07 | EKMS401VSN561MR50S |
| | 560 | 35×35 | 0.15 | 2.05 | EKMS401VSN561MA35S |
| | 680 | 35×40 | 0.15 | 2.34 | EKMS401VSN681MA40S |
| | 680 | 35×45 | 0.15 | 2.40 | EKMS401VSN681MA45S |
| | 820 | 35×50 | 0.15 | 2.69 | EKMS401VSN821MA50S |
| 420 | 100 | 22×25 | 0.20 | 0.70 | EKMS421VSN101MP25S |
| | 120 | 22×30 | 0.20 | 0.81 | EKMS421VSN121MP30S |
| | 120 | 25.4×25 | 0.20 | 0.81 | EKMS421VSN121MQ25S |
| | 150 | 22×35 | 0.20 | 0.93 | EKMS421VSN151MP35S |
| | 180 | 22×40 | 0.20 | 1.04 | EKMS421VSN181MP40S |
| | 180 | 25.4×30 | 0.20 | 1.02 | EKMS421VSN181MQ30S |
| | 180 | 30×25 | 0.20 | 1.06 | EKMS421VSN181MR25S |
| | 220 | 22×45 | 0.20 | 1.17 | EKMS421VSN221MP45S |
| | 220 | 22×50 | 0.20 | 1.20 | EKMS421VSN221MP50S |
| | 220 | 25.4×35 | 0.20 | 1.18 | EKMS421VSN221MQ35S |
| | 220 | 30×30 | 0.20 | 1.18 | EKMS421VSN221MR30S |
| | 270 | 25.4×40 | 0.20 | 1.33 | EKMS421VSN271MQ40S |
| | 270 | 25.4×45 | 0.20 | 1.36 | EKMS421VSN271MQ45S |
| | 270 | 35×25 | 0.20 | 1.38 | EKMS421VSN271MA25S |
| | 330 | 25.4×50 | 0.20 | 1.52 | EKMS421VSN331MQ50S |
| | 330 | 30×35 | 0.20 | 1.48 | EKMS421VSN331MR35S |
| | 330 | 30×40 | 0.20 | 1.52 | EKMS421VSN331MR40S |
| | 330 | 35×30 | 0.20 | 1.55 | EKMS421VSN331MA30S |
| | 390 | 30×45 | 0.20 | 1.70 | EKMS421VSN391MR45S |
| | 390 | 35×35 | 0.20 | 1.71 | EKMS421VSN391MA35S |
| | 470 | 30×50 | 0.20 | 1.90 | EKMS421VSN471MR50S |
| | 470 | 35×40 | 0.20 | 1.95 | EKMS421VSN471MA40S |
| | 560 | 35×45 | 0.20 | 2.17 | EKMS421VSN561MA45S |
| | 680 | 35×50 | 0.20 | 2.45 | EKMS421VSN681MA50S |
| 450 | 82 | 22×25 | 0.20 | 0.64 | EKMS451VSN820MP25S |
| | 120 | 22×30 | 0.20 | 0.81 | EKMS451VSN121MP30S |
| | 120 | 22×35 | 0.20 | 0.83 | EKMS451VSN121MP35S |
| | 120 | 25.4×25 | 0.20 | 0.81 | EKMS451VSN121MQ25S |
| | 150 | 22×40 | 0.20 | 0.94 | EKMS451VSN151MP40S |
| | 150 | 25.4×30 | 0.20 | 0.93 | EKMS451VSN151MQ30S |
| | 180 | 22×45 | 0.20 | 1.06 | EKMS451VSN181MP45S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 180 | 25.4×35 | 0.20 | 1.06 | EKMS451VSN181MQ35S |
| | 180 | 30×25 | 0.20 | 1.06 | EKMS451VSN181MR25S |
| | 220 | 22×50 | 0.20 | 1.20 | EKMS451VSN221MP50S |
| | 220 | 25.4×40 | 0.20 | 1.20 | EKMS451VSN221MQ40S |
| | 220 | 30×30 | 0.20 | 1.18 | EKMS451VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.24 | EKMS451VSN221MA25S |
| | 270 | 25.4×45 | 0.20 | 1.36 | EKMS451VSN271MQ45S |
| | 270 | 25.4×50 | 0.20 | 1.38 | EKMS451VSN271MQ50S |
| | 270 | 30×35 | 0.20 | 1.34 | EKMS451VSN271MR35S |
| | 270 | 35×30 | 0.20 | 1.40 | EKMS451VSN271MA30S |
| | 330 | 30×40 | 0.20 | 1.52 | EKMS451VSN331MR40S |
| | 390 | 30×45 | 0.20 | 1.70 | EKMS451VSN391MR45S |
| | 390 | 30×50 | 0.20 | 1.73 | EKMS451VSN391MR50S |
| | 390 | 35×35 | 0.20 | 1.71 | EKMS451VSN391MA35S |
| | 470 | 35×40 | 0.20 | 1.95 | EKMS451VSN471MA40S |
| | 470 | 35×45 | 0.20 | 1.99 | EKMS451VSN471MA45S |
| | 560 | 35×50 | 0.20 | 2.22 | EKMS451VSN561MA50S |
| 500 | 47 | 22×25 | 0.20 | 0.51 | EKMS501VSN470MP25S |
| | 56 | 22×30 | 0.20 | 0.58 | EKMS501VSN560MP30S |
| | 68 | 25.4×25 | 0.20 | 0.65 | EKMS501VSN680MQ25S |
| | 82 | 22×35 | 0.20 | 0.72 | EKMS501VSN820MP35S |
| | 82 | 25.4×30 | 0.20 | 0.74 | EKMS501VSN820MQ30S |
| | 100 | 22×45 | 0.20 | 0.83 | EKMS501VSN101MP45S |
| | 100 | 30×25 | 0.20 | 0.82 | EKMS501VSN101MR25S |
| | 120 | 22×50 | 0.20 | 0.93 | EKMS501VSN121MP50S |
| | 120 | 25.4×35 | 0.20 | 0.93 | EKMS501VSN121MQ35S |
| | 120 | 30×30 | 0.20 | 0.91 | EKMS501VSN121MR30S |
| | 150 | 25.4×45 | 0.20 | 1.08 | EKMS501VSN151MQ45S |
| | 150 | 30×35 | 0.20 | 1.04 | EKMS501VSN151MR35S |
| | 150 | 35×25 | 0.20 | 0.99 | EKMS501VSN151MA25S |
| | 180 | 25.4×50 | 0.20 | 1.20 | EKMS501VSN181MQ50S |
| | 180 | 30×40 | 0.20 | 1.17 | EKMS501VSN181MR40S |
| | 180 | 35×30 | 0.20 | 1.10 | EKMS501VSN181MA30S |
| | 220 | 30×45 | 0.20 | 1.33 | EKMS501VSN221MR45S |
| | 220 | 35×35 | 0.20 | 1.23 | EKMS501VSN221MA35S |
| | 270 | 30×50 | 0.20 | 1.50 | EKMS501VSN271MR50S |
| | 270 | 35×40 | 0.20 | 1.42 | EKMS501VSN271MA40S |
| | 330 | 35×45 | 0.20 | 1.60 | EKMS501VSN331MA45S |
| | 390 | 35×50 | 0.20 | 1.78 | EKMS501VSN391MA50S |
| | 470 | 35×60 | 0.20 | 2.03 | EKMS501VSN471MA60S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |
| 500Vdc | 0.70 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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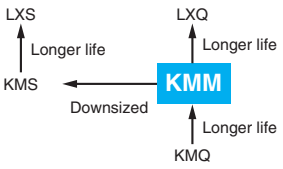
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## KMM Series

- Longer life from KMQ series
- Endurance with ripple current : 2,000 to 3,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

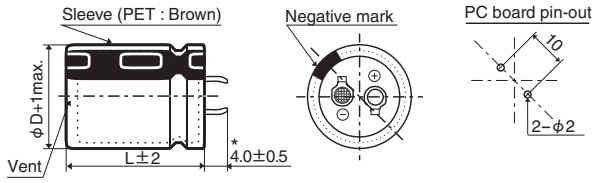


## ◆SPECIFICATIONS

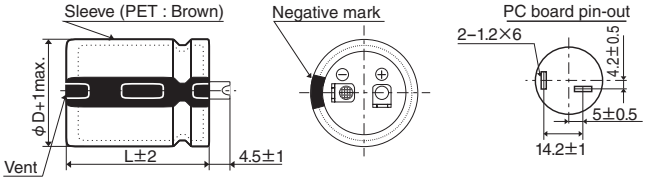
| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | |
| **Rated Voltage Range** | 160 to 450Vdc | | | |
| **Capacitance Tolerance** | ±20% (M) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | Z(−25℃)/Z(+20℃) | 4 | 8 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage)for 3,000 hours (2,000 hours for φ20×20L products) at 105℃. | | | |
| | Capacitance change | ≦±20%of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15%of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ20 to φ35) : Standard




●Terminal Code : LI (φ35)




*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | K | M | M | | | | V | S | N | | | | M | | | | S |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 120μF:121, 1,000μF:102)
- Dummy terminal code
- Terminal code (VS, LI)
- Voltage code (ex. 160V:161, 250V:251, 315V:3B1)
- Series code
- Category

Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## KMM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 180 | 20×20 | 0.15 | 0.68 | EKMM161VSN181MN20S |
| | 220 | 20×25 | 0.15 | 0.85 | EKMM161VSN221MN25S |
| | 220 | 22×20 | 0.15 | 0.81 | EKMM161VSN221MP20S |
| | 270 | 20×25 | 0.15 | 1.10 | EKMM161VSN271MN25S |
| | 270 | 25.4×20 | 0.15 | 0.98 | EKMM161VSN271MQ20S |
| | 330 | 20×30 | 0.15 | 1.20 | EKMM161VSN331MN30S |
| | 330 | 22×25 | 0.15 | 1.20 | EKMM161VSN331MP25S |
| | 330 | 25.4×20 | 0.15 | 1.02 | EKMM161VSN331MQ20S |
| | 390 | 20×30 | 0.15 | 1.30 | EKMM161VSN391MN30S |
| | 390 | 22×25 | 0.15 | 1.30 | EKMM161VSN391MP25S |
| | 390 | 25.4×25 | 0.15 | 1.26 | EKMM161VSN391MQ25S |
| | 390 | 30×20 | 0.15 | 1.25 | EKMM161VSN391MR20S |
| | 470 | 20×35 | 0.15 | 1.34 | EKMM161VSN471MN35S |
| | 470 | 22×30 | 0.15 | 1.55 | EKMM161VSN471MP30S |
| | 470 | 25.4×25 | 0.15 | 1.55 | EKMM161VSN471MQ25S |
| | 470 | 30×20 | 0.15 | 1.30 | EKMM161VSN471MR20S |
| | 560 | 20×40 | 0.15 | 1.50 | EKMM161VSN561MN40S |
| | 560 | 22×35 | 0.15 | 1.67 | EKMM161VSN561MP35S |
| | 560 | 25.4×30 | 0.15 | 1.67 | EKMM161VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 1.67 | EKMM161VSN561MR25S |
| | 560 | 35×20 | 0.15 | 1.46 | EKMM161VSN561MA20S |
| | 680 | 20×45 | 0.15 | 1.70 | EKMM161VSN681MN45S |
| | 680 | 22×40 | 0.15 | 1.82 | EKMM161VSN681MP40S |
| | 680 | 25.4×30 | 0.15 | 1.82 | EKMM161VSN681MQ30S |
| | 680 | 30×25 | 0.15 | 1.82 | EKMM161VSN681MR25S |
| | 680 | 35×20 | 0.15 | 1.51 | EKMM161VSN681MA20S |
| | 820 | 22×45 | 0.15 | 2.04 | EKMM161VSN821MP45S |
| | 820 | 25.4×35 | 0.15 | 2.04 | EKMM161VSN821MQ35S |
| | 820 | 30×30 | 0.15 | 2.04 | EKMM161VSN821MR30S |
| | 820 | 35×25 | 0.15 | 2.04 | EKMM161VSN821MA25S |
| | 1,000 | 22×50 | 0.15 | 2.25 | EKMM161VSN102MP50S |
| | 1,000 | 25.4×40 | 0.15 | 2.25 | EKMM161VSN102MQ40S |
| | 1,000 | 30×30 | 0.15 | 2.25 | EKMM161VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.25 | EKMM161VSN102MA25S |
| | 1,200 | 25.4×45 | 0.15 | 2.49 | EKMM161VSN122MQ45S |
| | 1,200 | 30×35 | 0.15 | 2.49 | EKMM161VSN122MR35S |
| | 1,200 | 35×30 | 0.15 | 2.49 | EKMM161VSN122MA30S |
| | 1,500 | 25.4×60 | 0.15 | 2.97 | EKMM161VSN152MQ60S |
| | 1,500 | 30×40 | 0.15 | 2.84 | EKMM161VSN152MR40S |
| | 1,500 | 35×30 | 0.15 | 2.84 | EKMM161VSN152MA30S |
| | 1,800 | 30×45 | 0.15 | 3.32 | EKMM161VSN182MR45S |
| | 1,800 | 35×35 | 0.15 | 3.00 | EKMM161VSN182MA35S |
| | 2,200 | 30×60 | 0.15 | 3.86 | EKMM161VSN222MR60S |
| | 2,200 | 35×45 | 0.15 | 3.50 | EKMM161VSN222MA45S |
| | 2,700 | 35×50 | 0.15 | 4.00 | EKMM161VSN272MA50S |
| | 3,300 | 35×60 | 0.15 | 4.63 | EKMM161VSN332MA60S |
| 180 | 150 | 20×20 | 0.15 | 0.62 | EKMM181VSN151MN20S |
| | 180 | 20×25 | 0.15 | 0.77 | EKMM181VSN181MN25S |
| | 180 | 22×20 | 0.15 | 0.80 | EKMM181VSN181MP20S |
| | 220 | 20×25 | 0.15 | 1.00 | EKMM181VSN221MN25S |
| | 220 | 25.4×20 | 0.15 | 0.90 | EKMM181VSN221MQ20S |
| | 270 | 20×30 | 0.15 | 1.10 | EKMM181VSN271MN30S |
| | 270 | 22×25 | 0.15 | 1.00 | EKMM181VSN271MP25S |
| | 270 | 25.4×20 | 0.15 | 0.95 | EKMM181VSN271MQ20S |
| | 330 | 20×30 | 0.15 | 1.20 | EKMM181VSN331MN30S |
| | 330 | 22×25 | 0.15 | 1.20 | EKMM181VSN331MP25S |
| | 330 | 25.4×25 | 0.15 | 1.16 | EKMM181VSN331MQ25S |
| | 330 | 30×20 | 0.15 | 1.15 | EKMM181VSN331MR20S |
| | 390 | 20×35 | 0.15 | 1.30 | EKMM181VSN391MN35S |
| | 390 | 22×30 | 0.15 | 1.35 | EKMM181VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.35 | EKMM181VSN391MQ25S |
| | 390 | 30×20 | 0.15 | 1.20 | EKMM181VSN391MR20S |
| | 470 | 20×40 | 0.15 | 1.40 | EKMM181VSN471MN40S |
| | 470 | 22×35 | 0.15 | 1.50 | EKMM181VSN471MP35S |
| | 470 | 25.4×30 | 0.15 | 1.50 | EKMM181VSN471MQ30S |
| | 470 | 30×25 | 0.15 | 1.50 | EKMM181VSN471MR25S |
| | 470 | 35×20 | 0.15 | 1.36 | EKMM181VSN471MA20S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 180 | 560 | 20×45 | 0.15 | 1.55 | EKMM181VSN561MN45S |
| | 560 | 22×40 | 0.15 | 1.67 | EKMM181VSN561MP40S |
| | 560 | 25.4×30 | 0.15 | 1.67 | EKMM181VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 1.67 | EKMM181VSN561MR25S |
| | 560 | 35×20 | 0.15 | 1.43 | EKMM181VSN561MA20S |
| | 680 | 20×50 | 0.15 | 1.75 | EKMM181VSN681MN50S |
| | 680 | 22×45 | 0.15 | 1.78 | EKMM181VSN681MP45S |
| | 680 | 25.4×35 | 0.15 | 1.78 | EKMM181VSN681MQ35S |
| | 680 | 30×30 | 0.15 | 1.78 | EKMM181VSN681MR30S |
| | 680 | 35×25 | 0.15 | 1.83 | EKMM181VSN681MA25S |
| | 820 | 22×50 | 0.15 | 2.04 | EKMM181VSN821MP50S |
| | 820 | 25.4×40 | 0.15 | 2.04 | EKMM181VSN821MQ40S |
| | 820 | 30×30 | 0.15 | 2.04 | EKMM181VSN821MR30S |
| | 820 | 35×25 | 0.15 | 2.04 | EKMM181VSN821MA25S |
| | 1,000 | 25.4×45 | 0.15 | 2.30 | EKMM181VSN102MQ45S |
| | 1,000 | 30×35 | 0.15 | 2.30 | EKMM181VSN102MR35S |
| | 1,000 | 35×30 | 0.15 | 2.30 | EKMM181VSN102MA30S |
| | 1,200 | 25.4×50 | 0.15 | 2.55 | EKMM181VSN122MQ50S |
| | 1,200 | 30×40 | 0.15 | 2.55 | EKMM181VSN122MR40S |
| | 1,200 | 35×30 | 0.15 | 2.55 | EKMM181VSN122MA30S |
| | 1,500 | 30×45 | 0.15 | 2.90 | EKMM181VSN152MR45S |
| | 1,500 | 35×35 | 0.15 | 2.90 | EKMM181VSN152MA35S |
| | 1,800 | 30×60 | 0.15 | 3.49 | EKMM181VSN182MR60S |
| | 1,800 | 35×40 | 0.15 | 3.30 | EKMM181VSN182MA40S |
| | 2,200 | 35×50 | 0.15 | 3.65 | EKMM181VSN222MA50S |
| | 2,700 | 35×60 | 0.15 | 4.19 | EKMM181VSN272MA60S |
| 200 | 120 | 20×20 | 0.15 | 0.56 | EKMM201VSN121MN20S |
| | 150 | 20×25 | 0.15 | 0.71 | EKMM201VSN151MN25S |
| | 150 | 22×20 | 0.15 | 0.73 | EKMM201VSN151MP20S |
| | 180 | 20×25 | 0.15 | 0.77 | EKMM201VSN181MN25S |
| | 180 | 22×20 | 0.15 | 0.80 | EKMM201VSN181MP20S |
| | 220 | 20×25 | 0.15 | 1.00 | EKMM201VSN221MN25S |
| | 220 | 25.4×20 | 0.15 | 0.85 | EKMM201VSN221MQ20S |
| | 270 | 20×30 | 0.15 | 1.10 | EKMM201VSN271MN30S |
| | 270 | 22×25 | 0.15 | 1.10 | EKMM201VSN271MP25S |
| | 270 | 30×20 | 0.15 | 1.05 | EKMM201VSN271MR20S |
| | 330 | 20×35 | 0.15 | 1.20 | EKMM201VSN331MN35S |
| | 330 | 22×30 | 0.15 | 1.25 | EKMM201VSN331MP30S |
| | 330 | 25.4×25 | 0.15 | 1.25 | EKMM201VSN331MQ25S |
| | 330 | 30×20 | 0.15 | 1.10 | EKMM201VSN331MR20S |
| | 390 | 20×40 | 0.15 | 1.31 | EKMM201VSN391MN40S |
| | 390 | 22×30 | 0.15 | 1.35 | EKMM201VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.35 | EKMM201VSN391MQ25S |
| | 390 | 35×20 | 0.15 | 1.30 | EKMM201VSN391MA20S |
| | 470 | 20×45 | 0.15 | 1.45 | EKMM201VSN471MN45S |
| | 470 | 22×35 | 0.15 | 1.50 | EKMM201VSN471MP35S |
| | 470 | 25.4×30 | 0.15 | 1.50 | EKMM201VSN471MQ30S |
| | 470 | 30×25 | 0.15 | 1.50 | EKMM201VSN471MR25S |
| | 470 | 35×20 | 0.15 | 1.41 | EKMM201VSN471MA20S |
| | 560 | 20×50 | 0.15 | 1.58 | EKMM201VSN561MN50S |
| | 560 | 22×40 | 0.15 | 1.67 | EKMM201VSN561MP40S |
| | 560 | 25.4×30 | 0.15 | 1.67 | EKMM201VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 1.67 | EKMM201VSN561MR25S |
| | 680 | 22×45 | 0.15 | 1.78 | EKMM201VSN681MP45S |
| | 680 | 25.4×35 | 0.15 | 1.78 | EKMM201VSN681MQ35S |
| | 680 | 30×30 | 0.15 | 1.78 | EKMM201VSN681MR30S |
| | 680 | 35×25 | 0.15 | 1.78 | EKMM201VSN681MA25S |
| | 820 | 25.4×45 | 0.15 | 2.04 | EKMM201VSN821MQ45S |
| | 820 | 30×30 | 0.15 | 2.04 | EKMM201VSN821MR30S |
| | 820 | 35×25 | 0.15 | 2.04 | EKMM201VSN821MA25S |
| | 1,000 | 25.4×50 | 0.15 | 2.30 | EKMM201VSN102MQ50S |
| | 1,000 | 30×35 | 0.15 | 2.30 | EKMM201VSN102MR35S |
| | 1,000 | 35×30 | 0.15 | 2.30 | EKMM201VSN102MA30S |
| | 1,200 | 25.4×60 | 0.15 | 2.66 | EKMM201VSN122MQ60S |
| | 1,200 | 30×40 | 0.15 | 2.65 | EKMM201VSN122MR40S |
| | 1,200 | 35×35 | 0.15 | 2.65 | EKMM201VSN122MA35S |
| | 1,500 | 30×50 | 0.15 | 3.08 | EKMM201VSN152MR50S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## KMM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 1,500 | 35×40 | 0.15 | 3.08 | EKMM201VSN152MA40S |
| | 1,800 | 30×60 | 0.15 | 3.49 | EKMM201VSN182MR60S |
| | 1,800 | 35×45 | 0.15 | 3.48 | EKMM201VSN182MA45S |
| | 2,200 | 35×50 | 0.15 | 3.78 | EKMM201VSN222MA50S |
| 220 | 120 | 20×20 | 0.15 | 0.56 | EKMM221VSN121MN20S |
| | 150 | 20×25 | 0.15 | 0.73 | EKMM221VSN151MN25S |
| | 150 | 22×20 | 0.15 | 0.67 | EKMM221VSN151MP20S |
| | 180 | 20×25 | 0.15 | 0.90 | EKMM221VSN181MN25S |
| | 180 | 25.4×20 | 0.15 | 0.76 | EKMM221VSN181MQ20S |
| | 220 | 20×30 | 0.15 | 1.00 | EKMM221VSN221MN30S |
| | 220 | 22×25 | 0.15 | 1.00 | EKMM221VSN221MP25S |
| | 220 | 25.4×20 | 0.15 | 0.84 | EKMM221VSN221MQ20S |
| | 270 | 20×35 | 0.15 | 1.15 | EKMM221VSN271MN35S |
| | 270 | 22×30 | 0.15 | 1.15 | EKMM221VSN271MP30S |
| | 270 | 25.4×25 | 0.15 | 1.08 | EKMM221VSN271MQ25S |
| | 270 | 30×20 | 0.15 | 0.98 | EKMM221VSN271MR20S |
| | 330 | 20×40 | 0.15 | 1.25 | EKMM221VSN331MN40S |
| | 330 | 22×35 | 0.15 | 1.25 | EKMM221VSN331MP35S |
| | 330 | 25.4×25 | 0.15 | 1.25 | EKMM221VSN331MQ25S |
| | 330 | 35×20 | 0.15 | 1.13 | EKMM221VSN331MA20S |
| | 390 | 20×45 | 0.15 | 1.40 | EKMM221VSN391MN45S |
| | 390 | 22×35 | 0.15 | 1.40 | EKMM221VSN391MP35S |
| | 390 | 25.4×30 | 0.15 | 1.40 | EKMM221VSN391MQ30S |
| | 390 | 30×25 | 0.15 | 1.36 | EKMM221VSN391MR25S |
| | 390 | 35×20 | 0.15 | 1.23 | EKMM221VSN391MA20S |
| | 470 | 20×50 | 0.15 | 1.51 | EKMM221VSN471MN50S |
| | 470 | 22×40 | 0.15 | 1.51 | EKMM221VSN471MP40S |
| | 470 | 25.4×35 | 0.15 | 1.54 | EKMM221VSN471MQ35S |
| | 470 | 30×25 | 0.15 | 1.50 | EKMM221VSN471MR25S |
| | 560 | 22×45 | 0.15 | 1.70 | EKMM221VSN561MP45S |
| | 560 | 25.4×40 | 0.15 | 1.72 | EKMM221VSN561MQ40S |
| | 560 | 30×30 | 0.15 | 1.70 | EKMM221VSN561MR30S |
| | 560 | 35×25 | 0.15 | 1.71 | EKMM221VSN561MA25S |
| | 680 | 25.4×45 | 0.15 | 1.94 | EKMM221VSN681MQ45S |
| | 680 | 30×35 | 0.15 | 1.93 | EKMM221VSN681MR35S |
| | 680 | 35×25 | 0.15 | 1.89 | EKMM221VSN681MA25S |
| | 820 | 25.4×50 | 0.15 | 2.18 | EKMM221VSN821MQ50S |
| | 820 | 30×40 | 0.15 | 2.19 | EKMM221VSN821MR40S |
| | 820 | 35×30 | 0.15 | 2.16 | EKMM221VSN821MA30S |
| | 1,000 | 25.4×60 | 0.15 | 2.54 | EKMM221VSN102MQ60S |
| | 1,000 | 30×45 | 0.15 | 2.50 | EKMM221VSN102MR45S |
| | 1,000 | 35×35 | 0.15 | 2.44 | EKMM221VSN102MA35S |
| | 1,200 | 30×50 | 0.15 | 2.81 | EKMM221VSN122MR50S |
| | 1,200 | 35×40 | 0.15 | 2.79 | EKMM221VSN122MA40S |
| | 1,500 | 30×60 | 0.15 | 3.30 | EKMM221VSN152MR60S |
| | 1,500 | 35×45 | 0.15 | 3.22 | EKMM221VSN152MA45S |
| | 1,800 | 35×50 | 0.15 | 3.63 | EKMM221VSN182MA50S |
| | 2,200 | 35×60 | 0.15 | 4.23 | EKMM221VSN222MA60S |
| 250 | 100 | 20×20 | 0.15 | 0.51 | EKMM251VSN101MN20S |
| | 120 | 20×25 | 0.15 | 0.58 | EKMM251VSN121MN25S |
| | 120 | 22×20 | 0.15 | 0.60 | EKMM251VSN121MP20S |
| | 150 | 20×25 | 0.15 | 0.79 | EKMM251VSN151MN25S |
| | 150 | 25.4×20 | 0.15 | 0.74 | EKMM251VSN151MQ20S |
| | 180 | 20×30 | 0.15 | 0.90 | EKMM251VSN181MN30S |
| | 180 | 22×25 | 0.15 | 0.78 | EKMM251VSN181MP25S |
| | 180 | 25.4×20 | 0.15 | 0.75 | EKMM251VSN181MQ20S |
| | 220 | 20×30 | 0.15 | 1.00 | EKMM251VSN221MN30S |
| | 220 | 22×25 | 0.15 | 1.00 | EKMM251VSN221MP25S |
| | 220 | 25.4×25 | 0.15 | 0.95 | EKMM251VSN221MQ25S |
| | 220 | 30×20 | 0.15 | 0.95 | EKMM251VSN221MR20S |
| | 270 | 20×35 | 0.15 | 1.10 | EKMM251VSN271MN35S |
| | 270 | 22×30 | 0.15 | 1.18 | EKMM251VSN271MP30S |
| | 270 | 25.4×25 | 0.15 | 1.18 | EKMM251VSN271MQ25S |
| | 270 | 30×20 | 0.15 | 1.00 | EKMM251VSN271MR20S |
| | 330 | 20×40 | 0.15 | 1.20 | EKMM251VSN331MN40S |
| | 330 | 22×35 | 0.15 | 1.30 | EKMM251VSN331MP35S |
| | 330 | 25.4×30 | 0.15 | 1.30 | EKMM251VSN331MQ30S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 250 | 330 | 30×25 | 0.15 | 1.30 | EKMM251VSN331MR25S |
| | 330 | 35×20 | 0.15 | 1.16 | EKMM251VSN331MA20S |
| | 390 | 20×50 | 0.15 | 1.45 | EKMM251VSN391MN50S |
| | 390 | 22×40 | 0.15 | 1.49 | EKMM251VSN391MP40S |
| | 390 | 25.4×35 | 0.15 | 1.49 | EKMM251VSN391MQ35S |
| | 390 | 30×25 | 0.15 | 1.49 | EKMM251VSN391MR25S |
| | 470 | 22×45 | 0.15 | 1.65 | EKMM251VSN471MP45S |
| | 470 | 25.4×35 | 0.15 | 1.65 | EKMM251VSN471MQ35S |
| | 470 | 30×30 | 0.15 | 1.65 | EKMM251VSN471MR30S |
| | 470 | 35×25 | 0.15 | 1.65 | EKMM251VSN471MA25S |
| | 560 | 22×50 | 0.15 | 1.67 | EKMM251VSN561MP50S |
| | 560 | 25.4×40 | 0.15 | 1.80 | EKMM251VSN561MQ40S |
| | 560 | 30×30 | 0.15 | 1.80 | EKMM251VSN561MR30S |
| | 560 | 35×25 | 0.15 | 1.80 | EKMM251VSN561MA25S |
| | 680 | 25.4×50 | 0.15 | 2.00 | EKMM251VSN681MQ50S |
| | 680 | 30×35 | 0.15 | 2.00 | EKMM251VSN681MR35S |
| | 680 | 35×30 | 0.15 | 2.00 | EKMM251VSN681MA30S |
| | 820 | 25.4×60 | 0.15 | 2.20 | EKMM251VSN821MQ60S |
| | 820 | 30×40 | 0.15 | 2.30 | EKMM251VSN821MR40S |
| | 820 | 35×35 | 0.15 | 2.30 | EKMM251VSN821MA35S |
| | 1,000 | 30×50 | 0.15 | 2.47 | EKMM251VSN102MR50S |
| | 1,000 | 35×40 | 0.15 | 2.47 | EKMM251VSN102MA40S |
| | 1,200 | 30×60 | 0.15 | 2.85 | EKMM251VSN122MR60S |
| | 1,200 | 35×45 | 0.15 | 2.60 | EKMM251VSN122MA45S |
| | 1,500 | 35×50 | 0.15 | 3.00 | EKMM251VSN152MA50S |
| | 1,800 | 35×60 | 0.15 | 3.42 | EKMM251VSN182MA60S |
| 315 | 56 | 20×20 | 0.15 | 0.38 | EKMM3B1VSN560MN20S |
| | 68 | 20×25 | 0.15 | 0.47 | EKMM3B1VSN680MN25S |
| | 68 | 22×20 | 0.15 | 0.45 | EKMM3B1VSN680MP20S |
| | 82 | 20×25 | 0.15 | 0.64 | EKMM3B1VSN820MN25S |
| | 82 | 22×20 | 0.15 | 0.47 | EKMM3B1VSN820MP20S |
| | 100 | 20×30 | 0.15 | 0.69 | EKMM3B1VSN101MN30S |
| | 100 | 22×25 | 0.15 | 0.61 | EKMM3B1VSN101MP25S |
| | 100 | 25.4×20 | 0.15 | 0.56 | EKMM3B1VSN101MQ20S |
| | 120 | 20×30 | 0.15 | 0.75 | EKMM3B1VSN121MN30S |
| | 120 | 22×25 | 0.15 | 0.75 | EKMM3B1VSN121MP25S |
| | 120 | 25.4×20 | 0.15 | 0.62 | EKMM3B1VSN121MQ20S |
| | 120 | 30×20 | 0.15 | 0.65 | EKMM3B1VSN121MR20S |
| | 150 | 20×35 | 0.15 | 0.82 | EKMM3B1VSN151MN35S |
| | 150 | 22×30 | 0.15 | 0.82 | EKMM3B1VSN151MP30S |
| | 150 | 25.4×25 | 0.15 | 0.82 | EKMM3B1VSN151MQ25S |
| | 150 | 30×20 | 0.15 | 0.70 | EKMM3B1VSN151MR20S |
| | 150 | 35×20 | 0.15 | 0.76 | EKMM3B1VSN151MA20S |
| | 180 | 20×40 | 0.15 | 0.90 | EKMM3B1VSN181MN40S |
| | 180 | 22×35 | 0.15 | 0.92 | EKMM3B1VSN181MP35S |
| | 180 | 25.4×25 | 0.15 | 0.92 | EKMM3B1VSN181MQ25S |
| | 180 | 30×25 | 0.15 | 0.90 | EKMM3B1VSN181MR25S |
| | 180 | 35×20 | 0.15 | 0.85 | EKMM3B1VSN181MA20S |
| | 220 | 20×50 | 0.15 | 1.00 | EKMM3B1VSN221MN50S |
| | 220 | 22×40 | 0.15 | 1.04 | EKMM3B1VSN221MP40S |
| | 220 | 25.4×30 | 0.15 | 1.04 | EKMM3B1VSN221MQ30S |
| | 220 | 30×25 | 0.15 | 1.04 | EKMM3B1VSN221MR25S |
| | 220 | 35×20 | 0.15 | 0.90 | EKMM3B1VSN221MA20S |
| | 270 | 22×45 | 0.15 | 1.16 | EKMM3B1VSN271MP45S |
| | 270 | 25.4×35 | 0.15 | 1.16 | EKMM3B1VSN271MQ35S |
| | 270 | 30×25 | 0.15 | 1.16 | EKMM3B1VSN271MR25S |
| | 270 | 35×25 | 0.15 | 1.15 | EKMM3B1VSN271MA25S |
| | 330 | 22×50 | 0.15 | 1.33 | EKMM3B1VSN331MP50S |
| | 330 | 25.4×40 | 0.15 | 1.33 | EKMM3B1VSN331MQ40S |
| | 330 | 30×30 | 0.15 | 1.33 | EKMM3B1VSN331MR30S |
| | 330 | 35×25 | 0.15 | 1.33 | EKMM3B1VSN331MA25S |
| | 390 | 25.4×45 | 0.15 | 1.47 | EKMM3B1VSN391MQ45S |
| | 390 | 30×35 | 0.15 | 1.47 | EKMM3B1VSN391MR35S |
| | 390 | 35×30 | 0.15 | 1.47 | EKMM3B1VSN391MA30S |
| | 470 | 25.4×50 | 0.15 | 1.70 | EKMM3B1VSN471MQ50S |
| | 470 | 30×40 | 0.15 | 1.70 | EKMM3B1VSN471MR40S |
| | 470 | 35×30 | 0.15 | 1.70 | EKMM3B1VSN471MA30S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## KMM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 315 | 560 | 30×45 | 0.15 | 2.05 | EKMM3B1VSN561MR45S |
| | 560 | 35×35 | 0.15 | 2.05 | EKMM3B1VSN561MA35S |
| | 680 | 30×50 | 0.15 | 2.17 | EKMM3B1VSN681MR50S |
| | 680 | 35×40 | 0.15 | 2.17 | EKMM3B1VSN681MA40S |
| | 820 | 35×45 | 0.15 | 2.20 | EKMM3B1VSN821MA45S |
| | 1,000 | 35×60 | 0.15 | 2.55 | EKMM3B1VSN102MA60S |
| 350 | 47 | 20×20 | 0.15 | 0.35 | EKMM351VSN470MN20S |
| | 56 | 20×25 | 0.15 | 0.43 | EKMM351VSN560MN25S |
| | 56 | 22×20 | 0.15 | 0.41 | EKMM351VSN560MP20S |
| | 68 | 20×25 | 0.15 | 0.47 | EKMM351VSN680MN25S |
| | 68 | 25.4×20 | 0.15 | 0.46 | EKMM351VSN680MQ20S |
| | 82 | 20×30 | 0.15 | 0.54 | EKMM351VSN820MN30S |
| | 82 | 22×25 | 0.15 | 0.55 | EKMM351VSN820MP25S |
| | 82 | 25.4×20 | 0.15 | 0.51 | EKMM351VSN820MQ20S |
| | 100 | 20×30 | 0.15 | 0.60 | EKMM351VSN101MN30S |
| | 100 | 22×25 | 0.15 | 0.69 | EKMM351VSN101MP25S |
| | 100 | 30×20 | 0.15 | 0.60 | EKMM351VSN101MR20S |
| | 120 | 20×35 | 0.15 | 0.68 | EKMM351VSN121MN35S |
| | 120 | 22×30 | 0.15 | 0.75 | EKMM351VSN121MP30S |
| | 120 | 25.4×25 | 0.15 | 0.75 | EKMM351VSN121MQ25S |
| | 120 | 30×20 | 0.15 | 0.65 | EKMM351VSN121MR20S |
| | 150 | 20×40 | 0.15 | 0.78 | EKMM351VSN151MN40S |
| | 150 | 22×35 | 0.15 | 0.82 | EKMM351VSN151MP35S |
| | 150 | 25.4×30 | 0.15 | 0.83 | EKMM351VSN151MQ30S |
| | 150 | 30×25 | 0.15 | 0.82 | EKMM351VSN151MR25S |
| | 150 | 35×20 | 0.15 | 0.76 | EKMM351VSN151MA20S |
| | 180 | 20×45 | 0.15 | 0.87 | EKMM351VSN181MN45S |
| | 180 | 22×40 | 0.15 | 0.92 | EKMM351VSN181MP40S |
| | 180 | 25.4×30 | 0.15 | 0.92 | EKMM351VSN181MQ30S |
| | 180 | 30×25 | 0.15 | 0.90 | EKMM351VSN181MR25S |
| | 220 | 20×50 | 0.15 | 1.00 | EKMM351VSN221MN50S |
| | 220 | 22×45 | 0.15 | 1.05 | EKMM351VSN221MP45S |
| | 220 | 25.4×35 | 0.15 | 1.04 | EKMM351VSN221MQ35S |
| | 220 | 30×30 | 0.15 | 1.02 | EKMM351VSN221MR30S |
| | 220 | 35×25 | 0.15 | 1.04 | EKMM351VSN221MA25S |
| | 270 | 22×50 | 0.15 | 1.16 | EKMM351VSN271MP50S |
| | 270 | 25.4×40 | 0.15 | 1.18 | EKMM351VSN271MQ40S |
| | 270 | 30×30 | 0.15 | 1.17 | EKMM351VSN271MR30S |
| | 270 | 35×25 | 0.15 | 1.20 | EKMM351VSN271MA25S |
| | 330 | 25.4×45 | 0.15 | 1.29 | EKMM351VSN331MQ45S |
| | 330 | 30×35 | 0.15 | 1.34 | EKMM351VSN331MR35S |
| | 330 | 35×30 | 0.15 | 1.22 | EKMM351VSN331MA30S |
| | 390 | 25.4×50 | 0.15 | 1.51 | EKMM351VSN391MQ50S |
| | 390 | 30×40 | 0.15 | 1.51 | EKMM351VSN391MR40S |
| | 390 | 35×35 | 0.15 | 1.47 | EKMM351VSN391MA35S |
| | 470 | 25.4×60 | 0.15 | 1.66 | EKMM351VSN471MQ60S |
| | 470 | 30×45 | 0.15 | 1.65 | EKMM351VSN471MR45S |
| | 470 | 35×35 | 0.15 | 1.69 | EKMM351VSN471MA35S |
| | 560 | 30×50 | 0.15 | 1.85 | EKMM351VSN561MR50S |
| | 560 | 35×40 | 0.15 | 1.90 | EKMM351VSN561MA40S |
| | 680 | 30×60 | 0.15 | 2.15 | EKMM351VSN681MR60S |
| | 680 | 35×50 | 0.15 | 1.99 | EKMM351VSN681MA50S |
| | 820 | 35×60 | 0.15 | 2.31 | EKMM351VSN821MA60S |
| 400 | 39 | 20×20 | 0.15 | 0.32 | EKMM401VSN390MN20S |
| | 47 | 20×25 | 0.15 | 0.39 | EKMM401VSN470MN25S |
| | 47 | 22×20 | 0.15 | 0.37 | EKMM401VSN470MP20S |
| | 56 | 20×25 | 0.15 | 0.51 | EKMM401VSN560MN25S |
| | 56 | 25.4×20 | 0.15 | 0.42 | EKMM401VSN560MQ20S |
| | 68 | 20×30 | 0.15 | 0.56 | EKMM401VSN680MN30S |
| | 68 | 22×25 | 0.15 | 0.50 | EKMM401VSN680MP25S |
| | 68 | 25.4×20 | 0.15 | 0.46 | EKMM401VSN680MQ20S |
| | 82 | 20×30 | 0.15 | 0.64 | EKMM401VSN820MN30S |
| | 82 | 22×25 | 0.15 | 0.64 | EKMM401VSN820MP25S |
| | 82 | 30×20 | 0.15 | 0.55 | EKMM401VSN820MR20S |
| | 100 | 20×35 | 0.15 | 0.70 | EKMM401VSN101MN35S |
| | 100 | 22×30 | 0.15 | 0.70 | EKMM401VSN101MP30S |
| | 100 | 25.4×25 | 0.15 | 0.70 | EKMM401VSN101MQ25S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 100 | 30×20 | 0.15 | 0.60 | EKMM401VSN101MR20S |
| | 120 | 20×40 | 0.15 | 0.75 | EKMM401VSN121MN40S |
| | 120 | 22×35 | 0.15 | 0.75 | EKMM401VSN121MP35S |
| | 120 | 25.4×25 | 0.15 | 0.75 | EKMM401VSN121MQ25S |
| | 120 | 30×25 | 0.15 | 0.73 | EKMM401VSN121MR25S |
| | 120 | 35×20 | 0.15 | 0.75 | EKMM401VSN121MA20S |
| | 150 | 20×45 | 0.15 | 0.83 | EKMM401VSN151MN45S |
| | 150 | 22×40 | 0.15 | 0.88 | EKMM401VSN151MP40S |
| | 150 | 25.4×30 | 0.15 | 0.88 | EKMM401VSN151MQ30S |
| | 150 | 30×25 | 0.15 | 0.88 | EKMM401VSN151MR25S |
| | 150 | 35×20 | 0.15 | 0.80 | EKMM401VSN151MA20S |
| | 180 | 22×45 | 0.15 | 0.98 | EKMM401VSN181MP45S |
| | 180 | 25.4×35 | 0.15 | 0.98 | EKMM401VSN181MQ35S |
| | 180 | 30×30 | 0.15 | 0.98 | EKMM401VSN181MR30S |
| | 180 | 35×25 | 0.15 | 0.98 | EKMM401VSN181MA25S |
| | 220 | 22×50 | 0.15 | 1.10 | EKMM401VSN221MP50S |
| | 220 | 25.4×40 | 0.15 | 1.10 | EKMM401VSN221MQ40S |
| | 220 | 30×30 | 0.15 | 1.10 | EKMM401VSN221MR30S |
| | 220 | 35×25 | 0.15 | 1.10 | EKMM401VSN221MA25S |
| | 270 | 25.4×45 | 0.15 | 1.22 | EKMM401VSN271MQ45S |
| | 270 | 30×35 | 0.15 | 1.22 | EKMM401VSN271MR35S |
| | 270 | 35×30 | 0.15 | 1.22 | EKMM401VSN271MA30S |
| | 330 | 25.4×50 | 0.15 | 1.44 | EKMM401VSN331MQ50S |
| | 330 | 30×40 | 0.15 | 1.44 | EKMM401VSN331MR40S |
| | 330 | 35×30 | 0.15 | 1.44 | EKMM401VSN331MA30S |
| | 390 | 25.4×60 | 0.15 | 1.51 | EKMM401VSN391MQ60S |
| | 390 | 30×45 | 0.15 | 1.60 | EKMM401VSN391MR45S |
| | 390 | 35×35 | 0.15 | 1.60 | EKMM401VSN391MA35S |
| | 470 | 30×50 | 0.15 | 1.90 | EKMM401VSN471MR50S |
| | 470 | 35×40 | 0.15 | 1.90 | EKMM401VSN471MA40S |
| | 560 | 30×60 | 0.15 | 2.10 | EKMM401VSN561MR60S |
| | 560 | 35×45 | 0.15 | 2.12 | EKMM401VSN561MA45S |
| | 680 | 35×60 | 0.15 | 2.27 | EKMM401VSN681MA60S |
| 420 | 39 | 20×20 | 0.20 | 0.32 | EKMM421VSN390MN20S |
| | 47 | 20×25 | 0.20 | 0.39 | EKMM421VSN470MN25S |
| | 47 | 22×20 | 0.20 | 0.37 | EKMM421VSN470MP20S |
| | 56 | 20×25 | 0.20 | 0.51 | EKMM421VSN560MN25S |
| | 56 | 25.4×20 | 0.20 | 0.42 | EKMM421VSN560MQ20S |
| | 68 | 20×30 | 0.20 | 0.56 | EKMM421VSN680MN30S |
| | 68 | 22×25 | 0.20 | 0.50 | EKMM421VSN680MP25S |
| | 68 | 25.4×20 | 0.20 | 0.46 | EKMM421VSN680MQ20S |
| | 82 | 20×35 | 0.20 | 0.64 | EKMM421VSN820MN35S |
| | 82 | 22×25 | 0.20 | 0.64 | EKMM421VSN820MP25S |
| | 82 | 25.4×25 | 0.20 | 0.58 | EKMM421VSN820MQ25S |
| | 82 | 30×20 | 0.20 | 0.53 | EKMM421VSN820MR20S |
| | 100 | 20×35 | 0.20 | 0.70 | EKMM421VSN101MN35S |
| | 100 | 22×30 | 0.20 | 0.70 | EKMM421VSN101MP30S |
| | 100 | 25.4×25 | 0.20 | 0.70 | EKMM421VSN101MQ25S |
| | 100 | 30×20 | 0.20 | 0.59 | EKMM421VSN101MR20S |
| | 120 | 20×40 | 0.20 | 0.75 | EKMM421VSN121MN40S |
| | 120 | 22×35 | 0.20 | 0.75 | EKMM421VSN121MP35S |
| | 120 | 25.4×30 | 0.20 | 0.75 | EKMM421VSN121MQ30S |
| | 120 | 30×25 | 0.20 | 0.73 | EKMM421VSN121MR25S |
| | 120 | 35×20 | 0.20 | 0.67 | EKMM421VSN121MA20S |
| | 150 | 20×50 | 0.20 | 0.88 | EKMM421VSN151MN50S |
| | 150 | 22×40 | 0.20 | 0.88 | EKMM421VSN151MP40S |
| | 150 | 25.4×35 | 0.20 | 0.88 | EKMM421VSN151MQ35S |
| | 150 | 30×25 | 0.20 | 0.88 | EKMM421VSN151MR25S |
| | 180 | 22×45 | 0.20 | 0.95 | EKMM421VSN181MP45S |
| | 180 | 25.4×35 | 0.20 | 0.95 | EKMM421VSN181MQ35S |
| | 180 | 30×30 | 0.20 | 0.95 | EKMM421VSN181MR30S |
| | 180 | 35×25 | 0.20 | 0.94 | EKMM421VSN181MA25S |
| | 220 | 22×50 | 0.20 | 1.10 | EKMM421VSN221MP50S |
| | 220 | 25.4×45 | 0.20 | 1.10 | EKMM421VSN221MQ45S |
| | 220 | 30×35 | 0.20 | 1.10 | EKMM421VSN221MR35S |
| | 220 | 35×25 | 0.20 | 1.10 | EKMM421VSN221MA25S |
| | 270 | 25.4×50 | 0.20 | 1.22 | EKMM421VSN271MQ50S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## KMM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 270 | 30×40 | 0.20 | 1.22 | EKMM421VSN271MR40S |
| | 270 | 35×30 | 0.20 | 1.22 | EKMM421VSN271MA30S |
| | 330 | 25.4×60 | 0.20 | 1.41 | EKMM421VSN331MQ60S |
| | 330 | 30×45 | 0.20 | 1.45 | EKMM421VSN331MR45S |
| | 330 | 35×35 | 0.20 | 1.45 | EKMM421VSN331MA35S |
| | 390 | 30×50 | 0.20 | 1.55 | EKMM421VSN391MR50S |
| | 390 | 35×40 | 0.20 | 1.55 | EKMM421VSN391MA40S |
| | 470 | 30×60 | 0.20 | 1.79 | EKMM421VSN471MR60S |
| | 470 | 35×45 | 0.20 | 1.90 | EKMM421VSN471MA45S |
| | 560 | 35×50 | 0.20 | 2.15 | EKMM421VSN561MA50S |
| | 680 | 35×60 | 0.20 | 2.27 | EKMM421VSN681MA60S |
| 450 | 39 | 20×25 | 0.20 | 0.34 | EKMM451VSN390MN25S |
| | 47 | 20×25 | 0.20 | 0.39 | EKMM451VSN470MN25S |
| | 56 | 20×30 | 0.20 | 0.51 | EKMM451VSN560MN30S |
| | 56 | 22×25 | 0.20 | 0.40 | EKMM451VSN560MP25S |
| | 68 | 20×35 | 0.20 | 0.56 | EKMM451VSN680MN35S |
| | 68 | 22×30 | 0.20 | 0.53 | EKMM451VSN680MP30S |
| | 68 | 25.4×25 | 0.20 | 0.50 | EKMM451VSN680MQ25S |
| | 82 | 20×35 | 0.20 | 0.64 | EKMM451VSN820MN35S |
| | 82 | 22×30 | 0.20 | 0.64 | EKMM451VSN820MP30S |
| | 82 | 25.4×25 | 0.20 | 0.64 | EKMM451VSN820MQ25S |
| | 100 | 20×45 | 0.20 | 0.69 | EKMM451VSN101MN45S |
| | 100 | 22×35 | 0.20 | 0.69 | EKMM451VSN101MP35S |
| | 100 | 25.4×30 | 0.20 | 0.69 | EKMM451VSN101MQ30S |
| | 100 | 30×25 | 0.20 | 0.64 | EKMM451VSN101MR25S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 120 | 20×50 | 0.20 | 0.75 | EKMM451VSN121MN50S |
| | 120 | 22×40 | 0.20 | 0.80 | EKMM451VSN121MP40S |
| | 120 | 25.4×30 | 0.20 | 0.80 | EKMM451VSN121MQ30S |
| | 120 | 30×25 | 0.20 | 0.80 | EKMM451VSN121MR25S |
| | 120 | 35×25 | 0.20 | 0.73 | EKMM451VSN121MA25S |
| | 150 | 22×45 | 0.20 | 0.88 | EKMM451VSN151MP45S |
| | 150 | 25.4×35 | 0.20 | 0.88 | EKMM451VSN151MQ35S |
| | 150 | 30×30 | 0.20 | 0.88 | EKMM451VSN151MR30S |
| | 150 | 35×25 | 0.20 | 0.75 | EKMM451VSN151MA25S |
| | 180 | 22×50 | 0.20 | 1.00 | EKMM451VSN181MP50S |
| | 180 | 25.4×40 | 0.20 | 1.00 | EKMM451VSN181MQ40S |
| | 180 | 30×30 | 0.20 | 1.00 | EKMM451VSN181MR30S |
| | 220 | 25.4×45 | 0.20 | 1.12 | EKMM451VSN221MQ45S |
| | 220 | 30×35 | 0.20 | 1.12 | EKMM451VSN221MR35S |
| | 220 | 35×30 | 0.20 | 1.12 | EKMM451VSN221MA30S |
| | 270 | 25.4×60 | 0.20 | 1.18 | EKMM451VSN271MQ60S |
| | 270 | 30×40 | 0.20 | 1.28 | EKMM451VSN271MR40S |
| | 270 | 35×35 | 0.20 | 1.28 | EKMM451VSN271MA35S |
| | 330 | 30×50 | 0.20 | 1.45 | EKMM451VSN331MR50S |
| | 330 | 35×40 | 0.20 | 1.45 | EKMM451VSN331MA40S |
| | 390 | 30×60 | 0.20 | 1.51 | EKMM451VSN391MR60S |
| | 390 | 35×40 | 0.20 | 1.55 | EKMM451VSN391MA40S |
| | 470 | 35×50 | 0.20 | 1.85 | EKMM451VSN471MA50S |
| | 560 | 35×60 | 0.20 | 1.91 | EKMM451VSN561MA60S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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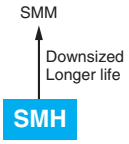
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

## SMH Series

- Endurance with ripple current : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

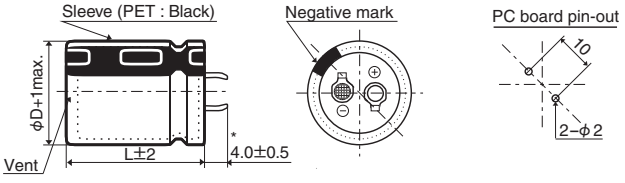


## ◆SPACIFICATIONS

| Items | Characteristics | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +85℃ | | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 100Vdc | | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 3mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | |
| | tanδ (Max.) | 0.60 | 0.50 | 0.40 | 0.30 | 0.25 | 0.20 | 0.15 | 0.15 | 0.15 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | |
| | Z(−25℃)/Z(+20℃) | 4 | 4 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 15 | 15 | 15 | 10 | 8 | 6 | 6 | 5 | 5 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. | | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | | |

## ◆DIMENSIONS [mm]

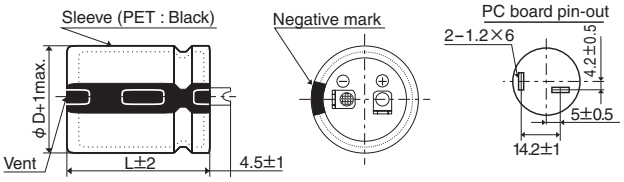
●Terminal Code : VS (φ22 to φ35) : Standard




*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)




## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | S | M | H | | | | V | S | N | | | | M | | | | S |

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 820μF:821, 3,300μF:332)
Dummy terminal code
Terminal code
Voltage code (ex. 6.3V:6R3, 63V:630, 100V:101)
Series code
Category

Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

## SMH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 15,000 | 22×25 | 0.60 | 2.44 | ESMH6R3VSN153MP25S |
| | 18,000 | 22×30 | 0.60 | 2.67 | ESMH6R3VSN183MP30S |
| | 18,000 | 25.4×25 | 0.60 | 2.70 | ESMH6R3VSN183MQ25S |
| | 22,000 | 22×30 | 0.60 | 3.06 | ESMH6R3VSN223MP30S |
| | 22,000 | 25.4×25 | 0.60 | 3.07 | ESMH6R3VSN223MQ25S |
| | 27,000 | 22×35 | 0.60 | 3.49 | ESMH6R3VSN273MP35S |
| | 27,000 | 25.4×30 | 0.60 | 3.52 | ESMH6R3VSN273MQ30S |
| | 27,000 | 30×25 | 0.60 | 3.57 | ESMH6R3VSN273MR25S |
| | 33,000 | 22×40 | 0.60 | 3.97 | ESMH6R3VSN333MP40S |
| | 33,000 | 25.4×35 | 0.60 | 4.02 | ESMH6R3VSN333MQ35S |
| | 33,000 | 30×25 | 0.60 | 3.95 | ESMH6R3VSN333MR25S |
| | 39,000 | 22×50 | 0.60 | 4.55 | ESMH6R3VSN393MP50S |
| | 39,000 | 25.4×40 | 0.60 | 4.50 | ESMH6R3VSN393MQ40S |
| | 39,000 | 30×30 | 0.60 | 4.45 | ESMH6R3VSN393MR30S |
| | 39,000 | 35×25 | 0.60 | 4.51 | ESMH6R3VSN393MA25S |
| | 47,000 | 25.4×45 | 0.60 | 5.09 | ESMH6R3VSN473MQ45S |
| | 47,000 | 30×35 | 0.60 | 5.06 | ESMH6R3VSN473MR35S |
| | 47,000 | 35×30 | 0.60 | 5.01 | ESMH6R3VSN473MA30S |
| | 56,000 | 25.4×50 | 0.60 | 5.71 | ESMH6R3VSN563MQ50S |
| | 56,000 | 30×40 | 0.60 | 5.70 | ESMH6R3VSN563MR40S |
| | 56,000 | 35×30 | 0.60 | 5.77 | ESMH6R3VSN563MA30S |
| | 68,000 | 30×45 | 0.60 | 6.48 | ESMH6R3VSN683MR45S |
| | 68,000 | 35×35 | 0.60 | 6.42 | ESMH6R3VSN683MA35S |
| | 82,000 | 30×50 | 0.60 | 7.32 | ESMH6R3VSN823MR50S |
| | 82,000 | 35×40 | 0.60 | 7.29 | ESMH6R3VSN823MA40S |
| | 100,000 | 35×45 | 0.60 | 8.31 | ESMH6R3VSN104MA45S |
| 10 | 12,000 | 22×25 | 0.50 | 2.39 | ESMH100VSN123MP25S |
| | 15,000 | 22×30 | 0.50 | 2.76 | ESMH100VSN153MP30S |
| | 15,000 | 25.4×25 | 0.50 | 2.77 | ESMH100VSN153MQ25S |
| | 18,000 | 22×35 | 0.50 | 3.12 | ESMH100VSN183MP35S |
| | 18,000 | 25.4×25 | 0.50 | 3.04 | ESMH100VSN183MQ25S |
| | 22,000 | 22×40 | 0.50 | 3.55 | ESMH100VSN223MP40S |
| | 22,000 | 25.4×30 | 0.50 | 3.48 | ESMH100VSN223MQ30S |
| | 22,000 | 30×25 | 0.50 | 3.53 | ESMH100VSN223MR25S |
| | 27,000 | 22×45 | 0.50 | 4.04 | ESMH100VSN273MP45S |
| | 27,000 | 25.4×35 | 0.50 | 3.98 | ESMH100VSN273MQ35S |
| | 27,000 | 30×30 | 0.50 | 3.73 | ESMH100VSN273MR30S |
| | 27,000 | 35×25 | 0.50 | 3.73 | ESMH100VSN273MA25S |
| | 33,000 | 22×50 | 0.50 | 4.58 | ESMH100VSN333MP50S |
| | 33,000 | 25.4×40 | 0.50 | 4.54 | ESMH100VSN333MQ40S |
| | 33,000 | 30×30 | 0.50 | 4.13 | ESMH100VSN333MR30S |
| | 33,000 | 35×25 | 0.50 | 4.13 | ESMH100VSN333MA25S |
| | 39,000 | 25.4×45 | 0.50 | 5.08 | ESMH100VSN393MQ45S |
| | 39,000 | 30×35 | 0.50 | 5.05 | ESMH100VSN393MR35S |
| | 39,000 | 35×30 | 0.50 | 4.80 | ESMH100VSN393MA30S |
| | 47,000 | 25.4×50 | 0.50 | 5.73 | ESMH100VSN473MQ50S |
| | 47,000 | 30×40 | 0.50 | 5.72 | ESMH100VSN473MR40S |
| | 47,000 | 35×30 | 0.50 | 5.27 | ESMH100VSN473MA30S |
| | 56,000 | 30×45 | 0.50 | 6.44 | ESMH100VSN563MR45S |
| | 56,000 | 35×35 | 0.50 | 6.38 | ESMH100VSN563MA35S |
| | 68,000 | 30×50 | 0.50 | 7.27 | ESMH100VSN683MR50S |
| | 68,000 | 35×40 | 0.50 | 7.27 | ESMH100VSN683MA40S |
| | 82,000 | 35×50 | 0.50 | 8.49 | ESMH100VSN823MA50S |
| 16 | 8,200 | 22×25 | 0.40 | 2.51 | ESMH160VSN822MP25S |
| | 10,000 | 22×25 | 0.40 | 2.77 | ESMH160VSN103MP25S |
| | 12,000 | 22×30 | 0.40 | 2.86 | ESMH160VSN123MP30S |
| | 12,000 | 25.4×25 | 0.40 | 2.95 | ESMH160VSN123MQ25S |
| | 15,000 | 22×35 | 0.40 | 3.29 | ESMH160VSN153MP35S |
| | 15,000 | 25.4×30 | 0.40 | 3.46 | ESMH160VSN153MQ30S |
| | 15,000 | 30×25 | 0.40 | 3.66 | ESMH160VSN153MR25S |
| | 18,000 | 22×40 | 0.40 | 3.72 | ESMH160VSN183MP40S |
| | 18,000 | 25.4×35 | 0.40 | 3.98 | ESMH160VSN183MQ35S |
| | 18,000 | 30×25 | 0.40 | 4.00 | ESMH160VSN183MR25S |
| | 22,000 | 22×50 | 0.40 | 4.37 | ESMH160VSN223MP50S |
| | 22,000 | 25.4×40 | 0.40 | 4.26 | ESMH160VSN223MQ40S |
| | 22,000 | 30×30 | 0.40 | 4.21 | ESMH160VSN223MR30S |
| | 22,000 | 35×25 | 0.40 | 4.15 | ESMH160VSN223MA25S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 16 | 27,000 | 25.4×45 | 0.40 | 4.72 | ESMH160VSN273MQ45S |
| | 27,000 | 30×35 | 0.40 | 4.82 | ESMH160VSN273MR35S |
| | 27,000 | 35×30 | 0.40 | 4.65 | ESMH160VSN273MA30S |
| | 33,000 | 25.4×50 | 0.40 | 5.33 | ESMH160VSN333MQ50S |
| | 33,000 | 30×40 | 0.40 | 5.36 | ESMH160VSN333MR40S |
| | 33,000 | 35×30 | 0.40 | 5.15 | ESMH160VSN333MA30S |
| | 39,000 | 30×45 | 0.40 | 6.01 | ESMH160VSN393MR45S |
| | 39,000 | 35×35 | 0.40 | 5.95 | ESMH160VSN393MA35S |
| | 47,000 | 30×50 | 0.40 | 6.79 | ESMH160VSN473MR50S |
| | 47,000 | 35×40 | 0.40 | 6.76 | ESMH160VSN473MA40S |
| | 56,000 | 35×45 | 0.40 | 7.62 | ESMH160VSN563MA45S |
| | 68,000 | 35×50 | 0.40 | 8.63 | ESMH160VSN683MA50S |
| 25 | 5,600 | 22×25 | 0.30 | 2.21 | ESMH250VSN562MP25S |
| | 6,800 | 22×30 | 0.30 | 2.40 | ESMH250VSN682MP30S |
| | 6,800 | 25.4×25 | 0.30 | 2.56 | ESMH250VSN682MQ25S |
| | 8,200 | 22×35 | 0.30 | 2.72 | ESMH250VSN822MP35S |
| | 8,200 | 25.4×25 | 0.30 | 2.80 | ESMH250VSN822MQ25S |
| | 10,000 | 22×40 | 0.30 | 3.09 | ESMH250VSN103MP40S |
| | 10,000 | 25.4×30 | 0.30 | 3.12 | ESMH250VSN103MQ30S |
| | 10,000 | 30×25 | 0.30 | 3.21 | ESMH250VSN103MR25S |
| | 12,000 | 22×45 | 0.30 | 3.48 | ESMH250VSN123MP45S |
| | 12,000 | 25.4×35 | 0.30 | 3.43 | ESMH250VSN123MQ35S |
| | 12,000 | 30×30 | 0.30 | 3.86 | ESMH250VSN123MR30S |
| | 12,000 | 35×25 | 0.30 | 3.54 | ESMH250VSN123MA25S |
| | 15,000 | 22×50 | 0.30 | 4.00 | ESMH250VSN153MP50S |
| | 15,000 | 25.4×40 | 0.30 | 3.95 | ESMH250VSN153MQ40S |
| | 15,000 | 30×30 | 0.30 | 4.00 | ESMH250VSN153MR30S |
| | 15,000 | 35×25 | 0.30 | 3.95 | ESMH250VSN153MA25S |
| | 18,000 | 25.4×45 | 0.30 | 4.45 | ESMH250VSN183MQ45S |
| | 18,000 | 30×35 | 0.30 | 4.46 | ESMH250VSN183MR35S |
| | 18,000 | 35×30 | 0.30 | 4.63 | ESMH250VSN183MA30S |
| | 22,000 | 25.4×50 | 0.30 | 5.02 | ESMH250VSN223MQ50S |
| | 22,000 | 30×45 | 0.30 | 5.21 | ESMH250VSN223MR45S |
| | 22,000 | 35×35 | 0.30 | 5.16 | ESMH250VSN223MA35S |
| | 27,000 | 30×50 | 0.30 | 5.94 | ESMH250VSN273MR50S |
| | 27,000 | 35×40 | 0.30 | 5.92 | ESMH250VSN273MA40S |
| | 33,000 | 35×45 | 0.30 | 6.75 | ESMH250VSN333MA45S |
| | 39,000 | 35×50 | 0.30 | 7.56 | ESMH250VSN393MA50S |
| 35 | 3,900 | 22×25 | 0.25 | 2.22 | ESMH350VSN392MP25S |
| | 4,700 | 22×30 | 0.25 | 2.41 | ESMH350VSN472MP30S |
| | 4,700 | 25.4×25 | 0.25 | 2.42 | ESMH350VSN472MQ25S |
| | 5,600 | 22×35 | 0.25 | 2.75 | ESMH350VSN562MP35S |
| | 5,600 | 25.4×25 | 0.25 | 2.64 | ESMH350VSN562MQ25S |
| | 6,800 | 22×40 | 0.25 | 2.80 | ESMH350VSN682MP40S |
| | 6,800 | 25.4×30 | 0.25 | 2.74 | ESMH350VSN682MQ30S |
| | 6,800 | 30×25 | 0.25 | 2.97 | ESMH350VSN682MR25S |
| | 8,200 | 22×45 | 0.25 | 3.47 | ESMH350VSN822MP45S |
| | 8,200 | 25.4×35 | 0.25 | 3.10 | ESMH350VSN822MQ35S |
| | 8,200 | 30×30 | 0.25 | 3.13 | ESMH350VSN822MR30S |
| | 8,200 | 35×25 | 0.25 | 2.73 | ESMH350VSN822MA25S |
| | 10,000 | 22×50 | 0.25 | 3.57 | ESMH350VSN103MP50S |
| | 10,000 | 25.4×40 | 0.25 | 3.53 | ESMH350VSN103MQ40S |
| | 10,000 | 30×30 | 0.25 | 3.46 | ESMH350VSN103MR30S |
| | 10,000 | 35×25 | 0.25 | 3.02 | ESMH350VSN103MA25S |
| | 12,000 | 25.4×45 | 0.25 | 3.98 | ESMH350VSN123MQ45S |
| | 12,000 | 30×35 | 0.25 | 4.01 | ESMH350VSN123MR35S |
| | 12,000 | 35×30 | 0.25 | 4.42 | ESMH350VSN123MA30S |
| | 15,000 | 25.4×50 | 0.25 | 4.54 | ESMH350VSN153MQ50S |
| | 15,000 | 30×40 | 0.25 | 4.52 | ESMH350VSN153MR40S |
| | 15,000 | 35×35 | 0.25 | 5.01 | ESMH350VSN153MA35S |
| | 18,000 | 30×45 | 0.25 | 4.71 | ESMH350VSN183MR45S |
| | 18,000 | 35×40 | 0.25 | 5.54 | ESMH350VSN183MA40S |
| | 22,000 | 30×50 | 0.25 | 5.33 | ESMH350VSN223MR50S |
| | 22,000 | 35×45 | 0.25 | 6.04 | ESMH350VSN223MA45S |
| | 27,000 | 35×50 | 0.25 | 6.89 | ESMH350VSN273MA50S |
| 50 | 2,200 | 22×25 | 0.20 | 1.91 | ESMH500VSN222MP25S |
| | 3,300 | 22×30 | 0.20 | 2.37 | ESMH500VSN332MP30S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

## SMH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 50 | 3,300 | 25.4×25 | 0.20 | 2.38 | ESMH500VSN332MQ25S |
| | 3,900 | 22×35 | 0.20 | 2.65 | ESMH500VSN392MP35S |
| | 3,900 | 25.4×30 | 0.20 | 2.68 | ESMH500VSN392MQ30S |
| | 3,900 | 30×25 | 0.20 | 2.55 | ESMH500VSN392MR25S |
| | 4,700 | 22×40 | 0.20 | 2.99 | ESMH500VSN472MP40S |
| | 4,700 | 25.4×35 | 0.20 | 3.03 | ESMH500VSN472MQ35S |
| | 4,700 | 30×25 | 0.20 | 2.81 | ESMH500VSN472MR25S |
| | 5,600 | 22×45 | 0.20 | 3.36 | ESMH500VSN562MP45S |
| | 5,600 | 25.4×35 | 0.20 | 3.31 | ESMH500VSN562MQ35S |
| | 5,600 | 30×30 | 0.20 | 3.37 | ESMH500VSN562MR30S |
| | 5,600 | 35×25 | 0.20 | 3.42 | ESMH500VSN562MA25S |
| | 6,800 | 22×50 | 0.20 | 3.81 | ESMH500VSN682MP50S |
| | 6,800 | 25.4×40 | 0.20 | 3.81 | ESMH500VSN682MQ40S |
| | 6,800 | 30×35 | 0.20 | 3.85 | ESMH500VSN682MR35S |
| | 6,800 | 35×30 | 0.20 | 3.85 | ESMH500VSN682MA30S |
| | 8,200 | 25.4×50 | 0.20 | 4.37 | ESMH500VSN822MQ50S |
| | 8,200 | 30×40 | 0.20 | 4.36 | ESMH500VSN822MR40S |
| | 8,200 | 35×30 | 0.20 | 4.41 | ESMH500VSN822MA30S |
| | 10,000 | 30×45 | 0.20 | 4.97 | ESMH500VSN103MR45S |
| | 10,000 | 35×35 | 0.20 | 4.92 | ESMH500VSN103MA35S |
| | 12,000 | 30×50 | 0.20 | 5.60 | ESMH500VSN123MR50S |
| | 12,000 | 35×40 | 0.20 | 5.58 | ESMH500VSN123MA40S |
| | 15,000 | 35×45 | 0.20 | 6.44 | ESMH500VSN153MA45S |
| | 18,000 | 35×50 | 0.20 | 6.71 | ESMH500VSN183MA50S |
| 63 | 1,800 | 22×25 | 0.15 | 1.82 | ESMH630VSN182MP25S |
| | 2,200 | 22×30 | 0.15 | 2.31 | ESMH630VSN222MP30S |
| | 2,200 | 25.4×25 | 0.15 | 2.30 | ESMH630VSN222MQ25S |
| | 2,700 | 22×35 | 0.15 | 2.40 | ESMH630VSN272MP35S |
| | 2,700 | 25.4×25 | 0.15 | 2.40 | ESMH630VSN272MQ25S |
| | 3,300 | 22×35 | 0.15 | 2.62 | ESMH630VSN332MP35S |
| | 3,300 | 25.4×30 | 0.15 | 2.64 | ESMH630VSN332MQ30S |
| | 3,300 | 30×25 | 0.15 | 2.78 | ESMH630VSN332MR25S |
| | 3,900 | 22×40 | 0.15 | 2.93 | ESMH630VSN392MP40S |
| | 3,900 | 25.4×35 | 0.15 | 2.97 | ESMH630VSN392MQ35S |
| | 3,900 | 30×30 | 0.15 | 3.00 | ESMH630VSN392MR30S |
| | 3,900 | 35×25 | 0.15 | 3.00 | ESMH630VSN392MA25S |
| | 4,700 | 22×50 | 0.15 | 3.39 | ESMH630VSN472MP50S |
| | 4,700 | 25.4×40 | 0.15 | 3.36 | ESMH630VSN472MQ40S |
| | 4,700 | 30×30 | 0.15 | 3.32 | ESMH630VSN472MR30S |
| | 4,700 | 35×25 | 0.15 | 3.36 | ESMH630VSN472MA25S |
| | 5,600 | 25.4×45 | 0.15 | 3.77 | ESMH630VSN562MQ45S |
| | 5,600 | 30×35 | 0.15 | 3.75 | ESMH630VSN562MR35S |
| | 5,600 | 35×30 | 0.15 | 3.76 | ESMH630VSN562MA30S |
| | 6,800 | 25.4×50 | 0.15 | 4.27 | ESMH630VSN682MQ50S |
| | 6,800 | 30×40 | 0.15 | 4.27 | ESMH630VSN682MR40S |
| | 6,800 | 35×30 | 0.15 | 4.15 | ESMH630VSN682MA30S |
| | 8,200 | 30×45 | 0.15 | 4.83 | ESMH630VSN822MR45S |
| | 8,200 | 35×35 | 0.15 | 4.79 | ESMH630VSN822MA35S |
| | 10,000 | 30×50 | 0.15 | 5.49 | ESMH630VSN103MR50S |
| | 10,000 | 35×40 | 0.15 | 5.47 | ESMH630VSN103MA40S |
| | 12,000 | 35×45 | 0.15 | 6.19 | ESMH630VSN123MA45S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 80 | 1,200 | 22×25 | 0.15 | 1.69 | ESMH800VSN122MP25S |
| | 1,500 | 22×25 | 0.15 | 1.88 | ESMH800VSN152MP25S |
| | 1,800 | 22×30 | 0.15 | 2.14 | ESMH800VSN182MP30S |
| | 1,800 | 25.4×25 | 0.15 | 2.26 | ESMH800VSN182MQ25S |
| | 2,200 | 22×35 | 0.15 | 2.44 | ESMH800VSN222MP35S |
| | 2,200 | 25.4×30 | 0.15 | 2.46 | ESMH800VSN222MQ30S |
| | 2,200 | 30×25 | 0.15 | 2.49 | ESMH800VSN222MR25S |
| | 2,700 | 22×40 | 0.15 | 2.78 | ESMH800VSN272MP40S |
| | 2,700 | 25.4×35 | 0.15 | 2.81 | ESMH800VSN272MQ35S |
| | 2,700 | 30×25 | 0.15 | 2.75 | ESMH800VSN272MR25S |
| | 3,300 | 22×45 | 0.15 | 3.16 | ESMH800VSN332MP45S |
| | 3,300 | 25.4×40 | 0.15 | 3.21 | ESMH800VSN332MQ40S |
| | 3,300 | 30×30 | 0.15 | 3.17 | ESMH800VSN332MR30S |
| | 3,300 | 35×25 | 0.15 | 3.21 | ESMH800VSN332MA25S |
| | 3,900 | 22×50 | 0.15 | 3.52 | ESMH800VSN392MP50S |
| | 3,900 | 25.4×45 | 0.15 | 3.59 | ESMH800VSN392MQ45S |
| | 3,900 | 30×35 | 0.15 | 3.57 | ESMH800VSN392MR35S |
| | 3,900 | 35×25 | 0.15 | 3.50 | ESMH800VSN392MA25S |
| | 4,700 | 25.4×50 | 0.15 | 4.05 | ESMH800VSN472MQ50S |
| | 4,700 | 30×40 | 0.15 | 4.05 | ESMH800VSN472MR40S |
| | 4,700 | 35×30 | 0.15 | 4.09 | ESMH800VSN472MA30S |
| | 5,600 | 30×45 | 0.15 | 4.55 | ESMH800VSN562MR45S |
| | 5,600 | 35×35 | 0.15 | 4.51 | ESMH800VSN562MA35S |
| | 6,800 | 30×50 | 0.15 | 5.16 | ESMH800VSN682MR50S |
| | 6,800 | 35×40 | 0.15 | 5.14 | ESMH800VSN682MA40S |
| | 8,200 | 35×45 | 0.15 | 5.83 | ESMH800VSN822MA45S |
| | 10,000 | 35×50 | 0.15 | 6.63 | ESMH800VSN103MA50S |
| 100 | 820 | 22×25 | 0.15 | 1.86 | ESMH101VSN821MP25S |
| | 1,200 | 22×30 | 0.15 | 2.09 | ESMH101VSN122MP30S |
| | 1,200 | 25.4×25 | 0.15 | 2.10 | ESMH101VSN122MQ25S |
| | 1,500 | 22×35 | 0.15 | 2.41 | ESMH101VSN152MP35S |
| | 1,500 | 25.4×30 | 0.15 | 2.43 | ESMH101VSN152MQ30S |
| | 1,500 | 30×25 | 0.15 | 2.46 | ESMH101VSN152MR25S |
| | 1,800 | 22×40 | 0.15 | 2.71 | ESMH101VSN182MP40S |
| | 1,800 | 25.4×35 | 0.15 | 2.75 | ESMH101VSN182MQ35S |
| | 1,800 | 30×25 | 0.15 | 2.72 | ESMH101VSN182MR25S |
| | 2,200 | 22×45 | 0.15 | 3.08 | ESMH101VSN222MP45S |
| | 2,200 | 25.4×40 | 0.15 | 3.13 | ESMH101VSN222MQ40S |
| | 2,200 | 30×30 | 0.15 | 3.09 | ESMH101VSN222MR30S |
| | 2,200 | 35×25 | 0.15 | 3.14 | ESMH101VSN222MA25S |
| | 2,700 | 22×50 | 0.15 | 3.53 | ESMH101VSN272MP50S |
| | 2,700 | 25.4×45 | 0.15 | 3.57 | ESMH101VSN272MQ45S |
| | 2,700 | 30×35 | 0.15 | 3.55 | ESMH101VSN272MR35S |
| | 2,700 | 35×30 | 0.15 | 3.71 | ESMH101VSN272MA30S |
| | 3,300 | 25.4×50 | 0.15 | 4.06 | ESMH101VSN332MQ50S |
| | 3,300 | 30×40 | 0.15 | 4.05 | ESMH101VSN332MR40S |
| | 3,300 | 35×30 | 0.15 | 4.05 | ESMH101VSN332MA30S |
| | 3,900 | 30×45 | 0.15 | 4.54 | ESMH101VSN392MR45S |
| | 3,900 | 35×35 | 0.15 | 4.49 | ESMH101VSN392MA35S |
| | 4,700 | 30×50 | 0.15 | 5.13 | ESMH101VSN472MR50S |
| | 4,700 | 35×40 | 0.15 | 5.11 | ESMH101VSN472MA40S |
| | 5,600 | 35×45 | 0.15 | 5.75 | ESMH101VSN562MA45S |
| | 6,800 | 35×50 | 0.15 | 6.50 | ESMH101VSN682MA50S |

*For the rated voltage≧160Vdc, please use SMQ series

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 6.3 to 50Vdc | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| 63 to 100Vdc | 0.92 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

## KMH Series

●Endurance with ripple current : 2,000 hours at 105℃
●Non solvent resistant type
●**RoHS Compliant**

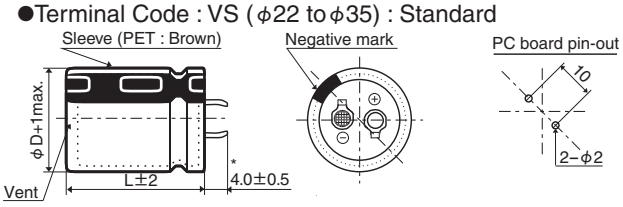
KMM
↑ Downsized Longer life
**KMH**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ | | | | | | | | | | |
| **Rated Voltage Range** | 6.3 to 100Vdc | | | | | | | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 3mA, whichever is smaller<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | |
| | tanδ (Max.) | 0.60 | 0.50 | 0.40 | 0.30 | 0.25 | 0.20 | 0.15 | 0.15 | 0.15 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | |
| | Z(−25℃)/Z(+20℃) | 4 | 4 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | |
| | Z(−45℃)/Z(+20℃) | 15 | 15 | 15 | 10 | 8 | 6 | 6 | 5 | 5 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃ | | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | | | |

## ◆DIMENSIONS [mm]

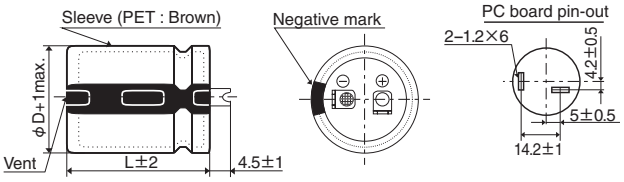
●Terminal Code : VS (φ22 to φ35) : Standard




*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)




## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | K | M | H | | | | V | S | N | | | | M | | | | S |

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 820μF:821, 3,300μF:332)
Dummy terminal code
Terminal code (VS, LI)
Voltage code (ex. 6.3V:6R3, 10V:100, 100V:101)
Series code
Category

Please refer to "Product code guide (snap-in type)"

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

## KMH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 6.3 | 12,000 | 22×25 | 0.60 | 1.54 | EKMH6R3VSN123MP25S |
| | 15,000 | 22×25 | 0.60 | 1.72 | EKMH6R3VSN153MP25S |
| | 18,000 | 22×30 | 0.60 | 1.95 | EKMH6R3VSN183MP30S |
| | 18,000 | 25.4×25 | 0.60 | 1.96 | EKMH6R3VSN183MQ25S |
| | 22,000 | 22×35 | 0.60 | 2.23 | EKMH6R3VSN223MP35S |
| | 22,000 | 25.4×30 | 0.60 | 2.25 | EKMH6R3VSN223MQ30S |
| | 22,000 | 30×25 | 0.60 | 2.28 | EKMH6R3VSN223MR25S |
| | 27,000 | 22×40 | 0.60 | 2.54 | EKMH6R3VSN273MP40S |
| | 27,000 | 25.4×35 | 0.60 | 2.57 | EKMH6R3VSN273MQ35S |
| | 27,000 | 30×25 | 0.60 | 2.52 | EKMH6R3VSN273MR25S |
| | 33,000 | 22×45 | 0.60 | 2.88 | EKMH6R3VSN333MP45S |
| | 33,000 | 25.4×40 | 0.60 | 2.93 | EKMH6R3VSN333MQ40S |
| | 33,000 | 30×30 | 0.60 | 2.89 | EKMH6R3VSN333MR30S |
| | 33,000 | 35×25 | 0.60 | 2.93 | EKMH6R3VSN333MA25S |
| | 39,000 | 25.4×40 | 0.60 | 3.18 | EKMH6R3VSN393MQ40S |
| | 39,000 | 30×35 | 0.60 | 3.26 | EKMH6R3VSN393MR35S |
| | 39,000 | 35×30 | 0.60 | 3.40 | EKMH6R3VSN393MA30S |
| | 47,000 | 25.4×50 | 0.60 | 3.69 | EKMH6R3VSN473MQ50S |
| | 47,000 | 30×40 | 0.60 | 3.69 | EKMH6R3VSN473MR40S |
| | 47,000 | 35×30 | 0.60 | 3.73 | EKMH6R3VSN473MA30S |
| | 56,000 | 30×45 | 0.60 | 4.16 | EKMH6R3VSN563MR45S |
| | 56,000 | 35×35 | 0.60 | 4.12 | EKMH6R3VSN563MA35S |
| | 68,000 | 30×50 | 0.60 | 4.71 | EKMH6R3VSN683MR50S |
| | 68,000 | 35×40 | 0.60 | 4.69 | EKMH6R3VSN683MA40S |
| | 82,000 | 35×45 | 0.60 | 5.32 | EKMH6R3VSN823MA45S |
| 10 | 10,000 | 22×25 | 0.50 | 1.55 | EKMH100VSN103MP25S |
| | 12,000 | 22×30 | 0.50 | 1.77 | EKMH100VSN123MP30S |
| | 15,000 | 22×30 | 0.50 | 1.97 | EKMH100VSN153MP30S |
| | 15,000 | 25.4×25 | 0.50 | 1.96 | EKMH100VSN153MQ25S |
| | 18,000 | 22×35 | 0.50 | 2.21 | EKMH100VSN183MP35S |
| | 18,000 | 25.4×30 | 0.50 | 2.23 | EKMH100VSN183MQ30S |
| | 22,000 | 22×40 | 0.50 | 2.51 | EKMH100VSN223MP40S |
| | 22,000 | 25.4×35 | 0.50 | 2.54 | EKMH100VSN223MQ35S |
| | 22,000 | 30×25 | 0.50 | 2.40 | EKMH100VSN223MR25S |
| | 27,000 | 22×50 | 0.50 | 2.93 | EKMH100VSN273MP50S |
| | 27,000 | 25.4×40 | 0.50 | 2.90 | EKMH100VSN273MQ40S |
| | 27,000 | 30×30 | 0.50 | 2.87 | EKMH100VSN273MR30S |
| | 27,000 | 35×25 | 0.50 | 2.73 | EKMH100VSN273MA25S |
| | 33,000 | 25.4×45 | 0.50 | 3.30 | EKMH100VSN333MQ45S |
| | 33,000 | 30×35 | 0.50 | 3.28 | EKMH100VSN333MR35S |
| | 33,000 | 35×30 | 0.50 | 3.16 | EKMH100VSN333MA30S |
| | 39,000 | 25.4×50 | 0.50 | 3.68 | EKMH100VSN393MQ50S |
| | 39,000 | 30×40 | 0.50 | 3.69 | EKMH100VSN393MR40S |
| | 39,000 | 35×30 | 0.50 | 3.43 | EKMH100VSN393MA30S |
| | 47,000 | 30×45 | 0.50 | 4.17 | EKMH100VSN473MR45S |
| | 47,000 | 35×35 | 0.50 | 3.76 | EKMH100VSN473MA35S |
| | 56,000 | 30×50 | 0.50 | 4.68 | EKMH100VSN563MR50S |
| | 56,000 | 35×40 | 0.50 | 4.67 | EKMH100VSN563MA40S |
| | 68,000 | 35×50 | 0.50 | 5.46 | EKMH100VSN683MA50S |
| 16 | 6,800 | 22×25 | 0.40 | 1.57 | EKMH160VSN682MP25S |
| | 10,000 | 22×30 | 0.40 | 1.97 | EKMH160VSN103MP30S |
| | 10,000 | 25.4×25 | 0.40 | 1.97 | EKMH160VSN103MQ25S |
| | 12,000 | 22×35 | 0.40 | 2.22 | EKMH160VSN123MP35S |
| | 12,000 | 25.4×30 | 0.40 | 2.24 | EKMH160VSN123MQ30S |
| | 12,000 | 30×25 | 0.40 | 2.45 | EKMH160VSN123MR25S |
| | 15,000 | 22×40 | 0.40 | 2.55 | EKMH160VSN153MP40S |
| | 15,000 | 25.4×35 | 0.40 | 2.58 | EKMH160VSN153MQ35S |
| | 15,000 | 30×25 | 0.40 | 2.52 | EKMH160VSN153MR25S |
| | 18,000 | 22×45 | 0.40 | 2.87 | EKMH160VSN183MP45S |
| | 18,000 | 25.4×40 | 0.40 | 2.92 | EKMH160VSN183MQ40S |
| | 18,000 | 30×30 | 0.40 | 2.88 | EKMH160VSN183MR30S |
| | 18,000 | 35×25 | 0.40 | 2.92 | EKMH160VSN183MA25S |
| | 22,000 | 25.4×45 | 0.40 | 3.32 | EKMH160VSN223MQ45S |
| | 22,000 | 30×35 | 0.40 | 3.29 | EKMH160VSN223MR35S |
| | 22,000 | 35×25 | 0.40 | 3.23 | EKMH160VSN223MA25S |
| | 27,000 | 25.4×50 | 0.40 | 3.78 | EKMH160VSN273MQ50S |
| | 27,000 | 30×40 | 0.40 | 3.77 | EKMH160VSN273MR40S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 16 | 27,000 | 35×30 | 0.40 | 3.45 | EKMH160VSN273MA30S |
| | 33,000 | 30×45 | 0.40 | 4.30 | EKMH160VSN333MR45S |
| | 33,000 | 35×35 | 0.40 | 4.26 | EKMH160VSN333MA35S |
| | 39,000 | 30×50 | 0.40 | 4.81 | EKMH160VSN393MR50S |
| | 39,000 | 35×40 | 0.40 | 4.79 | EKMH160VSN393MA40S |
| | 47,000 | 35×45 | 0.40 | 5.43 | EKMH160VSN473MA45S |
| 25 | 4,700 | 22×25 | 0.30 | 1.50 | EKMH250VSN472MP25S |
| | 5,600 | 22×25 | 0.30 | 1.63 | EKMH250VSN562MP25S |
| | 6,800 | 22×30 | 0.30 | 1.86 | EKMH250VSN682MP30S |
| | 6,800 | 25.4×25 | 0.30 | 1.87 | EKMH250VSN682MQ25S |
| | 8,200 | 22×35 | 0.30 | 2.11 | EKMH250VSN822MP35S |
| | 8,200 | 25.4×30 | 0.30 | 2.12 | EKMH250VSN822MQ30S |
| | 8,200 | 30×25 | 0.30 | 2.15 | EKMH250VSN822MR25S |
| | 10,000 | 22×40 | 0.30 | 2.39 | EKMH250VSN103MP40S |
| | 10,000 | 25.4×35 | 0.30 | 2.42 | EKMH250VSN103MQ35S |
| | 10,000 | 30×25 | 0.30 | 2.37 | EKMH250VSN103MR25S |
| | 12,000 | 22×45 | 0.30 | 2.69 | EKMH250VSN123MP45S |
| | 12,000 | 25.4×40 | 0.30 | 2.74 | EKMH250VSN123MQ40S |
| | 12,000 | 30×30 | 0.30 | 2.70 | EKMH250VSN123MR30S |
| | 12,000 | 35×25 | 0.30 | 2.74 | EKMH250VSN123MA25S |
| | 15,000 | 25.4×45 | 0.30 | 3.15 | EKMH250VSN153MQ45S |
| | 15,000 | 30×35 | 0.30 | 3.13 | EKMH250VSN153MR35S |
| | 15,000 | 35×30 | 0.30 | 3.27 | EKMH250VSN153MA30S |
| | 18,000 | 25.4×50 | 0.30 | 3.54 | EKMH250VSN183MQ50S |
| | 18,000 | 30×40 | 0.30 | 3.54 | EKMH250VSN183MR40S |
| | 18,000 | 35×30 | 0.30 | 3.58 | EKMH250VSN183MA30S |
| | 22,000 | 30×45 | 0.30 | 4.04 | EKMH250VSN223MR45S |
| | 22,000 | 35×35 | 0.30 | 3.64 | EKMH250VSN223MA35S |
| | 27,000 | 35×45 | 0.30 | 4.73 | EKMH250VSN273MA45S |
| | 33,000 | 35×50 | 0.30 | 5.39 | EKMH250VSN333MA50S |
| 35 | 3,300 | 22×25 | 0.25 | 1.40 | EKMH350VSN332MP25S |
| | 3,900 | 22×30 | 0.25 | 1.57 | EKMH350VSN392MP30S |
| | 4,700 | 22×30 | 0.25 | 1.72 | EKMH350VSN472MP30S |
| | 4,700 | 25.4×25 | 0.25 | 1.80 | EKMH350VSN472MQ25S |
| | 5,600 | 22×35 | 0.25 | 1.95 | EKMH350VSN562MP35S |
| | 5,600 | 25.4×30 | 0.25 | 1.96 | EKMH350VSN562MQ30S |
| | 5,600 | 30×25 | 0.25 | 1.99 | EKMH350VSN562MR25S |
| | 6,800 | 22×40 | 0.25 | 2.20 | EKMH350VSN682MP40S |
| | 6,800 | 25.4×35 | 0.25 | 2.23 | EKMH350VSN682MQ35S |
| | 6,800 | 30×25 | 0.25 | 2.19 | EKMH350VSN682MR25S |
| | 8,200 | 22×50 | 0.25 | 2.55 | EKMH350VSN822MP50S |
| | 8,200 | 25.4×40 | 0.25 | 2.53 | EKMH350VSN822MQ40S |
| | 8,200 | 30×30 | 0.25 | 2.75 | EKMH350VSN822MR30S |
| | 8,200 | 35×25 | 0.25 | 2.75 | EKMH350VSN822MA25S |
| | 10,000 | 25.4×45 | 0.25 | 2.87 | EKMH350VSN103MQ45S |
| | 10,000 | 30×35 | 0.25 | 2.90 | EKMH350VSN103MR35S |
| | 10,000 | 35×30 | 0.25 | 2.91 | EKMH350VSN103MA30S |
| | 12,000 | 25.4×50 | 0.25 | 3.24 | EKMH350VSN123MQ50S |
| | 12,000 | 30×40 | 0.25 | 3.23 | EKMH350VSN123MR40S |
| | 12,000 | 35×30 | 0.25 | 2.99 | EKMH350VSN123MA30S |
| | 15,000 | 30×45 | 0.25 | 3.72 | EKMH350VSN153MR45S |
| | 15,000 | 35×35 | 0.25 | 3.67 | EKMH350VSN153MA35S |
| | 18,000 | 35×40 | 0.25 | 4.37 | EKMH350VSN183MA40S |
| | 22,000 | 35×50 | 0.25 | 4.92 | EKMH350VSN223MA50S |
| 50 | 1,800 | 22×25 | 0.20 | 1.33 | EKMH500VSN182MP25S |
| | 2,700 | 22×30 | 0.20 | 1.69 | EKMH500VSN272MP30S |
| | 2,700 | 25.4×25 | 0.20 | 1.70 | EKMH500VSN272MQ25S |
| | 3,300 | 22×35 | 0.20 | 1.93 | EKMH500VSN332MP35S |
| | 3,300 | 25.4×30 | 0.20 | 1.85 | EKMH500VSN332MQ30S |
| | 3,900 | 22×40 | 0.20 | 2.16 | EKMH500VSN392MP40S |
| | 3,900 | 25.4×35 | 0.20 | 2.18 | EKMH500VSN392MQ35S |
| | 3,900 | 30×25 | 0.20 | 1.95 | EKMH500VSN392MR25S |
| | 4,700 | 22×45 | 0.20 | 2.43 | EKMH500VSN472MP45S |
| | 4,700 | 25.4×35 | 0.20 | 2.39 | EKMH500VSN472MQ35S |
| | 4,700 | 30×30 | 0.20 | 2.25 | EKMH500VSN472MR30S |
| | 4,700 | 35×25 | 0.20 | 2.48 | EKMH500VSN472MA25S |
| | 5,600 | 22×50 | 0.20 | 2.75 | EKMH500VSN562MP50S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

## KMH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 50 | 5,600 | 25.4×40 | 0.20 | 2.70 | EKMH500VSN562MQ40S |
| | 5,600 | 30×35 | 0.20 | 2.76 | EKMH500VSN562MR35S |
| | 5,600 | 35×25 | 0.20 | 2.70 | EKMH500VSN562MA25S |
| | 6,800 | 25.4×50 | 0.20 | 3.30 | EKMH500VSN682MQ50S |
| | 6,800 | 30×40 | 0.20 | 3.30 | EKMH500VSN682MR40S |
| | 6,800 | 35×30 | 0.20 | 3.25 | EKMH500VSN682MA30S |
| | 8,200 | 30×45 | 0.20 | 3.60 | EKMH500VSN822MR45S |
| | 8,200 | 35×35 | 0.20 | 3.55 | EKMH500VSN822MA35S |
| | 10,000 | 30×50 | 0.20 | 4.04 | EKMH500VSN103MR50S |
| | 10,000 | 35×40 | 0.20 | 4.03 | EKMH500VSN103MA40S |
| | 12,000 | 35×45 | 0.20 | 4.55 | EKMH500VSN123MA45S |
| 63 | 1,200 | 22×25 | 0.15 | 1.19 | EKMH630VSN122MP25S |
| | 1,500 | 22×25 | 0.15 | 1.33 | EKMH630VSN152MP25S |
| | 1,800 | 22×30 | 0.15 | 1.51 | EKMH630VSN182MP30S |
| | 1,800 | 25.4×25 | 0.15 | 1.52 | EKMH630VSN182MQ25S |
| | 2,200 | 22×35 | 0.15 | 1.73 | EKMH630VSN222MP35S |
| | 2,200 | 25.4×30 | 0.15 | 1.74 | EKMH630VSN222MQ30S |
| | 2,700 | 22×40 | 0.15 | 1.97 | EKMH630VSN272MP40S |
| | 2,700 | 25.4×35 | 0.15 | 1.99 | EKMH630VSN272MQ35S |
| | 2,700 | 30×25 | 0.15 | 1.76 | EKMH630VSN272MR25S |
| | 3,300 | 22×50 | 0.15 | 2.29 | EKMH630VSN332MP50S |
| | 3,300 | 25.4×40 | 0.15 | 2.27 | EKMH630VSN332MQ40S |
| | 3,300 | 30×30 | 0.15 | 2.24 | EKMH630VSN332MR30S |
| | 3,300 | 35×25 | 0.15 | 2.06 | EKMH630VSN332MA25S |
| | 3,900 | 25.4×45 | 0.15 | 2.54 | EKMH630VSN392MQ45S |
| | 3,900 | 30×35 | 0.15 | 2.55 | EKMH630VSN392MR35S |
| | 3,900 | 35×25 | 0.15 | 2.24 | EKMH630VSN392MA25S |
| | 4,700 | 25.4×50 | 0.15 | 2.86 | EKMH630VSN472MQ50S |
| | 4,700 | 30×40 | 0.15 | 2.86 | EKMH630VSN472MR40S |
| | 4,700 | 35×30 | 0.15 | 2.79 | EKMH630VSN472MA30S |
| | 5,600 | 30×45 | 0.15 | 3.22 | EKMH630VSN562MR45S |
| | 5,600 | 35×35 | 0.15 | 3.19 | EKMH630VSN562MA35S |
| | 6,800 | 30×50 | 0.15 | 3.65 | EKMH630VSN682MR50S |
| | 6,800 | 35×40 | 0.15 | 3.64 | EKMH630VSN682MA40S |
| | 8,200 | 35×45 | 0.15 | 3.90 | EKMH630VSN822MA45S |
| | 10,000 | 35×50 | 0.15 | 4.40 | EKMH630VSN103MA50S |
| 80 | 820 | 22×25 | 0.15 | 1.11 | EKMH800VSN821MP25S |
| | 1,000 | 22×25 | 0.15 | 1.22 | EKMH800VSN102MP25S |
| | 1,200 | 22×30 | 0.15 | 1.38 | EKMH800VSN122MP30S |
| | 1,200 | 25.4×25 | 0.15 | 1.39 | EKMH800VSN122MQ25S |
| | 1,500 | 22×35 | 0.15 | 1.59 | EKMH800VSN152MP35S |
| | 1,500 | 25.4×30 | 0.15 | 1.61 | EKMH800VSN152MQ30S |
| | 1,800 | 22×40 | 0.15 | 1.80 | EKMH800VSN182MP40S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 80 | 1,800 | 25.4×30 | 0.15 | 1.76 | EKMH800VSN182MQ30S |
| | 1,800 | 30×25 | 0.15 | 1.65 | EKMH800VSN182MR25S |
| | 2,200 | 22×45 | 0.15 | 2.04 | EKMH800VSN222MP45S |
| | 2,200 | 25.4×35 | 0.15 | 2.01 | EKMH800VSN222MQ35S |
| | 2,200 | 30×30 | 0.15 | 2.05 | EKMH800VSN222MR30S |
| | 2,200 | 35×25 | 0.15 | 2.07 | EKMH800VSN222MA25S |
| | 2,700 | 25.4×45 | 0.15 | 2.36 | EKMH800VSN272MQ45S |
| | 2,700 | 30×35 | 0.15 | 2.35 | EKMH800VSN272MR35S |
| | 2,700 | 35×25 | 0.15 | 2.29 | EKMH800VSN272MA25S |
| | 3,300 | 25.4×50 | 0.15 | 2.68 | EKMH800VSN332MQ50S |
| | 3,300 | 30×40 | 0.15 | 2.68 | EKMH800VSN332MR40S |
| | 3,300 | 35×30 | 0.15 | 2.45 | EKMH800VSN332MA30S |
| | 3,900 | 30×45 | 0.15 | 3.00 | EKMH800VSN392MR45S |
| | 3,900 | 35×35 | 0.15 | 2.98 | EKMH800VSN392MA35S |
| | 4,700 | 30×50 | 0.15 | 3.39 | EKMH800VSN472MR50S |
| | 4,700 | 35×40 | 0.15 | 3.38 | EKMH800VSN472MA40S |
| | 5,600 | 35×45 | 0.15 | 3.80 | EKMH800VSN562MA45S |
| | 6,800 | 35×50 | 0.15 | 3.90 | EKMH800VSN682MA50S |
| 100 | 560 | 22×25 | 0.15 | 1.05 | EKMH101VSN561MP25S |
| | 820 | 22×30 | 0.15 | 1.32 | EKMH101VSN821MP30S |
| | 820 | 25.4×25 | 0.15 | 1.33 | EKMH101VSN821MQ25S |
| | 1,000 | 22×35 | 0.15 | 1.50 | EKMH101VSN102MP35S |
| | 1,000 | 25.4×30 | 0.15 | 1.51 | EKMH101VSN102MQ30S |
| | 1,200 | 22×40 | 0.15 | 1.69 | EKMH101VSN122MP40S |
| | 1,200 | 25.4×35 | 0.15 | 1.71 | EKMH101VSN122MQ35S |
| | 1,200 | 30×25 | 0.15 | 1.68 | EKMH101VSN122MR25S |
| | 1,500 | 22×45 | 0.15 | 1.94 | EKMH101VSN152MP45S |
| | 1,500 | 25.4×40 | 0.15 | 1.98 | EKMH101VSN152MQ40S |
| | 1,500 | 30×30 | 0.15 | 1.95 | EKMH101VSN152MR30S |
| | 1,500 | 35×25 | 0.15 | 1.98 | EKMH101VSN152MA25S |
| | 1,800 | 25.4×45 | 0.15 | 2.23 | EKMH101VSN182MQ45S |
| | 1,800 | 30×35 | 0.15 | 2.50 | EKMH101VSN182MR35S |
| | 1,800 | 35×25 | 0.15 | 2.17 | EKMH101VSN182MA25S |
| | 2,200 | 25.4×50 | 0.15 | 2.53 | EKMH101VSN222MQ50S |
| | 2,200 | 30×40 | 0.15 | 2.70 | EKMH101VSN222MR40S |
| | 2,200 | 35×30 | 0.15 | 2.50 | EKMH101VSN222MA30S |
| | 2,700 | 30×45 | 0.15 | 2.88 | EKMH101VSN272MR45S |
| | 2,700 | 35×35 | 0.15 | 2.86 | EKMH101VSN272MA35S |
| | 3,300 | 30×50 | 0.15 | 3.28 | EKMH101VSN332MR50S |
| | 3,300 | 35×40 | 0.15 | 3.27 | EKMH101VSN332MA40S |
| | 3,900 | 35×45 | 0.15 | 3.67 | EKMH101VSN392MA45S |
| | 4,700 | 35×50 | 0.15 | 3.80 | EKMH101VSN472MA50S |

*For the rated voltage≧160Vdc, please use KMR and KMQ series

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 6.3 to 50Vdc | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| 63 to 100Vdc | 0.92 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS 15mm height snap-ins, 85℃

# SLM Series

- ●15mm height snap-ins
- ●Endurance with ripple current : 2,000 hours at 85℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

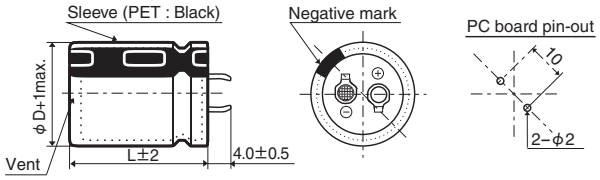
SLM
Low profile
SMQ

## ◆SPECIFICATIONS

| Items | Characteristics | | |
|---|---|---|---|
| **Category Temperature Range** | −25 to +85℃ | | |
| **Rated Voltage Range** | 160 to 400Vdc | | |
| **Capacitance Tolerance** | ±20% (M) | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 160 to 400V | |
| | tanδ (Max.) | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 160 to 400V | |
| | Z (−25℃)/Z (+20℃) | 4 | (at 120Hz) |
| **Endurace** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. | | |
| | Capacitance change | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | |
| | Capacitance change | ≦±15% of the initial value | |
| | D.F. (tanδ) | ≦150% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |

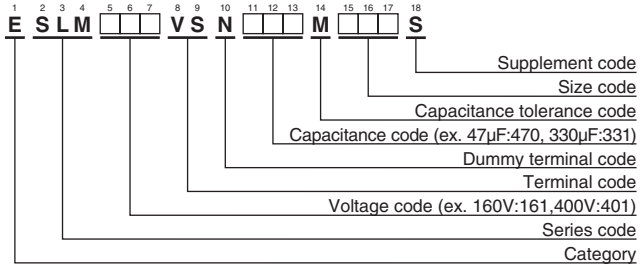
## ◆DIMENSIONS [mm]

●Terminal Code : VS




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 400Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 180 | 22×15 | 0.20 | 0.99 | ESLM161VSN181MP15S |
| | 270 | 25.4×15 | 0.20 | 1.29 | ESLM161VSN271MQ15S |
| | 390 | 30×15 | 0.20 | 1.47 | ESLM161VSN391MR15S |
| | 560 | 35×15 | 0.20 | 1.74 | ESLM161VSN561MA15S |
| 180 | 150 | 22×15 | 0.20 | 0.90 | ESLM181VSN151MP15S |
| | 220 | 25.4×15 | 0.20 | 1.16 | ESLM181VSN221MQ15S |
| | 330 | 30×15 | 0.20 | 1.35 | ESLM181VSN331MR15S |
| | 470 | 35×15 | 0.20 | 1.60 | ESLM181VSN471MA15S |
| 200 | 150 | 22×15 | 0.20 | 0.90 | ESLM201VSN151MP15S |
| | 220 | 25.4×15 | 0.20 | 1.16 | ESLM201VSN221MQ15S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 270 | 30×15 | 0.20 | 1.22 | ESLM201VSN271MR15S |
| | 390 | 35×15 | 0.20 | 1.46 | ESLM201VSN391MA15S |
| 250 | 100 | 22×15 | 0.20 | 0.73 | ESLM251VSN101MP15S |
| | 150 | 25.4×15 | 0.20 | 0.96 | ESLM251VSN151MQ15S |
| | 220 | 30×15 | 0.20 | 1.10 | ESLM251VSN221MR15S |
| | 330 | 35×15 | 0.20 | 1.34 | ESLM251VSN331MA15S |
| 400 | 47 | 22×15 | 0.20 | 0.50 | ESLM401VSN470MP15S |
| | 68 | 25.4×15 | 0.20 | 0.65 | ESLM401VSN680MQ15S |
| | 100 | 30×15 | 0.20 | 0.74 | ESLM401VSN101MR15S |
| | 120 | 35×15 | 0.20 | 0.81 | ESLM401VSN121MA15S |

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS 15mm height snap-ins, 105℃

## KLM Series

- ●15mm height snap-ins
- ●Endurance with ripple current : 2,000 hours at 105℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

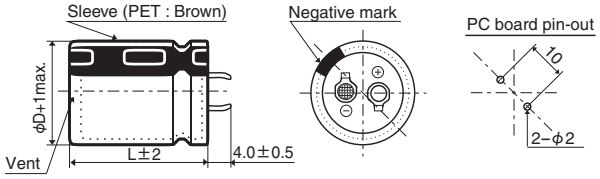
KLM
↑ Low profile
KMQ

## ◆SPECIFICATIONS

| Items | Characteristics | | |
|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | |
| **Rated Voltage Range** | 160 to 400Vdc | | |
| **Capacitance Tolerance** | ±20% (M) | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 160 to 400V | |
| | tanδ (Max.) | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 160 to 400V | |
| | Z (−25℃)/Z (+20℃) | 4 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | |
| | Capacitance change | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | |
| | Capacitance change | ≦±15% of the initial value | |
| | D.F. (tanδ) | ≦150% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | K | L | M | | | | V | S | N | | | | M | | | | S |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470, 100μF:101)
- Dummy terminal code
- Terminal code
- Voltage code (ex. 160V:161,400V:401)
- Series code
- Category

Please refer to "Product code guide (snap-in type)"

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 150 | 22×15 | 0.20 | 0.68 | EKLM161VSN151MP15S |
| | 180 | 25.4×15 | 0.20 | 0.79 | EKLM161VSN181MQ15S |
| | 220 | 25.4×15 | 0.20 | 0.88 | EKLM161VSN221MQ15S |
| | 270 | 30×15 | 0.20 | 0.96 | EKLM161VSN271MR15S |
| | 330 | 30×15 | 0.20 | 1.06 | EKLM161VSN331MR15S |
| | 390 | 35×15 | 0.20 | 1.20 | EKLM161VSN391MA15S |
| 180 | 120 | 22×15 | 0.20 | 0.61 | EKLM181VSN121MP15S |
| | 150 | 25.4×15 | 0.20 | 0.73 | EKLM181VSN151MQ15S |
| | 180 | 25.4×15 | 0.20 | 0.79 | EKLM181VSN181MQ15S |
| | 220 | 30×15 | 0.20 | 0.86 | EKLM181VSN221MR15S |
| | 270 | 30×15 | 0.20 | 0.96 | EKLM181VSN271MR15S |
| | 330 | 35×15 | 0.20 | 1.10 | EKLM181VSN331MA15S |
| | 390 | 35×15 | 0.20 | 1.17 | EKLM181VSN391MA15S |
| 200 | 120 | 22×15 | 0.20 | 0.61 | EKLM201VSN121MP15S |
| | 150 | 25.4×15 | 0.20 | 0.73 | EKLM201VSN151MQ15S |
| | 180 | 30×15 | 0.20 | 0.79 | EKLM201VSN181MR15S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 220 | 30×15 | 0.20 | 0.90 | EKLM201VSN221MR15S |
| | 270 | 35×15 | 0.20 | 1.00 | EKLM201VSN271MA15S |
| | 330 | 35×15 | 0.20 | 1.07 | EKLM201VSN331MA15S |
| 250 | 82 | 22×15 | 0.20 | 0.50 | EKLM251VSN820MP15S |
| | 100 | 25.4×15 | 0.20 | 0.59 | EKLM251VSN101MQ15S |
| | 120 | 25.4×15 | 0.20 | 0.65 | EKLM251VSN121MQ15S |
| | 150 | 30×15 | 0.20 | 0.71 | EKLM251VSN151MR15S |
| | 180 | 30×15 | 0.20 | 0.79 | EKLM251VSN181MR15S |
| | 220 | 35×15 | 0.20 | 0.90 | EKLM251VSN221MA15S |
| 400 | 39 | 22×15 | 0.20 | 0.35 | EKLM401VSN390MP15S |
| | 47 | 25.4×15 | 0.20 | 0.40 | EKLM401VSN470MQ15S |
| | 56 | 25.4×15 | 0.20 | 0.44 | EKLM401VSN560MQ15S |
| | 68 | 30×15 | 0.20 | 0.46 | EKLM401VSN680MR15S |
| | 82 | 30×15 | 0.20 | 0.51 | EKLM401VSN820MR15S |
| | 100 | 35×15 | 0.20 | 0.56 | EKLM401VSN101MA15S |
| | 120 | 35×15 | 0.20 | 0.62 | EKLM401VSN121MA15S |

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 400Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.



CAT. No. E1001M

NIPPON CHEMI-CON

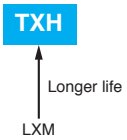
# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

New!

## TXH Series

●Endurance with ripple current : 10,000 hours at 105℃
●Non solvent resistant type
●**RoHS Compliant**

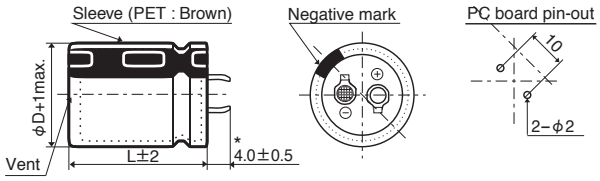


## ◆SPECIFICATIONS

| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | |
| **Rated Voltage Range** | 200 to 450Vdc | | | |
| **Capacitance Tolerance** | ±20% (M) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 200 to 400V | 450V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 200 to 400V | 450V | |
| | Z (-25℃)/Z (+20℃) | 4 | 8 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 10,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15% of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

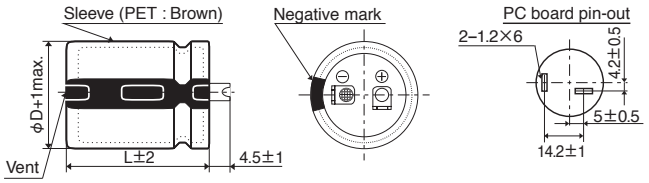
●Terminal Code : VS (φ22 to φ35) : Standard



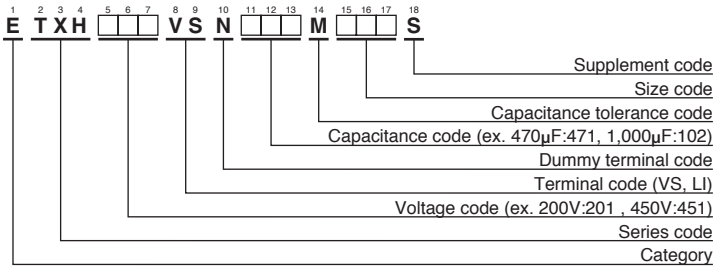

*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)




## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

New!

## TXH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 560 | 30×30 | 0.15 | 1.50 | ETXH201VSN561MR30S |
| | 680 | 30×35 | 0.15 | 1.70 | ETXH201VSN681MR35S |
| | 820 | 30×40 | 0.15 | 2.00 | ETXH201VSN821MR40S |
| | 820 | 35×30 | 0.15 | 2.00 | ETXH201VSN821MA30S |
| | 1,000 | 30×45 | 0.15 | 2.20 | ETXH201VSN102MR45S |
| | 1,000 | 35×35 | 0.15 | 2.20 | ETXH201VSN102MA35S |
| | 1,000 | 40×30 | 0.15 | 2.17 | ETXH201VSN102MB30S |
| | 1,200 | 35×40 | 0.15 | 2.40 | ETXH201VSN122MA40S |
| | 1,200 | 40×35 | 0.15 | 2.45 | ETXH201VSN122MB35S |
| | 1,500 | 35×50 | 0.15 | 2.81 | ETXH201VSN152MA50S |
| | 1,500 | 40×40 | 0.15 | 2.79 | ETXH201VSN152MB40S |
| | 1,800 | 40×50 | 0.15 | 3.24 | ETXH201VSN182MB50S |
| 250 | 390 | 30×30 | 0.15 | 1.30 | ETXH251VSN391MR30S |
| | 470 | 30×35 | 0.15 | 1.42 | ETXH251VSN471MR35S |
| | 560 | 35×30 | 0.15 | 1.58 | ETXH251VSN561MA30S |
| | 680 | 30×45 | 0.15 | 1.80 | ETXH251VSN681MR45S |
| | 680 | 35×35 | 0.15 | 1.76 | ETXH251VSN681MA35S |
| | 820 | 30×50 | 0.15 | 2.03 | ETXH251VSN821MR50S |
| | 820 | 35×40 | 0.15 | 2.01 | ETXH251VSN821MA40S |
| | 820 | 40×30 | 0.15 | 1.96 | ETXH251VSN821MB30S |
| | 1,000 | 35×45 | 0.15 | 2.30 | ETXH251VSN102MA45S |
| | 1,000 | 40×35 | 0.15 | 2.27 | ETXH251VSN102MB35S |
| | 1,200 | 35×50 | 0.15 | 2.55 | ETXH251VSN122MA50S |
| | 1,200 | 40×40 | 0.15 | 2.53 | ETXH251VSN122MB40S |
| | 1,500 | 40×50 | 0.15 | 2.96 | ETXH251VSN152MB50S |
| | 1,800 | 40×60 | 0.15 | 3.39 | ETXH251VSN182MB60S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 220 | 30×35 | 0.15 | 1.00 | ETXH401VSN221MR35S |
| | 270 | 30×40 | 0.15 | 1.15 | ETXH401VSN271MR40S |
| | 270 | 35×30 | 0.15 | 1.13 | ETXH401VSN271MA30S |
| | 330 | 30×45 | 0.15 | 1.29 | ETXH401VSN331MR45S |
| | 330 | 35×35 | 0.15 | 1.26 | ETXH401VSN331MA35S |
| | 330 | 40×30 | 0.15 | 1.28 | ETXH401VSN331MB30S |
| | 390 | 30×50 | 0.15 | 1.44 | ETXH401VSN391MR50S |
| | 390 | 35×40 | 0.15 | 1.43 | ETXH401VSN391MA40S |
| | 470 | 35×45 | 0.15 | 1.60 | ETXH401VSN471MA45S |
| | 470 | 40×35 | 0.15 | 1.58 | ETXH401VSN471MB35S |
| | 560 | 35×50 | 0.15 | 1.79 | ETXH401VSN561MA50S |
| | 560 | 40×40 | 0.15 | 1.78 | ETXH401VSN561MB40S |
| | 680 | 40×50 | 0.15 | 2.05 | ETXH401VSN681MB50S |
| | 820 | 40×60 | 0.15 | 2.36 | ETXH401VSN821MB60S |
| 450 | 220 | 30×40 | 0.20 | 1.04 | ETXH451VSN221MR40S |
| | 220 | 35×30 | 0.20 | 1.02 | ETXH451VSN221MA30S |
| | 270 | 30×45 | 0.20 | 1.19 | ETXH451VSN271MR45S |
| | 270 | 35×35 | 0.20 | 1.16 | ETXH451VSN271MA35S |
| | 330 | 30×50 | 0.20 | 1.33 | ETXH451VSN331MR50S |
| | 330 | 35×40 | 0.20 | 1.32 | ETXH451VSN331MA40S |
| | 390 | 35×45 | 0.20 | 1.48 | ETXH451VSN391MA45S |
| | 470 | 35×50 | 0.20 | 1.64 | ETXH451VSN471MA50S |
| | 560 | 40×60 | 0.20 | 1.98 | ETXH451VSN561MB60S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 200, 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 400, 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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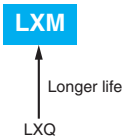
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXM Series

- ●Endurance with ripple current : 7,000 hours at 105℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

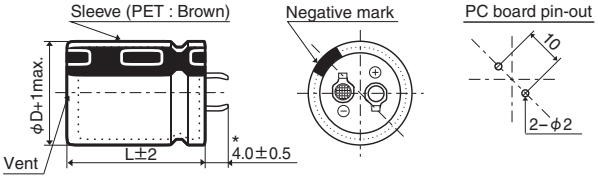


## ◆SPECIFICATIONS

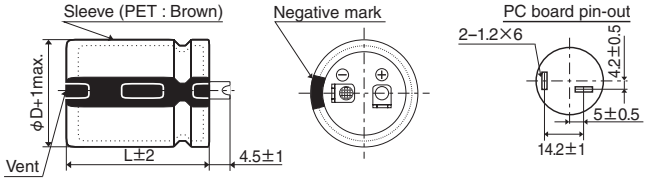
| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | | | |
| **Rated Voltage Range** | 160 to 450Vdc | | | |
| **Capacitance Tolerance** | ±20% (M) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | Z (-25℃)/Z (+20℃) | 4 | 8 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 7,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦250% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15% of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard



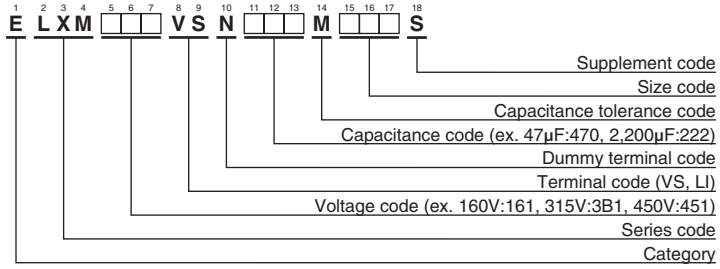

●Terminal Code : LI (φ35)




*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 330 | 22×25 | 0.15 | 1.11 | ELXM161VSN331MP25S |
| | 390 | 22×30 | 0.15 | 1.26 | ELXM161VSN391MP30S |
| | 470 | 22×30 | 0.15 | 1.39 | ELXM161VSN471MP30S |
| | 470 | 25.4×25 | 0.15 | 1.38 | ELXM161VSN471MQ25S |
| | 560 | 22×35 | 0.15 | 1.55 | ELXM161VSN561MP35S |
| | 560 | 25.4×30 | 0.15 | 1.55 | ELXM161VSN561MQ30S |
| | 680 | 22×40 | 0.15 | 1.75 | ELXM161VSN681MP40S |
| | 680 | 25.4×35 | 0.15 | 1.78 | ELXM161VSN681MQ35S |
| | 680 | 30×25 | 0.15 | 1.74 | ELXM161VSN681MR25S |
| | 820 | 22×50 | 0.15 | 1.97 | ELXM161VSN821MP50S |
| | 820 | 25.4×40 | 0.15 | 2.01 | ELXM161VSN821MQ40S |
| | 820 | 30×30 | 0.15 | 1.96 | ELXM161VSN821MR30S |
| | 1,000 | 25.4×45 | 0.15 | 2.27 | ELXM161VSN102MQ45S |
| | 1,000 | 30×35 | 0.15 | 2.26 | ELXM161VSN102MR35S |
| | 1,200 | 25.4×50 | 0.15 | 2.54 | ELXM161VSN122MQ50S |
| | 1,200 | 30×40 | 0.15 | 2.56 | ELXM161VSN122MR40S |
| | 1,200 | 35×30 | 0.15 | 2.52 | ELXM161VSN122MA30S |
| | 1,500 | 30×45 | 0.15 | 2.96 | ELXM161VSN152MR45S |
| | 1,500 | 35×35 | 0.15 | 2.89 | ELXM161VSN152MA35S |
| | 1,800 | 30×50 | 0.15 | 3.32 | ELXM161VSN182MR50S |
| | 1,800 | 35×40 | 0.15 | 3.30 | ELXM161VSN182MA40S |
| | 2,200 | 35×50 | 0.15 | 3.87 | ELXM161VSN222MA50S |
| 180 | 270 | 22×25 | 0.15 | 1.00 | ELXM181VSN271MP25S |
| | 330 | 22×30 | 0.15 | 1.16 | ELXM181VSN331MP30S |
| | 390 | 22×30 | 0.15 | 1.26 | ELXM181VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.26 | ELXM181VSN391MQ25S |
| | 470 | 22×35 | 0.15 | 1.42 | ELXM181VSN471MP35S |
| | 470 | 25.4×30 | 0.15 | 1.42 | ELXM181VSN471MQ30S |
| | 560 | 22×40 | 0.15 | 1.59 | ELXM181VSN561MP40S |
| | 560 | 25.4×30 | 0.15 | 1.55 | ELXM181VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 1.58 | ELXM181VSN561MR25S |
| | 680 | 22×45 | 0.15 | 1.79 | ELXM181VSN681MP45S |
| | 680 | 25.4×35 | 0.15 | 1.78 | ELXM181VSN681MQ35S |
| | 680 | 30×30 | 0.15 | 1.79 | ELXM181VSN681MR30S |
| | 820 | 25.4×40 | 0.15 | 2.01 | ELXM181VSN821MQ40S |
| | 820 | 30×35 | 0.15 | 2.04 | ELXM181VSN821MR35S |
| | 1,000 | 25.4×50 | 0.15 | 2.32 | ELXM181VSN102MQ50S |
| | 1,000 | 30×35 | 0.15 | 2.26 | ELXM181VSN102MR35S |
| | 1,000 | 35×30 | 0.15 | 2.30 | ELXM181VSN102MA30S |
| | 1,200 | 30×45 | 0.15 | 2.65 | ELXM181VSN122MR45S |
| | 1,200 | 35×35 | 0.15 | 2.58 | ELXM181VSN122MA35S |
| | 1,500 | 30×50 | 0.15 | 3.03 | ELXM181VSN152MR50S |
| | 1,500 | 35×40 | 0.15 | 3.01 | ELXM181VSN152MA40S |
| | 1,800 | 35×45 | 0.15 | 3.41 | ELXM181VSN182MA45S |
| | 2,200 | 35×50 | 0.15 | 3.87 | ELXM181VSN222MA50S |
| 200 | 220 | 22×25 | 0.15 | 0.90 | ELXM201VSN221MP25S |
| | 270 | 22×30 | 0.15 | 1.05 | ELXM201VSN271MP30S |
| | 330 | 22×30 | 0.15 | 1.16 | ELXM201VSN331MP30S |
| | 330 | 25.4×25 | 0.15 | 1.16 | ELXM201VSN331MQ25S |
| | 390 | 22×35 | 0.15 | 1.29 | ELXM201VSN391MP35S |
| | 390 | 25.4×30 | 0.15 | 1.29 | ELXM201VSN391MQ30S |
| | 470 | 22×40 | 0.15 | 1.46 | ELXM201VSN471MP40S |
| | 470 | 25.4×30 | 0.15 | 1.42 | ELXM201VSN471MQ30S |
| | 470 | 30×25 | 0.15 | 1.45 | ELXM201VSN471MR25S |
| | 560 | 22×45 | 0.15 | 1.63 | ELXM201VSN561MP45S |
| | 560 | 25.4×35 | 0.15 | 1.62 | ELXM201VSN561MQ35S |
| | 560 | 30×30 | 0.15 | 1.62 | ELXM201VSN561MR30S |
| | 680 | 25.4×40 | 0.15 | 1.83 | ELXM201VSN681MQ40S |
| | 680 | 30×30 | 0.15 | 1.79 | ELXM201VSN681MR30S |
| | 820 | 25.4×45 | 0.15 | 2.06 | ELXM201VSN821MQ45S |
| | 820 | 30×35 | 0.15 | 2.04 | ELXM201VSN821MR35S |
| | 1,000 | 30×45 | 0.15 | 2.42 | ELXM201VSN102MR45S |
| | 1,000 | 35×30 | 0.15 | 2.30 | ELXM201VSN102MA30S |
| | 1,200 | 30×50 | 0.15 | 2.71 | ELXM201VSN122MR50S |
| | 1,200 | 35×40 | 0.15 | 2.70 | ELXM201VSN122MA40S |
| | 1,500 | 35×45 | 0.15 | 3.11 | ELXM201VSN152MA45S |
| | 1,800 | 35×50 | 0.15 | 3.50 | ELXM201VSN182MA50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 220 | 220 | 22×25 | 0.15 | 0.90 | ELXM221VSN221MP25S |
| | 270 | 22×30 | 0.15 | 1.05 | ELXM221VSN271MP30S |
| | 330 | 22×35 | 0.15 | 1.19 | ELXM221VSN331MP35S |
| | 330 | 25.4×25 | 0.15 | 1.16 | ELXM221VSN331MQ25S |
| | 390 | 22×40 | 0.15 | 1.33 | ELXM221VSN391MP40S |
| | 390 | 25.4×30 | 0.15 | 1.29 | ELXM221VSN391MQ30S |
| | 470 | 22×45 | 0.15 | 1.49 | ELXM221VSN471MP45S |
| | 470 | 25.4×35 | 0.15 | 1.48 | ELXM221VSN471MQ35S |
| | 470 | 30×25 | 0.15 | 1.45 | ELXM221VSN471MR25S |
| | 560 | 22×50 | 0.15 | 1.63 | ELXM221VSN561MP50S |
| | 560 | 25.4×40 | 0.15 | 1.71 | ELXM221VSN561MQ40S |
| | 560 | 30×30 | 0.15 | 1.62 | ELXM221VSN561MR30S |
| | 680 | 25.4×45 | 0.15 | 1.87 | ELXM221VSN681MQ45S |
| | 680 | 30×35 | 0.15 | 1.86 | ELXM221VSN681MR35S |
| | 820 | 25.4×50 | 0.15 | 2.10 | ELXM221VSN821MQ50S |
| | 820 | 30×40 | 0.15 | 2.12 | ELXM221VSN821MR40S |
| | 820 | 35×30 | 0.15 | 2.08 | ELXM221VSN821MA30S |
| | 1,000 | 30×50 | 0.15 | 2.48 | ELXM221VSN102MR50S |
| | 1,000 | 35×40 | 0.15 | 2.46 | ELXM221VSN102MA40S |
| | 1,200 | 35×45 | 0.15 | 2.78 | ELXM221VSN122MA45S |
| | 1,500 | 35×50 | 0.15 | 3.20 | ELXM221VSN152MA50S |
| 250 | 180 | 22×25 | 0.15 | 0.82 | ELXM251VSN181MP25S |
| | 220 | 22×30 | 0.15 | 0.95 | ELXM251VSN221MP30S |
| | 270 | 22×35 | 0.15 | 1.08 | ELXM251VSN271MP35S |
| | 270 | 25.4×25 | 0.15 | 1.05 | ELXM251VSN271MQ25S |
| | 330 | 22×40 | 0.15 | 1.22 | ELXM251VSN331MP40S |
| | 330 | 25.4×30 | 0.15 | 1.19 | ELXM251VSN331MQ30S |
| | 390 | 22×45 | 0.15 | 1.36 | ELXM251VSN391MP45S |
| | 390 | 25.4×35 | 0.15 | 1.35 | ELXM251VSN391MQ35S |
| | 390 | 30×25 | 0.15 | 1.32 | ELXM251VSN391MR25S |
| | 470 | 22×50 | 0.15 | 1.49 | ELXM251VSN471MP50S |
| | 470 | 25.4×40 | 0.15 | 1.52 | ELXM251VSN471MQ40S |
| | 470 | 30×30 | 0.15 | 1.49 | ELXM251VSN471MR30S |
| | 560 | 25.4×45 | 0.15 | 1.70 | ELXM251VSN561MQ45S |
| | 560 | 30×35 | 0.15 | 1.69 | ELXM251VSN561MR35S |
| | 680 | 25.4×50 | 0.15 | 1.91 | ELXM251VSN681MQ50S |
| | 680 | 30×40 | 0.15 | 1.93 | ELXM251VSN681MR40S |
| | 680 | 35×30 | 0.15 | 1.90 | ELXM251VSN681MA30S |
| | 820 | 30×45 | 0.15 | 2.19 | ELXM251VSN821MR45S |
| | 820 | 35×35 | 0.15 | 2.13 | ELXM251VSN821MA35S |
| | 1,000 | 35×40 | 0.15 | 2.46 | ELXM251VSN102MA40S |
| | 1,200 | 35×50 | 0.15 | 2.86 | ELXM251VSN122MA50S |
| 315 | 100 | 22×25 | 0.15 | 0.67 | ELXM3B1VSN101MP25S |
| | 120 | 22×30 | 0.15 | 0.77 | ELXM3B1VSN121MP30S |
| | 150 | 22×30 | 0.15 | 0.86 | ELXM3B1VSN151MP30S |
| | 150 | 25.4×25 | 0.15 | 0.85 | ELXM3B1VSN151MQ25S |
| | 180 | 22×35 | 0.15 | 0.96 | ELXM3B1VSN181MP35S |
| | 180 | 25.4×30 | 0.15 | 0.96 | ELXM3B1VSN181MQ30S |
| | 220 | 22×40 | 0.15 | 1.09 | ELXM3B1VSN221MP40S |
| | 220 | 25.4×30 | 0.15 | 1.06 | ELXM3B1VSN221MQ30S |
| | 220 | 30×25 | 0.15 | 1.08 | ELXM3B1VSN221MR25S |
| | 270 | 22×45 | 0.15 | 1.24 | ELXM3B1VSN271MP45S |
| | 270 | 25.4×35 | 0.15 | 1.23 | ELXM3B1VSN271MQ35S |
| | 270 | 30×30 | 0.15 | 1.23 | ELXM3B1VSN271MR30S |
| | 330 | 25.4×40 | 0.15 | 1.40 | ELXM3B1VSN331MQ40S |
| | 330 | 30×35 | 0.15 | 1.42 | ELXM3B1VSN331MR35S |
| | 330 | 35×30 | 0.15 | 1.45 | ELXM3B1VSN331MA30S |
| | 390 | 25.4×50 | 0.15 | 1.59 | ELXM3B1VSN391MQ50S |
| | 390 | 30×35 | 0.15 | 1.54 | ELXM3B1VSN391MR35S |
| | 390 | 35×30 | 0.15 | 1.57 | ELXM3B1VSN391MA30S |
| | 470 | 30×45 | 0.15 | 1.81 | ELXM3B1VSN471MR45S |
| | 470 | 35×35 | 0.15 | 1.77 | ELXM3B1VSN471MA35S |
| | 560 | 30×50 | 0.15 | 2.03 | ELXM3B1VSN561MR50S |
| | 560 | 35×40 | 0.15 | 2.02 | ELXM3B1VSN561MA40S |
| | 680 | 35×45 | 0.15 | 2.29 | ELXM3B1VSN681MA45S |
| | 820 | 35×50 | 0.15 | 2.59 | ELXM3B1VSN821MA50S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXM Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 100 | 22×25 | 0.15 | 0.67 | ELXM351VSN101MP25S |
| | 120 | 22×30 | 0.15 | 0.77 | ELXM351VSN121MP30S |
| | 120 | 25.4×25 | 0.15 | 0.76 | ELXM351VSN121MQ25S |
| | 150 | 22×35 | 0.15 | 0.88 | ELXM351VSN151MP35S |
| | 150 | 25.4×30 | 0.15 | 0.88 | ELXM351VSN151MQ30S |
| | 180 | 22×40 | 0.15 | 0.99 | ELXM351VSN181MP40S |
| | 180 | 25.4×30 | 0.15 | 0.96 | ELXM351VSN181MQ30S |
| | 180 | 30×25 | 0.15 | 0.98 | ELXM351VSN181MR25S |
| | 220 | 22×45 | 0.15 | 1.12 | ELXM351VSN221MP45S |
| | 220 | 25.4×35 | 0.15 | 1.11 | ELXM351VSN221MQ35S |
| | 220 | 30×30 | 0.15 | 1.11 | ELXM351VSN221MR30S |
| | 270 | 25.4×40 | 0.15 | 1.26 | ELXM351VSN271MQ40S |
| | 270 | 30×35 | 0.15 | 1.28 | ELXM351VSN271MR35S |
| | 330 | 25.4×45 | 0.15 | 1.40 | ELXM351VSN331MQ45S |
| | 330 | 30×35 | 0.15 | 1.42 | ELXM351VSN331MR35S |
| | 330 | 35×30 | 0.15 | 1.45 | ELXM351VSN331MA30S |
| | 390 | 30×40 | 0.15 | 1.60 | ELXM351VSN391MR40S |
| | 390 | 35×35 | 0.15 | 1.61 | ELXM351VSN391MA35S |
| | 470 | 30×50 | 0.15 | 1.86 | ELXM351VSN471MR50S |
| | 470 | 35×40 | 0.15 | 1.85 | ELXM351VSN471MA40S |
| | 560 | 35×40 | 0.15 | 2.02 | ELXM351VSN561MA40S |
| | 680 | 35×50 | 0.15 | 2.36 | ELXM351VSN681MA50S |
| 400 | 68 | 22×25 | 0.15 | 0.55 | ELXM401VSN680MP25S |
| | 82 | 22×30 | 0.15 | 0.63 | ELXM401VSN820MP30S |
| | 100 | 22×30 | 0.15 | 0.70 | ELXM401VSN101MP30S |
| | 100 | 25.4×25 | 0.15 | 0.70 | ELXM401VSN101MQ25S |
| | 120 | 22×35 | 0.15 | 0.79 | ELXM401VSN121MP35S |
| | 120 | 25.4×30 | 0.15 | 0.79 | ELXM401VSN121MQ30S |
| | 150 | 22×40 | 0.15 | 0.90 | ELXM401VSN151MP40S |
| | 150 | 25.4×30 | 0.15 | 0.88 | ELXM401VSN151MQ30S |
| | 150 | 30×25 | 0.15 | 0.90 | ELXM401VSN151MR25S |
| | 180 | 22×45 | 0.15 | 0.99 | ELXM401VSN181MP45S |
| | 180 | 25.4×35 | 0.15 | 1.01 | ELXM401VSN181MQ35S |
| | 180 | 30×30 | 0.15 | 1.01 | ELXM401VSN181MR30S |
| | 220 | 25.4×40 | 0.15 | 1.14 | ELXM401VSN221MQ40S |
| | 220 | 30×35 | 0.15 | 1.16 | ELXM401VSN221MR35S |
| | 270 | 25.4×50 | 0.15 | 1.32 | ELXM401VSN271MQ50S |
| | 270 | 30×40 | 0.15 | 1.33 | ELXM401VSN271MR40S |
| | 270 | 35×30 | 0.15 | 1.31 | ELXM401VSN271MA30S |
| | 330 | 30×45 | 0.15 | 1.52 | ELXM401VSN331MR45S |
| | 330 | 35×35 | 0.15 | 1.48 | ELXM401VSN331MA35S |
| | 390 | 30×50 | 0.15 | 1.69 | ELXM401VSN391MR50S |
| | 390 | 35×40 | 0.15 | 1.68 | ELXM401VSN391MA40S |
| | 470 | 35×45 | 0.15 | 1.91 | ELXM401VSN471MA45S |
| | 560 | 35×50 | 0.15 | 2.14 | ELXM401VSN561MA50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 56 | 22×25 | 0.20 | 0.50 | ELXM421VSN560MP25S |
| | 68 | 22×30 | 0.20 | 0.58 | ELXM421VSN680MP30S |
| | 82 | 22×30 | 0.20 | 0.63 | ELXM421VSN820MP30S |
| | 82 | 25.4×25 | 0.20 | 0.63 | ELXM421VSN820MQ25S |
| | 100 | 22×35 | 0.20 | 0.72 | ELXM421VSN101MP35S |
| | 100 | 25.4×30 | 0.20 | 0.72 | ELXM421VSN101MQ30S |
| | 120 | 22×40 | 0.20 | 0.81 | ELXM421VSN121MP40S |
| | 120 | 25.4×30 | 0.20 | 0.79 | ELXM421VSN121MQ30S |
| | 120 | 30×25 | 0.20 | 0.80 | ELXM421VSN121MR25S |
| | 150 | 22×45 | 0.20 | 0.92 | ELXM421VSN151MP45S |
| | 150 | 25.4×35 | 0.20 | 0.92 | ELXM421VSN151MQ35S |
| | 150 | 30×30 | 0.20 | 0.92 | ELXM421VSN151MR30S |
| | 180 | 25.4×40 | 0.20 | 1.03 | ELXM421VSN181MQ40S |
| | 180 | 30×35 | 0.20 | 1.05 | ELXM421VSN181MR35S |
| | 220 | 25.4×50 | 0.20 | 1.19 | ELXM421VSN221MQ50S |
| | 220 | 30×35 | 0.20 | 1.16 | ELXM421VSN221MR35S |
| | 220 | 35×30 | 0.20 | 1.18 | ELXM421VSN221MA30S |
| | 270 | 30×45 | 0.20 | 1.38 | ELXM421VSN271MR45S |
| | 270 | 35×35 | 0.20 | 1.34 | ELXM421VSN271MA35S |
| | 330 | 30×50 | 0.20 | 1.56 | ELXM421VSN331MR50S |
| | 330 | 35×40 | 0.20 | 1.55 | ELXM421VSN331MA40S |
| | 390 | 35×45 | 0.20 | 1.74 | ELXM421VSN391MA45S |
| | 470 | 35×50 | 0.20 | 1.96 | ELXM421VSN471MA50S |
| 450 | 47 | 22×25 | 0.20 | 0.46 | ELXM451VSN470MP25S |
| | 56 | 22×30 | 0.20 | 0.52 | ELXM451VSN560MP30S |
| | 68 | 22×30 | 0.20 | 0.58 | ELXM451VSN680MP30S |
| | 68 | 25.4×25 | 0.20 | 0.58 | ELXM451VSN680MQ25S |
| | 82 | 22×35 | 0.20 | 0.65 | ELXM451VSN820MP35S |
| | 82 | 25.4×30 | 0.20 | 0.65 | ELXM451VSN820MQ30S |
| | 100 | 22×40 | 0.20 | 0.74 | ELXM451VSN101MP40S |
| | 100 | 25.4×30 | 0.20 | 0.72 | ELXM451VSN101MQ30S |
| | 100 | 30×25 | 0.20 | 0.73 | ELXM451VSN101MR25S |
| | 120 | 22×45 | 0.20 | 0.83 | ELXM451VSN121MP45S |
| | 120 | 25.4×35 | 0.20 | 0.82 | ELXM451VSN121MQ35S |
| | 120 | 30×30 | 0.20 | 0.82 | ELXM451VSN121MR30S |
| | 150 | 25.4×40 | 0.20 | 0.94 | ELXM451VSN151MQ40S |
| | 150 | 30×35 | 0.20 | 0.96 | ELXM451VSN151MR35S |
| | 180 | 25.4×45 | 0.20 | 1.06 | ELXM451VSN181MQ45S |
| | 180 | 30×35 | 0.20 | 1.05 | ELXM451VSN181MR35S |
| | 180 | 35×30 | 0.20 | 1.07 | ELXM451VSN181MA30S |
| | 220 | 30×40 | 0.20 | 1.20 | ELXM451VSN221MR40S |
| | 220 | 35×35 | 0.20 | 1.21 | ELXM451VSN221MA35S |
| | 270 | 30×50 | 0.20 | 1.41 | ELXM451VSN271MR50S |
| | 270 | 35×40 | 0.20 | 1.40 | ELXM451VSN271MA40S |
| | 330 | 35×45 | 0.20 | 1.60 | ELXM451VSN331MA45S |
| | 390 | 35×50 | 0.20 | 1.79 | ELXM451VSN391MA50S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

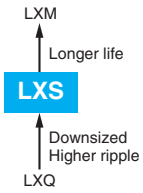
# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

Upgrade!

## LXS Series

- For solar power generation
- Endurance with ripple current : 5,000 hours at 105℃
- Rated voltage range : 160 to 500V
- Downsized from LXQ series
- Non solvent resistant type
- **RoHS Compliant**

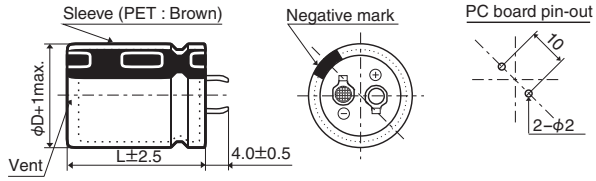


## ◆SPECIFICATIONS

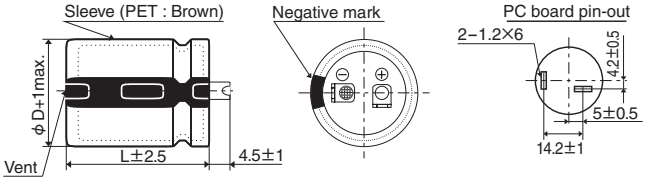
| Items | Characteristics | | | |
|---|---|---|---|---|
| Category Temperature Range | −25 to +105℃ | | | |
| Rated Voltage Range | 160 to 500Vdc | | | |
| Capacitance Tolerance | ±20% (M) | | | (at 20℃, 120Hz) |
| Leakage Current | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 160 to 400V | 420 to 500V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 160 to 400V | 420 to 500V | |
| | Z(−25℃)/Z(+20℃) | 4 | 8 | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value (500Vdc : ≦250%) | | |
| | Leakage current | ≦The initial specified value | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15% of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

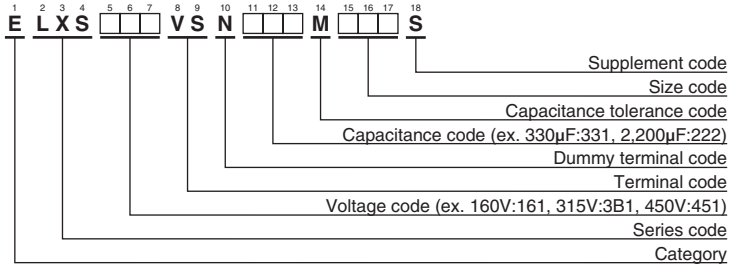



●Terminal Code : LI (φ30, φ35)




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

Upgrade!

## LXS Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 470 | 22×25 | 0.15 | 1.47 | ELXS161VSN471MP25S |
| | 680 | 22×30 | 0.15 | 1.86 | ELXS161VSN681MP30S |
| | 680 | 25.4×25 | 0.15 | 1.84 | ELXS161VSN681MQ25S |
| | 820 | 22×35 | 0.15 | 2.09 | ELXS161VSN821MP35S |
| | 820 | 25.4×30 | 0.15 | 2.08 | ELXS161VSN821MQ30S |
| | 1,000 | 22×40 | 0.15 | 2.35 | ELXS161VSN102MP40S |
| | 1,000 | 22×45 | 0.15 | 2.40 | ELXS161VSN102MP45S |
| | 1,000 | 25.4×35 | 0.15 | 2.40 | ELXS161VSN102MQ35S |
| | 1,000 | 30×25 | 0.15 | 2.50 | ELXS161VSN102MR25S |
| | 1,200 | 22×50 | 0.15 | 2.69 | ELXS161VSN122MP50S |
| | 1,200 | 25.4×40 | 0.15 | 2.68 | ELXS161VSN122MQ40S |
| | 1,200 | 30×30 | 0.15 | 2.77 | ELXS161VSN122MR30S |
| | 1,200 | 35×25 | 0.15 | 2.91 | ELXS161VSN122MA25S |
| | 1,500 | 25.4×45 | 0.15 | 3.05 | ELXS161VSN152MQ45S |
| | 1,500 | 30×35 | 0.15 | 3.17 | ELXS161VSN152MR35S |
| | 1,800 | 25.4×50 | 0.15 | 3.40 | ELXS161VSN182MQ50S |
| | 1,800 | 30×40 | 0.15 | 3.57 | ELXS161VSN182MR40S |
| | 1,800 | 35×30 | 0.15 | 3.62 | ELXS161VSN182MA30S |
| | 2,200 | 30×45 | 0.15 | 4.05 | ELXS161VSN222MR45S |
| | 2,200 | 30×50 | 0.15 | 4.11 | ELXS161VSN222MR50S |
| | 2,200 | 35×35 | 0.15 | 4.07 | ELXS161VSN222MA35S |
| | 2,700 | 35×40 | 0.15 | 4.67 | ELXS161VSN272MA40S |
| | 2,700 | 35×45 | 0.15 | 4.78 | ELXS161VSN272MA45S |
| | 3,300 | 35×50 | 0.15 | 5.40 | ELXS161VSN332MA50S |
| 180 | 390 | 22×25 | 0.15 | 1.34 | ELXS181VSN391MP25S |
| | 560 | 22×30 | 0.15 | 1.68 | ELXS181VSN561MP30S |
| | 560 | 25.4×25 | 0.15 | 1.67 | ELXS181VSN561MQ25S |
| | 680 | 22×35 | 0.15 | 1.90 | ELXS181VSN681MP35S |
| | 820 | 22×40 | 0.15 | 2.13 | ELXS181VSN821MP40S |
| | 820 | 25.4×30 | 0.15 | 2.08 | ELXS181VSN821MQ30S |
| | 820 | 25.4×35 | 0.15 | 2.17 | ELXS181VSN821MQ35S |
| | 820 | 30×25 | 0.15 | 2.26 | ELXS181VSN821MR25S |
| | 1,000 | 22×45 | 0.15 | 2.40 | ELXS181VSN102MP45S |
| | 1,000 | 22×50 | 0.15 | 2.45 | ELXS181VSN102MP50S |
| | 1,000 | 25.4×40 | 0.15 | 2.45 | ELXS181VSN102MQ40S |
| | 1,000 | 30×30 | 0.15 | 2.52 | ELXS181VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.66 | ELXS181VSN102MA25S |
| | 1,200 | 25.4×45 | 0.15 | 2.73 | ELXS181VSN122MQ45S |
| | 1,200 | 30×35 | 0.15 | 2.83 | ELXS181VSN122MR35S |
| | 1,500 | 25.4×50 | 0.15 | 3.10 | ELXS181VSN152MQ50S |
| | 1,500 | 30×40 | 0.15 | 3.26 | ELXS181VSN152MR40S |
| | 1,500 | 35×30 | 0.15 | 3.31 | ELXS181VSN152MA30S |
| | 1,800 | 30×45 | 0.15 | 3.66 | ELXS181VSN182MR45S |
| | 1,800 | 35×35 | 0.15 | 3.68 | ELXS181VSN182MA35S |
| | 2,200 | 30×50 | 0.15 | 4.11 | ELXS181VSN222MR50S |
| | 2,200 | 35×40 | 0.15 | 4.22 | ELXS181VSN222MA40S |
| | 2,200 | 35×45 | 0.15 | 4.32 | ELXS181VSN222MA45S |
| | 2,700 | 35×50 | 0.15 | 4.88 | ELXS181VSN272MA50S |
| 200 | 390 | 22×25 | 0.15 | 1.34 | ELXS201VSN391MP25S |
| | 470 | 22×30 | 0.15 | 1.54 | ELXS201VSN471MP30S |
| | 560 | 22×35 | 0.15 | 1.72 | ELXS201VSN561MP35S |
| | 560 | 25.4×25 | 0.15 | 1.67 | ELXS201VSN561MQ25S |
| | 680 | 22×40 | 0.15 | 1.94 | ELXS201VSN681MP40S |
| | 680 | 25.4×30 | 0.15 | 1.89 | ELXS201VSN681MQ30S |
| | 680 | 30×25 | 0.15 | 2.06 | ELXS201VSN681MR25S |
| | 820 | 22×45 | 0.15 | 2.17 | ELXS201VSN821MP45S |
| | 820 | 25.4×35 | 0.15 | 2.17 | ELXS201VSN821MQ35S |
| | 1,000 | 22×50 | 0.15 | 2.45 | ELXS201VSN102MP50S |
| | 1,000 | 25.4×40 | 0.15 | 2.45 | ELXS201VSN102MQ40S |
| | 1,000 | 30×30 | 0.15 | 2.52 | ELXS201VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.66 | ELXS201VSN102MA25S |
| | 1,200 | 25.4×45 | 0.15 | 2.73 | ELXS201VSN122MQ45S |
| | 1,200 | 25.4×50 | 0.15 | 2.78 | ELXS201VSN122MQ50S |
| | 1,200 | 30×35 | 0.15 | 2.83 | ELXS201VSN122MR35S |
| | 1,200 | 35×30 | 0.15 | 2.96 | ELXS201VSN122MA30S |
| | 1,500 | 30×40 | 0.15 | 3.26 | ELXS201VSN152MR40S |
| | 1,500 | 30×45 | 0.15 | 3.34 | ELXS201VSN152MR45S |
| 200 | 1,500 | 35×35 | 0.15 | 3.36 | ELXS201VSN152MA35S |
| | 1,800 | 30×50 | 0.15 | 3.72 | ELXS201VSN182MR50S |
| | 1,800 | 35×40 | 0.15 | 3.81 | ELXS201VSN182MA40S |
| | 2,200 | 35×45 | 0.15 | 4.32 | ELXS201VSN222MA45S |
| | 2,700 | 35×50 | 0.15 | 4.88 | ELXS201VSN272MA50S |
| 250 | 270 | 22×25 | 0.15 | 1.11 | ELXS251VSN271MP25S |
| | 330 | 22×30 | 0.15 | 1.29 | ELXS251VSN331MP30S |
| | 390 | 22×35 | 0.15 | 1.44 | ELXS251VSN391MP35S |
| | 390 | 25.4×25 | 0.15 | 1.40 | ELXS251VSN391MQ25S |
| | 470 | 22×40 | 0.15 | 1.61 | ELXS251VSN471MP40S |
| | 470 | 25.4×30 | 0.15 | 1.57 | ELXS251VSN471MQ30S |
| | 560 | 22×45 | 0.15 | 1.79 | ELXS251VSN561MP45S |
| | 560 | 25.4×35 | 0.15 | 1.79 | ELXS251VSN561MQ35S |
| | 560 | 30×25 | 0.15 | 1.87 | ELXS251VSN561MR25S |
| | 680 | 22×50 | 0.15 | 2.02 | ELXS251VSN681MP50S |
| | 680 | 25.4×40 | 0.15 | 2.02 | ELXS251VSN681MQ40S |
| | 680 | 30×30 | 0.15 | 2.08 | ELXS251VSN681MR30S |
| | 680 | 35×25 | 0.15 | 2.19 | ELXS251VSN681MA25S |
| | 820 | 25.4×45 | 0.15 | 2.26 | ELXS251VSN821MQ45S |
| | 820 | 25.4×50 | 0.15 | 2.29 | ELXS251VSN821MQ50S |
| | 820 | 30×35 | 0.15 | 2.34 | ELXS251VSN821MR35S |
| | 820 | 35×30 | 0.15 | 2.45 | ELXS251VSN821MA30S |
| | 1,000 | 30×40 | 0.15 | 2.66 | ELXS251VSN102MR40S |
| | 1,200 | 30×45 | 0.15 | 2.99 | ELXS251VSN122MR45S |
| | 1,200 | 30×50 | 0.15 | 3.04 | ELXS251VSN122MR50S |
| | 1,200 | 35×35 | 0.15 | 3.00 | ELXS251VSN122MA35S |
| | 1,200 | 35×40 | 0.15 | 3.11 | ELXS251VSN122MA40S |
| | 1,500 | 35×45 | 0.15 | 3.56 | ELXS251VSN152MA45S |
| | 1,800 | 35×50 | 0.15 | 3.98 | ELXS251VSN182MA50S |
| 315 | 180 | 22×25 | 0.15 | 0.95 | ELXS3B1VSN181MP25S |
| | 220 | 22×30 | 0.15 | 1.10 | ELXS3B1VSN221MP30S |
| | 220 | 25.4×25 | 0.15 | 1.10 | ELXS3B1VSN221MQ25S |
| | 270 | 22×35 | 0.15 | 1.24 | ELXS3B1VSN271MP35S |
| | 270 | 25.4×30 | 0.15 | 1.25 | ELXS3B1VSN271MQ30S |
| | 330 | 22×40 | 0.15 | 1.40 | ELXS3B1VSN331MP40S |
| | 330 | 30×25 | 0.15 | 1.43 | ELXS3B1VSN331MR25S |
| | 390 | 22×45 | 0.15 | 1.56 | ELXS3B1VSN391MP45S |
| | 390 | 22×50 | 0.15 | 1.59 | ELXS3B1VSN391MP50S |
| | 390 | 25.4×35 | 0.15 | 1.57 | ELXS3B1VSN391MQ35S |
| | 470 | 25.4×40 | 0.15 | 1.76 | ELXS3B1VSN471MQ40S |
| | 470 | 25.4×45 | 0.15 | 1.79 | ELXS3B1VSN471MQ45S |
| | 470 | 30×30 | 0.15 | 1.73 | ELXS3B1VSN471MR30S |
| | 470 | 35×25 | 0.15 | 1.82 | ELXS3B1VSN471MA25S |
| | 560 | 25.4×50 | 0.15 | 1.99 | ELXS3B1VSN561MQ50S |
| | 560 | 30×35 | 0.15 | 1.93 | ELXS3B1VSN561MR35S |
| | 560 | 35×30 | 0.15 | 2.02 | ELXS3B1VSN561MA30S |
| | 680 | 30×40 | 0.15 | 2.19 | ELXS3B1VSN681MR40S |
| | 680 | 30×45 | 0.15 | 2.25 | ELXS3B1VSN681MR45S |
| | 680 | 35×35 | 0.15 | 2.26 | ELXS3B1VSN681MA35S |
| | 820 | 30×50 | 0.15 | 2.51 | ELXS3B1VSN821MR50S |
| | 820 | 35×40 | 0.15 | 2.57 | ELXS3B1VSN821MA40S |
| | 1,000 | 35×45 | 0.15 | 2.91 | ELXS3B1VSN102MA45S |
| | 1,200 | 35×50 | 0.15 | 3.25 | ELXS3B1VSN122MA50S |
| 400 | 120 | 22×25 | 0.15 | 0.77 | ELXS401VSN121MP25S |
| | 150 | 22×30 | 0.15 | 0.90 | ELXS401VSN151MP30S |
| | 180 | 22×35 | 0.15 | 1.02 | ELXS401VSN181MP35S |
| | 180 | 25.4×25 | 0.15 | 0.99 | ELXS401VSN181MQ25S |
| | 220 | 22×40 | 0.15 | 1.15 | ELXS401VSN221MP40S |
| | 220 | 25.4×30 | 0.15 | 1.13 | ELXS401VSN221MQ30S |
| | 220 | 30×25 | 0.15 | 1.17 | ELXS401VSN221MR25S |
| | 270 | 22×45 | 0.15 | 1.29 | ELXS401VSN271MP45S |
| | 270 | 22×50 | 0.15 | 1.32 | ELXS401VSN271MP50S |
| | 270 | 25.4×35 | 0.15 | 1.30 | ELXS401VSN271MQ35S |
| | 330 | 25.4×40 | 0.15 | 1.47 | ELXS401VSN331MQ40S |
| | 330 | 30×30 | 0.15 | 1.45 | ELXS401VSN331MR30S |
| | 330 | 35×25 | 0.15 | 1.52 | ELXS401VSN331MA25S |
| | 390 | 25.4×45 | 0.15 | 1.63 | ELXS401VSN391MQ45S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

Upgrade!

## LXS Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 390 | 25.4×50 | 0.15 | 1.66 | ELXS401VSN391MQ50S |
| | 390 | 30×35 | 0.15 | 1.61 | ELXS401VSN391MR35S |
| | 390 | 35×30 | 0.15 | 1.68 | ELXS401VSN391MA30S |
| | 470 | 30×40 | 0.15 | 1.82 | ELXS401VSN471MR40S |
| | 470 | 35×35 | 0.15 | 1.88 | ELXS401VSN471MA35S |
| | 560 | 30×45 | 0.15 | 2.04 | ELXS401VSN561MR45S |
| | 560 | 30×50 | 0.15 | 2.07 | ELXS401VSN561MR50S |
| | 560 | 35×40 | 0.15 | 2.13 | ELXS401VSN561MA40S |
| | 680 | 35×45 | 0.15 | 2.40 | ELXS401VSN681MA45S |
| | 820 | 35×50 | 0.15 | 2.69 | ELXS401VSN821MA50S |
| 420 | 100 | 22×25 | 0.20 | 0.70 | ELXS421VSN101MP25S |
| | 120 | 22×30 | 0.20 | 0.81 | ELXS421VSN121MP30S |
| | 120 | 25.4×25 | 0.20 | 0.81 | ELXS421VSN121MQ25S |
| | 150 | 22×35 | 0.20 | 0.93 | ELXS421VSN151MP35S |
| | 180 | 22×40 | 0.20 | 1.04 | ELXS421VSN181MP40S |
| | 180 | 25.4×30 | 0.20 | 1.02 | ELXS421VSN181MQ30S |
| | 180 | 30×25 | 0.20 | 1.06 | ELXS421VSN181MR25S |
| | 220 | 22×45 | 0.20 | 1.17 | ELXS421VSN221MP45S |
| | 220 | 22×50 | 0.20 | 1.20 | ELXS421VSN221MP50S |
| | 220 | 25.4×35 | 0.20 | 1.18 | ELXS421VSN221MQ35S |
| | 270 | 25.4×40 | 0.20 | 1.33 | ELXS421VSN271MQ40S |
| | 270 | 25.4×45 | 0.20 | 1.36 | ELXS421VSN271MQ45S |
| | 270 | 30×30 | 0.20 | 1.31 | ELXS421VSN271MR30S |
| | 270 | 35×25 | 0.20 | 1.38 | ELXS421VSN271MA25S |
| | 330 | 25.4×50 | 0.20 | 1.52 | ELXS421VSN331MQ50S |
| | 330 | 30×35 | 0.20 | 1.48 | ELXS421VSN331MR35S |
| | 330 | 35×30 | 0.20 | 1.55 | ELXS421VSN331MA30S |
| | 390 | 30×40 | 0.20 | 1.66 | ELXS421VSN391MR40S |
| | 390 | 30×45 | 0.20 | 1.70 | ELXS421VSN391MR45S |
| | 390 | 35×35 | 0.20 | 1.71 | ELXS421VSN391MA35S |
| | 470 | 30×50 | 0.20 | 1.90 | ELXS421VSN471MR50S |
| | 470 | 35×40 | 0.20 | 1.95 | ELXS421VSN471MA40S |
| | 560 | 35×45 | 0.20 | 2.17 | ELXS421VSN561MA45S |
| | 680 | 35×50 | 0.20 | 2.45 | ELXS421VSN681MA50S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 82 | 22×25 | 0.20 | 0.64 | ELXS451VSN820MP25S |
| | 120 | 22×30 | 0.20 | 0.81 | ELXS451VSN121MP30S |
| | 120 | 22×35 | 0.20 | 0.83 | ELXS451VSN121MP35S |
| | 120 | 25.4×25 | 0.20 | 0.81 | ELXS451VSN121MQ25S |
| | 150 | 22×40 | 0.20 | 0.94 | ELXS451VSN151MP40S |
| | 150 | 25.4×30 | 0.20 | 0.93 | ELXS451VSN151MQ30S |
| | 180 | 22×45 | 0.20 | 1.06 | ELXS451VSN181MP45S |
| | 180 | 25.4×35 | 0.20 | 1.06 | ELXS451VSN181MQ35S |
| | 180 | 30×25 | 0.20 | 1.06 | ELXS451VSN181MR25S |
| | 220 | 22×50 | 0.20 | 1.20 | ELXS451VSN221MP50S |
| | 220 | 25.4×40 | 0.20 | 1.20 | ELXS451VSN221MQ40S |
| | 220 | 30×30 | 0.20 | 1.18 | ELXS451VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.24 | ELXS451VSN221MA25S |
| | 270 | 25.4×45 | 0.20 | 1.36 | ELXS451VSN271MQ45S |
| | 270 | 25.4×50 | 0.20 | 1.38 | ELXS451VSN271MQ50S |
| | 270 | 30×35 | 0.20 | 1.34 | ELXS451VSN271MR35S |
| | 270 | 35×30 | 0.20 | 1.40 | ELXS451VSN271MA30S |
| | 330 | 30×40 | 0.20 | 1.52 | ELXS451VSN331MR40S |
| | 390 | 30×45 | 0.20 | 1.70 | ELXS451VSN391MR45S |
| | 390 | 30×50 | 0.20 | 1.73 | ELXS451VSN391MR50S |
| | 390 | 35×35 | 0.20 | 1.71 | ELXS451VSN391MA35S |
| | 470 | 35×40 | 0.20 | 1.95 | ELXS451VSN471MA40S |
| | 470 | 35×45 | 0.20 | 1.99 | ELXS451VSN471MA45S |
| | 560 | 35×50 | 0.20 | 2.22 | ELXS451VSN561MA50S |
| 500 | 100 | 30×25 | 0.20 | 0.82 | ELXS501VSN101MR25S |
| | 120 | 30×30 | 0.20 | 0.91 | ELXS501VSN121MR30S |
| | 120 | 35×25 | 0.20 | 0.88 | ELXS501VSN121MA25S |
| | 150 | 30×35 | 0.20 | 1.04 | ELXS501VSN151MR35S |
| | 180 | 30×40 | 0.20 | 1.17 | ELXS501VSN181MR40S |
| | 180 | 35×30 | 0.20 | 1.10 | ELXS501VSN181MA30S |
| | 220 | 30×45 | 0.20 | 1.33 | ELXS501VSN221MR45S |
| | 220 | 35×35 | 0.20 | 1.23 | ELXS501VSN221MA35S |
| | 270 | 30×50 | 0.20 | 1.50 | ELXS501VSN271MR50S |
| | 270 | 35×40 | 0.20 | 1.42 | ELXS501VSN271MA40S |
| | 330 | 35×45 | 0.20 | 1.60 | ELXS501VSN331MA45S |
| | 390 | 35×50 | 0.20 | 1.78 | ELXS501VSN391MA50S |
| | 470 | 35×60 | 0.20 | 2.03 | ELXS501VSN471MA60S |

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |
| 500Vdc | 0.70 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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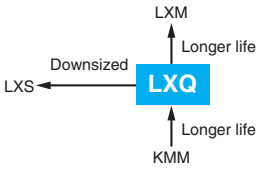
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXQ Series

- Endurance with ripple current : 5,000 hours at 105℃
- Downsized and higher ripple version of LXG series
- Non solvent resistant type
- **RoHS Compliant**

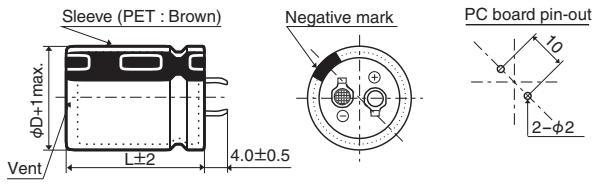


## ◆SPECIFICATIONS

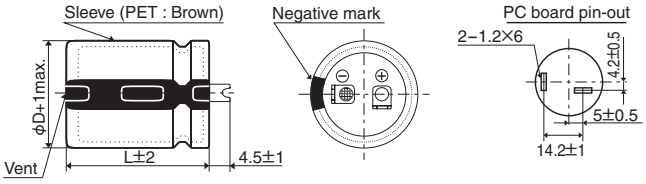
| Items | Characteristics | | | |
|---|---|---|---|---|
| Category Temperature Range | −25 to +105℃ | | | |
| Rated Voltage Range | 160 to 450Vdc | | | |
| Capacitance Tolerance | ±20% (M) | | | (at 20℃, 120Hz) |
| Leakage Current | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | (at 20℃ after 5 minutes) |
| Dissipation Factor (tanδ) | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | tanδ (Max.) | 0.15 | 0.20 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 160 to 400V | 420 & 450V | |
| | Z(−25℃)/Z(+20℃) | 4 | 8 | (at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦200% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | |
| | Capacitance change | ≦±15% of the initial value | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

## ◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

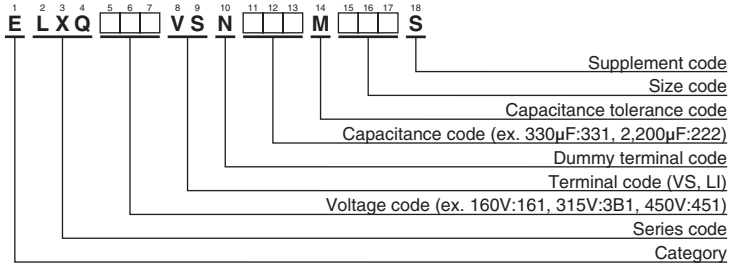



●Terminal Code : LI (φ30, φ35)




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 390 | 22×25 | 0.15 | 1.32 | ELXQ161VSN391MP25S |
| | 560 | 22×30 | 0.15 | 1.66 | ELXQ161VSN561MP30S |
| | 560 | 25.4×25 | 0.15 | 1.68 | ELXQ161VSN561MQ25S |
| | 680 | 22×35 | 0.15 | 1.87 | ELXQ161VSN681MP35S |
| | 680 | 25.4×30 | 0.15 | 1.88 | ELXQ161VSN681MQ30S |
| | 680 | 30×25 | 0.15 | 1.96 | ELXQ161VSN681MR25S |
| | 820 | 22×40 | 0.15 | 2.09 | ELXQ161VSN821MP40S |
| | 1,000 | 22×45 | 0.15 | 2.36 | ELXQ161VSN102MP45S |
| | 1,000 | 22×50 | 0.15 | 2.41 | ELXQ161VSN102MP50S |
| | 1,000 | 25.4×35 | 0.15 | 2.38 | ELXQ161VSN102MQ35S |
| | 1,000 | 30×30 | 0.15 | 2.40 | ELXQ161VSN102MR30S |
| | 1,000 | 35×25 | 0.15 | 2.55 | ELXQ161VSN102MA25S |
| | 1,200 | 25.4×40 | 0.15 | 2.66 | ELXQ161VSN122MQ40S |
| | 1,200 | 25.4×45 | 0.15 | 2.71 | ELXQ161VSN122MQ45S |
| | 1,200 | 30×35 | 0.15 | 2.69 | ELXQ161VSN122MR35S |
| | 1,200 | 30×40 | 0.15 | 2.77 | ELXQ161VSN122MR40S |
| | 1,200 | 35×30 | 0.15 | 2.86 | ELXQ161VSN122MA30S |
| | 1,500 | 25.4×50 | 0.15 | 3.08 | ELXQ161VSN152MQ50S |
| | 1,500 | 30×45 | 0.15 | 3.17 | ELXQ161VSN152MR45S |
| | 1,500 | 35×35 | 0.15 | 3.22 | ELXQ161VSN152MA35S |
| | 1,800 | 30×50 | 0.15 | 3.53 | ELXQ161VSN182MR50S |
| | 1,800 | 35×40 | 0.15 | 3.66 | ELXQ161VSN182MA40S |
| | 2,200 | 35×45 | 0.15 | 4.14 | ELXQ161VSN222MA45S |
| | 2,700 | 35×50 | 0.15 | 4.68 | ELXQ161VSN272MA50S |
| 180 | 330 | 22×25 | 0.15 | 1.21 | ELXQ181VSN331MP25S |
| | 470 | 22×30 | 0.15 | 1.52 | ELXQ181VSN471MP30S |
| | 470 | 25.4×25 | 0.15 | 1.52 | ELXQ181VSN471MQ25S |
| | 560 | 22×35 | 0.15 | 1.70 | ELXQ181VSN561MP35S |
| | 560 | 30×25 | 0.15 | 1.78 | ELXQ181VSN561MR25S |
| | 680 | 22×40 | 0.15 | 1.91 | ELXQ181VSN681MP40S |
| | 680 | 25.4×30 | 0.15 | 1.88 | ELXQ181VSN681MQ30S |
| | 820 | 22×45 | 0.15 | 1.99 | ELXQ181VSN821MP45S |
| | 820 | 25.4×35 | 0.15 | 2.16 | ELXQ181VSN821MQ35S |
| | 820 | 30×30 | 0.15 | 2.17 | ELXQ181VSN821MR30S |
| | 820 | 35×25 | 0.15 | 2.31 | ELXQ181VSN821MA25S |
| | 1,000 | 22×50 | 0.15 | 2.25 | ELXQ181VSN102MP50S |
| | 1,000 | 25.4×40 | 0.15 | 2.43 | ELXQ181VSN102MQ40S |
| | 1,000 | 25.4×45 | 0.15 | 2.47 | ELXQ181VSN102MQ45S |
| | 1,000 | 30×35 | 0.15 | 2.46 | ELXQ181VSN102MR35S |
| | 1,200 | 25.4×50 | 0.15 | 2.75 | ELXQ181VSN122MQ50S |
| | 1,200 | 30×40 | 0.15 | 2.77 | ELXQ181VSN122MR40S |
| | 1,200 | 35×30 | 0.15 | 2.86 | ELXQ181VSN122MA30S |
| | 1,500 | 30×45 | 0.15 | 3.17 | ELXQ181VSN152MR45S |
| | 1,500 | 30×50 | 0.15 | 3.22 | ELXQ181VSN152MR50S |
| | 1,500 | 35×35 | 0.15 | 3.22 | ELXQ181VSN152MA35S |
| | 1,800 | 35×40 | 0.15 | 3.66 | ELXQ181VSN182MA40S |
| | 1,800 | 35×45 | 0.15 | 3.74 | ELXQ181VSN182MA45S |
| | 2,200 | 35×50 | 0.15 | 4.22 | ELXQ181VSN222MA50S |
| 200 | 270 | 22×25 | 0.15 | 1.10 | ELXQ201VSN271MP25S |
| | 390 | 22×30 | 0.15 | 1.38 | ELXQ201VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.39 | ELXQ201VSN391MQ25S |
| | 470 | 22×35 | 0.15 | 1.55 | ELXQ201VSN471MP35S |
| | 560 | 22×40 | 0.15 | 1.73 | ELXQ201VSN561MP40S |
| | 560 | 25.4×30 | 0.15 | 1.71 | ELXQ201VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 1.78 | ELXQ201VSN561MR25S |
| | 680 | 22×45 | 0.15 | 1.81 | ELXQ201VSN681MP45S |
| | 680 | 25.4×35 | 0.15 | 1.87 | ELXQ201VSN681MQ35S |
| | 680 | 30×30 | 0.15 | 1.98 | ELXQ201VSN681MR30S |
| | 680 | 35×25 | 0.15 | 2.10 | ELXQ201VSN681MA25S |
| | 820 | 22×50 | 0.15 | 2.18 | ELXQ201VSN821MP50S |
| | 820 | 25.4×40 | 0.15 | 2.09 | ELXQ201VSN821MQ40S |
| | 820 | 30×35 | 0.15 | 2.22 | ELXQ201VSN821MR35S |
| | 1,000 | 25.4×45 | 0.15 | 2.35 | ELXQ201VSN102MQ45S |
| | 1,000 | 25.4×50 | 0.15 | 2.39 | ELXQ201VSN102MQ50S |
| | 1,000 | 30×40 | 0.15 | 2.53 | ELXQ201VSN102MR40S |
| | 1,000 | 35×30 | 0.15 | 2.61 | ELXQ201VSN102MA30S |
| | 1,200 | 30×45 | 0.15 | 2.84 | ELXQ201VSN122MR45S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 1,200 | 30×50 | 0.15 | 2.88 | ELXQ201VSN122MR50S |
| | 1,200 | 35×35 | 0.15 | 2.88 | ELXQ201VSN122MA35S |
| | 1,500 | 35×40 | 0.15 | 3.34 | ELXQ201VSN152MA40S |
| | 1,800 | 35×45 | 0.15 | 3.74 | ELXQ201VSN182MA45S |
| | 1,800 | 35×50 | 0.15 | 3.82 | ELXQ201VSN182MA50S |
| 220 | 270 | 22×25 | 0.15 | 1.10 | ELXQ221VSN271MP25S |
| | 330 | 22×30 | 0.15 | 1.19 | ELXQ221VSN331MP30S |
| | 390 | 25.4×25 | 0.15 | 1.39 | ELXQ221VSN391MQ25S |
| | 470 | 22×35 | 0.15 | 1.55 | ELXQ221VSN471MP35S |
| | 470 | 25.4×30 | 0.15 | 1.56 | ELXQ221VSN471MQ30S |
| | 470 | 30×25 | 0.15 | 1.63 | ELXQ221VSN471MR25S |
| | 560 | 22×40 | 0.15 | 1.73 | ELXQ221VSN561MP40S |
| | 560 | 30×30 | 0.15 | 1.79 | ELXQ221VSN561MR30S |
| | 680 | 22×45 | 0.15 | 1.94 | ELXQ221VSN681MP45S |
| | 680 | 22×50 | 0.15 | 1.99 | ELXQ221VSN681MP50S |
| | 680 | 25.4×35 | 0.15 | 1.96 | ELXQ221VSN681MQ35S |
| | 680 | 30×35 | 0.15 | 2.02 | ELXQ221VSN681MR35S |
| | 680 | 35×25 | 0.15 | 2.10 | ELXQ221VSN681MA25S |
| | 820 | 25.4×40 | 0.15 | 2.20 | ELXQ221VSN821MQ40S |
| | 820 | 25.4×45 | 0.15 | 2.24 | ELXQ221VSN821MQ45S |
| | 820 | 30×40 | 0.15 | 2.29 | ELXQ221VSN821MR40S |
| | 820 | 35×30 | 0.15 | 2.36 | ELXQ221VSN821MA30S |
| | 1,000 | 25.4×50 | 0.15 | 2.51 | ELXQ221VSN102MQ50S |
| | 1,000 | 30×45 | 0.15 | 2.59 | ELXQ221VSN102MR45S |
| | 1,000 | 35×35 | 0.15 | 2.63 | ELXQ221VSN102MA35S |
| | 1,200 | 30×50 | 0.15 | 2.88 | ELXQ221VSN122MR50S |
| | 1,200 | 35×40 | 0.15 | 2.98 | ELXQ221VSN122MA40S |
| | 1,500 | 35×45 | 0.15 | 3.41 | ELXQ221VSN152MA45S |
| | 1,800 | 35×50 | 0.15 | 3.82 | ELXQ221VSN182MA50S |
| 250 | 220 | 22×25 | 0.15 | 1.01 | ELXQ251VSN221MP25S |
| | 270 | 22×30 | 0.15 | 1.20 | ELXQ251VSN271MP30S |
| | 330 | 25.4×25 | 0.15 | 1.32 | ELXQ251VSN331MQ25S |
| | 390 | 22×35 | 0.15 | 1.44 | ELXQ251VSN391MP35S |
| | 390 | 25.4×30 | 0.15 | 1.43 | ELXQ251VSN391MQ30S |
| | 390 | 30×25 | 0.15 | 1.51 | ELXQ251VSN391MR25S |
| | 470 | 22×40 | 0.15 | 1.62 | ELXQ251VSN471MP40S |
| | 560 | 22×45 | 0.15 | 1.80 | ELXQ251VSN561MP45S |
| | 560 | 22×50 | 0.15 | 1.84 | ELXQ251VSN561MP50S |
| | 560 | 25.4×35 | 0.15 | 1.78 | ELXQ251VSN561MQ35S |
| | 560 | 30×30 | 0.15 | 1.83 | ELXQ251VSN561MR30S |
| | 560 | 35×25 | 0.15 | 1.91 | ELXQ251VSN561MA25S |
| | 680 | 25.4×40 | 0.15 | 2.00 | ELXQ251VSN681MQ40S |
| | 680 | 25.4×45 | 0.15 | 2.04 | ELXQ251VSN681MQ45S |
| | 680 | 30×35 | 0.15 | 2.06 | ELXQ251VSN681MR35S |
| | 680 | 35×30 | 0.15 | 2.15 | ELXQ251VSN681MA30S |
| | 820 | 25.4×50 | 0.15 | 2.28 | ELXQ251VSN821MQ50S |
| | 820 | 30×40 | 0.15 | 2.33 | ELXQ251VSN821MR40S |
| | 820 | 30×45 | 0.15 | 2.39 | ELXQ251VSN821MR45S |
| | 820 | 35×35 | 0.15 | 2.38 | ELXQ251VSN821MA35S |
| | 1,000 | 30×50 | 0.15 | 2.68 | ELXQ251VSN102MR50S |
| | 1,000 | 35×40 | 0.15 | 2.72 | ELXQ251VSN102MA40S |
| | 1,200 | 35×45 | 0.15 | 3.05 | ELXQ251VSN122MA45S |
| | 1,500 | 35×50 | 0.15 | 3.49 | ELXQ251VSN152MA50S |
| 315 | 150 | 22×25 | 0.15 | 0.80 | ELXQ3B1VSN151MP25S |
| | 180 | 22×30 | 0.15 | 0.92 | ELXQ3B1VSN181MP30S |
| | 180 | 25.4×25 | 0.15 | 0.94 | ELXQ3B1VSN181MQ25S |
| | 220 | 22×35 | 0.15 | 1.04 | ELXQ3B1VSN221MP35S |
| | 220 | 30×25 | 0.15 | 1.17 | ELXQ3B1VSN221MR25S |
| | 270 | 22×40 | 0.15 | 1.18 | ELXQ3B1VSN271MP40S |
| | 270 | 25.4×30 | 0.15 | 1.19 | ELXQ3B1VSN271MQ30S |
| | 330 | 22×45 | 0.15 | 1.33 | ELXQ3B1VSN331MP45S |
| | 330 | 25.4×35 | 0.15 | 1.37 | ELXQ3B1VSN331MQ35S |
| | 330 | 30×30 | 0.15 | 1.40 | ELXQ3B1VSN331MR30S |
| | 330 | 35×25 | 0.15 | 1.49 | ELXQ3B1VSN331MA25S |
| | 390 | 22×50 | 0.15 | 1.48 | ELXQ3B1VSN391MP50S |
| | 390 | 25.4×40 | 0.15 | 1.52 | ELXQ3B1VSN391MQ40S |
| | 470 | 25.4×45 | 0.15 | 1.70 | ELXQ3B1VSN471MQ45S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 315 | 470 | 30×35 | 0.15 | 1.71 | ELXQ3B1VSN471MR35S |
| | 470 | 35×30 | 0.15 | 1.82 | ELXQ3B1VSN471MA30S |
| | 560 | 25.4×50 | 0.15 | 1.88 | ELXQ3B1VSN561MQ50S |
| | 560 | 30×40 | 0.15 | 1.92 | ELXQ3B1VSN561MR40S |
| | 560 | 30×45 | 0.15 | 1.97 | ELXQ3B1VSN561MR45S |
| | 560 | 35×35 | 0.15 | 2.00 | ELXQ3B1VSN561MA35S |
| | 680 | 30×50 | 0.15 | 2.21 | ELXQ3B1VSN681MR50S |
| | 680 | 35×40 | 0.15 | 2.29 | ELXQ3B1VSN681MA40S |
| | 820 | 35×45 | 0.15 | 2.57 | ELXQ3B1VSN821MA45S |
| | 1,000 | 35×50 | 0.15 | 2.89 | ELXQ3B1VSN102MA50S |
| 350 | 120 | 22×25 | 0.15 | 0.72 | ELXQ351VSN121MP25S |
| | 150 | 22×30 | 0.15 | 0.84 | ELXQ351VSN151MP30S |
| | 180 | 25.4×25 | 0.15 | 0.94 | ELXQ351VSN181MQ25S |
| | 220 | 22×35 | 0.15 | 1.04 | ELXQ351VSN221MP35S |
| | 220 | 22×40 | 0.15 | 1.06 | ELXQ351VSN221MP40S |
| | 220 | 25.4×30 | 0.15 | 1.07 | ELXQ351VSN221MQ30S |
| | 220 | 30×25 | 0.15 | 1.13 | ELXQ351VSN221MR25S |
| | 270 | 22×45 | 0.15 | 1.20 | ELXQ351VSN271MP45S |
| | 270 | 25.4×35 | 0.15 | 1.24 | ELXQ351VSN271MQ35S |
| | 270 | 30×30 | 0.15 | 1.27 | ELXQ351VSN271MR30S |
| | 270 | 35×25 | 0.15 | 1.35 | ELXQ351VSN271MA25S |
| | 330 | 22×50 | 0.15 | 1.36 | ELXQ351VSN331MP50S |
| | 330 | 25.4×40 | 0.15 | 1.39 | ELXQ351VSN331MQ40S |
| | 330 | 30×35 | 0.15 | 1.43 | ELXQ351VSN331MR35S |
| | 390 | 25.4×45 | 0.15 | 1.55 | ELXQ351VSN391MQ45S |
| | 390 | 30×40 | 0.15 | 1.60 | ELXQ351VSN391MR40S |
| | 390 | 35×30 | 0.15 | 1.66 | ELXQ351VSN391MA30S |
| | 470 | 25.4×50 | 0.15 | 1.72 | ELXQ351VSN471MQ50S |
| | 470 | 30×45 | 0.15 | 1.81 | ELXQ351VSN471MR45S |
| | 470 | 35×35 | 0.15 | 1.83 | ELXQ351VSN471MA35S |
| | 560 | 30×50 | 0.15 | 2.00 | ELXQ351VSN561MR50S |
| | 560 | 35×40 | 0.15 | 2.07 | ELXQ351VSN561MA40S |
| | 680 | 35×45 | 0.15 | 2.34 | ELXQ351VSN681MA45S |
| | 820 | 35×50 | 0.15 | 2.62 | ELXQ351VSN821MA50S |
| 400 | 100 | 22×25 | 0.15 | 0.66 | ELXQ401VSN101MP25S |
| | 120 | 22×30 | 0.15 | 0.75 | ELXQ401VSN121MP30S |
| | 150 | 22×35 | 0.15 | 0.86 | ELXQ401VSN151MP35S |
| | 150 | 25.4×25 | 0.15 | 0.86 | ELXQ401VSN151MQ25S |
| | 180 | 22×40 | 0.15 | 0.96 | ELXQ401VSN181MP40S |
| | 180 | 25.4×30 | 0.15 | 0.97 | ELXQ401VSN181MQ30S |
| | 180 | 30×25 | 0.15 | 1.02 | ELXQ401VSN181MR25S |
| | 220 | 22×45 | 0.15 | 1.09 | ELXQ401VSN221MP45S |
| | 220 | 25.4×35 | 0.15 | 1.12 | ELXQ401VSN221MQ35S |
| | 220 | 35×25 | 0.15 | 1.22 | ELXQ401VSN221MA25S |
| | 270 | 22×50 | 0.15 | 1.23 | ELXQ401VSN271MP50S |
| | 270 | 25.4×40 | 0.15 | 1.26 | ELXQ401VSN271MQ40S |
| | 270 | 25.4×45 | 0.15 | 1.29 | ELXQ401VSN271MQ45S |
| | 270 | 30×30 | 0.15 | 1.27 | ELXQ401VSN271MR30S |
| | 330 | 25.4×50 | 0.15 | 1.44 | ELXQ401VSN331MQ50S |
| | 330 | 30×35 | 0.15 | 1.43 | ELXQ401VSN331MR35S |
| | 330 | 35×30 | 0.15 | 1.52 | ELXQ401VSN331MA30S |
| | 390 | 30×40 | 0.15 | 1.60 | ELXQ401VSN391MR40S |
| | 390 | 35×35 | 0.15 | 1.67 | ELXQ401VSN391MA35S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 470 | 30×45 | 0.15 | 1.81 | ELXQ401VSN471MR45S |
| | 470 | 30×50 | 0.15 | 1.84 | ELXQ401VSN471MR50S |
| | 470 | 35×40 | 0.15 | 1.90 | ELXQ401VSN471MA40S |
| | 560 | 35×45 | 0.15 | 2.12 | ELXQ401VSN561MA45S |
| | 680 | 35×50 | 0.15 | 2.39 | ELXQ401VSN681MA50S |
| 420 | 100 | 22×25 | 0.20 | 0.66 | ELXQ421VSN101MP25S |
| | 120 | 22×30 | 0.20 | 0.75 | ELXQ421VSN121MP30S |
| | 120 | 25.4×25 | 0.20 | 0.77 | ELXQ421VSN121MQ25S |
| | 150 | 22×35 | 0.20 | 0.86 | ELXQ421VSN151MP35S |
| | 180 | 22×40 | 0.20 | 0.96 | ELXQ421VSN181MP40S |
| | 180 | 22×45 | 0.20 | 0.98 | ELXQ421VSN181MP45S |
| | 180 | 25.4×30 | 0.20 | 0.97 | ELXQ421VSN181MQ30S |
| | 180 | 25.4×35 | 0.20 | 1.01 | ELXQ421VSN181MQ35S |
| | 180 | 30×25 | 0.20 | 1.02 | ELXQ421VSN181MR25S |
| | 220 | 22×50 | 0.20 | 1.11 | ELXQ421VSN221MP50S |
| | 220 | 25.4×40 | 0.20 | 1.14 | ELXQ421VSN221MQ40S |
| | 220 | 30×30 | 0.20 | 1.14 | ELXQ421VSN221MR30S |
| | 220 | 35×25 | 0.20 | 1.22 | ELXQ421VSN221MA25S |
| | 270 | 25.4×45 | 0.20 | 1.29 | ELXQ421VSN271MQ45S |
| | 270 | 30×35 | 0.20 | 1.30 | ELXQ421VSN271MR35S |
| | 270 | 35×30 | 0.20 | 1.38 | ELXQ421VSN271MA30S |
| | 330 | 25.4×50 | 0.20 | 1.44 | ELXQ421VSN331MQ50S |
| | 330 | 30×40 | 0.20 | 1.48 | ELXQ421VSN331MR40S |
| | 330 | 35×35 | 0.20 | 1.54 | ELXQ421VSN331MA35S |
| | 390 | 30×45 | 0.20 | 1.64 | ELXQ421VSN391MR45S |
| | 390 | 35×40 | 0.20 | 1.73 | ELXQ421VSN391MA40S |
| | 470 | 30×50 | 0.20 | 1.84 | ELXQ421VSN471MR50S |
| | 470 | 35×45 | 0.20 | 1.94 | ELXQ421VSN471MA45S |
| | 560 | 35×50 | 0.20 | 2.17 | ELXQ421VSN561MA50S |
| 450 | 82 | 22×25 | 0.20 | 0.59 | ELXQ451VSN820MP25S |
| | 100 | 22×30 | 0.20 | 0.69 | ELXQ451VSN101MP30S |
| | 100 | 25.4×25 | 0.20 | 0.70 | ELXQ451VSN101MQ25S |
| | 120 | 22×35 | 0.20 | 0.77 | ELXQ451VSN121MP35S |
| | 150 | 22×40 | 0.20 | 0.88 | ELXQ451VSN151MP40S |
| | 150 | 22×45 | 0.20 | 0.90 | ELXQ451VSN151MP45S |
| | 150 | 25.4×30 | 0.20 | 0.88 | ELXQ451VSN151MQ30S |
| | 150 | 25.4×35 | 0.20 | 0.92 | ELXQ451VSN151MQ35S |
| | 150 | 30×25 | 0.20 | 0.93 | ELXQ451VSN151MR25S |
| | 180 | 22×50 | 0.20 | 1.01 | ELXQ451VSN181MP50S |
| | 180 | 25.4×40 | 0.20 | 1.03 | ELXQ451VSN181MQ40S |
| | 180 | 30×30 | 0.20 | 1.03 | ELXQ451VSN181MR30S |
| | 180 | 35×25 | 0.20 | 1.10 | ELXQ451VSN181MA25S |
| | 220 | 25.4×45 | 0.20 | 1.16 | ELXQ451VSN221MQ45S |
| | 220 | 30×35 | 0.20 | 1.17 | ELXQ451VSN221MR35S |
| | 220 | 35×30 | 0.20 | 1.24 | ELXQ451VSN221MA30S |
| | 270 | 25.4×50 | 0.20 | 1.31 | ELXQ451VSN271MQ50S |
| | 270 | 30×40 | 0.20 | 1.33 | ELXQ451VSN271MR40S |
| | 270 | 35×35 | 0.20 | 1.39 | ELXQ451VSN271MA35S |
| | 330 | 30×45 | 0.20 | 1.51 | ELXQ451VSN331MR45S |
| | 390 | 30×50 | 0.20 | 1.67 | ELXQ451VSN391MR50S |
| | 390 | 35×40 | 0.20 | 1.73 | ELXQ451VSN391MA40S |
| | 390 | 35×45 | 0.20 | 1.77 | ELXQ451VSN391MA45S |
| | 470 | 35×50 | 0.20 | 1.98 | ELXQ451VSN471MA50S |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 160 to 250Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXG Series

●Endurance with ripple current : 5,000 hours at 105℃
●Non solvent resistant type
●**RoHS Compliant**

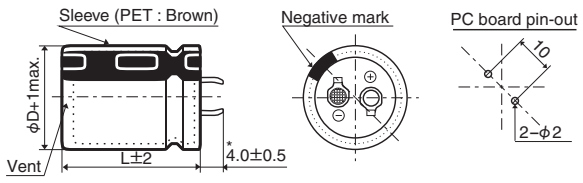
LXG
Longer life
KMQ

## ◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Category Temperature Range** | −40 to +105℃ | | | | | | | | |
| **Rated Voltage Range** | 10 to 100Vdc | | | | | | | | (at 20℃, 120Hz) |
| **Capacitance Tolerance** | ±20% (M) | | | | | | | | |
| **Leakage Current** | I=0.02CV or 3mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | | | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | 63V | 80 & 100V | |
| | tanδ (Max.) | 0.60 | 0.45 | 0.30 | 0.25 | 0.20 | 0.15 | 0.15 | (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Capacitance change : Capacitance at the lowest operating temperature shall not be less than 70% of the 20℃ value. | | | | | | | | |
| | Rated voltage (Vdc) | 10V | 16V | 25V | 35V | 50V | 63V | 80 & 100V | |
| | Z(−25℃)/Z(+20℃) | 4 | 4 | 3 | 3 | 2 | 2 | 2 | |
| | Z(−40℃)/Z(+20℃) | 15 | 15 | 10 | 8 | 6 | 6 | 5 | (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃. | | | | | | | | |
| | Capacitance change | ≦±25% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦250% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | |
| | Capacitance change | ≦±20% of the initial value | | | | | | | |
| | D.F. (tanδ) | ≦150% of the initial specified value | | | | | | | |
| | Leakage current | ≦The initial specified value | | | | | | | |

## ◆DIMENSIONS [mm]

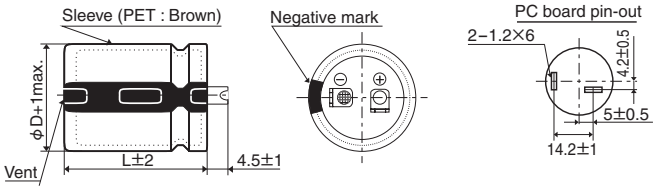
●Terminal Code : VS (φ22 to φ35) : Standard



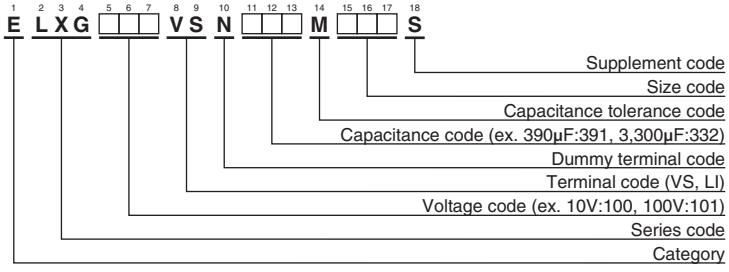

*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)




## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| **10 to 50Vdc** | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| **63 to 100Vdc** | 0.92 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105°C

## LXG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 10 | 6,800 | 22×25 | 0.60 | 1.30 | ELXG100VSN682MP25S |
| | 10,000 | 22×30 | 0.60 | 1.65 | ELXG100VSN103MP30S |
| | 10,000 | 25.4×25 | 0.60 | 1.64 | ELXG100VSN103MQ25S |
| | 12,000 | 22×35 | 0.60 | 1.85 | ELXG100VSN123MP35S |
| | 12,000 | 25.4×30 | 0.60 | 1.85 | ELXG100VSN123MQ30S |
| | 12,000 | 30×25 | 0.60 | 1.89 | ELXG100VSN123MR25S |
| | 15,000 | 22×40 | 0.60 | 2.12 | ELXG100VSN153MP40S |
| | 15,000 | 25.4×35 | 0.60 | 2.16 | ELXG100VSN153MQ35S |
| | 18,000 | 22×50 | 0.60 | 2.45 | ELXG100VSN183MP50S |
| | 18,000 | 25.4×40 | 0.60 | 2.43 | ELXG100VSN183MQ40S |
| | 18,000 | 30×30 | 0.60 | 2.37 | ELXG100VSN183MR30S |
| | 18,000 | 35×25 | 0.60 | 2.42 | ELXG100VSN183MA25S |
| | 22,000 | 30×35 | 0.60 | 2.73 | ELXG100VSN223MR35S |
| | 22,000 | 35×30 | 0.60 | 2.79 | ELXG100VSN223MA30S |
| | 27,000 | 25.4×50 | 0.60 | 3.11 | ELXG100VSN273MQ50S |
| | 27,000 | 30×40 | 0.60 | 3.13 | ELXG100VSN273MR40S |
| | 33,000 | 35×35 | 0.60 | 3.49 | ELXG100VSN333MA35S |
| | 39,000 | 30×50 | 0.60 | 3.99 | ELXG100VSN393MR50S |
| | 39,000 | 35×40 | 0.60 | 3.96 | ELXG100VSN393MA40S |
| | 47,000 | 35×50 | 0.60 | 4.62 | ELXG100VSN473MA50S |
| 16 | 5,600 | 22×25 | 0.45 | 1.44 | ELXG160VSN562MP25S |
| | 6,800 | 22×30 | 0.45 | 1.66 | ELXG160VSN682MP30S |
| | 6,800 | 25.4×25 | 0.45 | 1.66 | ELXG160VSN682MQ25S |
| | 8,200 | 22×35 | 0.45 | 1.87 | ELXG160VSN822MP35S |
| | 10,000 | 22×40 | 0.45 | 2.12 | ELXG160VSN103MP40S |
| | 10,000 | 25.4×30 | 0.45 | 2.07 | ELXG160VSN103MQ30S |
| | 10,000 | 30×25 | 0.45 | 2.11 | ELXG160VSN103MR25S |
| | 12,000 | 25.4×35 | 0.45 | 2.37 | ELXG160VSN123MQ35S |
| | 12,000 | 30×30 | 0.45 | 2.37 | ELXG160VSN123MR30S |
| | 12,000 | 35×25 | 0.45 | 2.42 | ELXG160VSN123MA25S |
| | 15,000 | 22×50 | 0.45 | 2.74 | ELXG160VSN153MP50S |
| | 15,000 | 25.4×40 | 0.45 | 2.71 | ELXG160VSN153MQ40S |
| | 18,000 | 25.4×50 | 0.45 | 3.11 | ELXG160VSN183MQ50S |
| | 18,000 | 30×35 | 0.45 | 3.02 | ELXG160VSN183MR35S |
| | 18,000 | 35×30 | 0.45 | 3.09 | ELXG160VSN183MA30S |
| | 22,000 | 30×40 | 0.45 | 3.46 | ELXG160VSN223MR40S |
| | 22,000 | 35×35 | 0.45 | 3.49 | ELXG160VSN223MA35S |
| | 27,000 | 30×50 | 0.45 | 4.07 | ELXG160VSN273MR50S |
| | 27,000 | 35×40 | 0.45 | 4.04 | ELXG160VSN273MA40S |
| | 39,000 | 35×50 | 0.45 | 5.16 | ELXG160VSN393MA50S |
| 25 | 3,900 | 22×25 | 0.30 | 1.31 | ELXG250VSN392MP25S |
| | 4,700 | 22×30 | 0.30 | 1.51 | ELXG250VSN472MP30S |
| | 4,700 | 25.4×25 | 0.30 | 1.51 | ELXG250VSN472MQ25S |
| | 5,600 | 22×35 | 0.30 | 1.70 | ELXG250VSN562MP35S |
| | 6,800 | 22×40 | 0.30 | 1.92 | ELXG250VSN682MP40S |
| | 6,800 | 25.4×30 | 0.30 | 1.87 | ELXG250VSN682MQ30S |
| | 6,800 | 30×25 | 0.30 | 1.90 | ELXG250VSN682MR25S |
| | 8,200 | 25.4×35 | 0.30 | 2.14 | ELXG250VSN822MQ35S |
| | 8,200 | 30×30 | 0.30 | 2.15 | ELXG250VSN822MR30S |
| | 8,200 | 35×25 | 0.30 | 2.19 | ELXG250VSN822MA25S |
| | 10,000 | 22×50 | 0.30 | 2.45 | ELXG250VSN103MP50S |
| | 10,000 | 25.4×40 | 0.30 | 2.43 | ELXG250VSN103MQ40S |
| | 12,000 | 25.4×50 | 0.30 | 2.78 | ELXG250VSN123MQ50S |
| | 12,000 | 30×35 | 0.30 | 2.70 | ELXG250VSN123MR35S |
| | 12,000 | 35×30 | 0.30 | 2.76 | ELXG250VSN123MA30S |
| | 15,000 | 30×40 | 0.30 | 3.13 | ELXG250VSN153MR40S |
| | 15,000 | 35×35 | 0.30 | 3.16 | ELXG250VSN153MA35S |
| | 18,000 | 30×50 | 0.30 | 3.64 | ELXG250VSN183MR50S |
| | 18,000 | 35×40 | 0.30 | 3.61 | ELXG250VSN183MA40S |
| | 27,000 | 35×50 | 0.30 | 4.70 | ELXG250VSN273MA50S |
| 35 | 2,200 | 22×25 | 0.25 | 1.10 | ELXG350VSN222MP25S |
| | 3,300 | 22×30 | 0.25 | 1.42 | ELXG350VSN332MP30S |
| | 3,300 | 25.4×25 | 0.25 | 1.41 | ELXG350VSN332MQ25S |
| | 3,900 | 22×35 | 0.25 | 1.58 | ELXG350VSN392MP35S |
| | 3,900 | 25.4×30 | 0.25 | 1.58 | ELXG350VSN392MQ30S |
| | 4,700 | 22×40 | 0.25 | 1.78 | ELXG350VSN472MP40S |
| | 4,700 | 30×25 | 0.25 | 1.77 | ELXG350VSN472MR25S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 5,600 | 25.4×35 | 0.25 | 1.98 | ELXG350VSN562MQ35S |
| | 5,600 | 30×30 | 0.25 | 1.98 | ELXG350VSN562MR30S |
| | 5,600 | 35×25 | 0.25 | 2.03 | ELXG350VSN562MA25S |
| | 6,800 | 22×50 | 0.25 | 2.26 | ELXG350VSN682MP50S |
| | 6,800 | 25.4×40 | 0.25 | 2.24 | ELXG350VSN682MQ40S |
| | 8,200 | 25.4×50 | 0.25 | 2.57 | ELXG350VSN822MQ50S |
| | 8,200 | 30×35 | 0.25 | 2.50 | ELXG350VSN822MR35S |
| | 8,200 | 35×30 | 0.25 | 2.55 | ELXG350VSN822MA30S |
| | 10,000 | 30×40 | 0.25 | 2.86 | ELXG350VSN103MR40S |
| | 10,000 | 35×35 | 0.25 | 2.88 | ELXG350VSN103MA35S |
| | 12,000 | 30×50 | 0.25 | 3.32 | ELXG350VSN123MR50S |
| | 12,000 | 35×40 | 0.25 | 3.30 | ELXG350VSN123MA40S |
| | 18,000 | 35×50 | 0.25 | 4.29 | ELXG350VSN183MA50S |
| 50 | 1,500 | 22×25 | 0.20 | 1.02 | ELXG500VSN152MP25S |
| | 1,800 | 22×30 | 0.20 | 1.17 | ELXG500VSN182MP30S |
| | 1,800 | 25.4×25 | 0.20 | 1.17 | ELXG500VSN182MQ25S |
| | 2,200 | 22×35 | 0.20 | 1.33 | ELXG500VSN222MP35S |
| | 2,700 | 22×40 | 0.20 | 1.51 | ELXG500VSN272MP40S |
| | 2,700 | 25.4×30 | 0.20 | 1.47 | ELXG500VSN272MQ30S |
| | 2,700 | 30×25 | 0.20 | 1.50 | ELXG500VSN272MR25S |
| | 3,300 | 25.4×35 | 0.20 | 1.70 | ELXG500VSN332MQ35S |
| | 3,300 | 30×30 | 0.20 | 1.70 | ELXG500VSN332MR30S |
| | 3,300 | 35×25 | 0.20 | 1.74 | ELXG500VSN332MA25S |
| | 3,900 | 22×50 | 0.20 | 1.91 | ELXG500VSN392MP50S |
| | 3,900 | 25.4×40 | 0.20 | 1.89 | ELXG500VSN392MQ40S |
| | 4,700 | 30×35 | 0.20 | 2.11 | ELXG500VSN472MR35S |
| | 4,700 | 35×30 | 0.20 | 2.16 | ELXG500VSN472MA30S |
| | 5,600 | 25.4×50 | 0.20 | 2.38 | ELXG500VSN562MQ50S |
| | 5,600 | 30×40 | 0.20 | 2.39 | ELXG500VSN562MR40S |
| | 5,600 | 35×35 | 0.20 | 2.41 | ELXG500VSN562MA35S |
| | 6,800 | 30×50 | 0.20 | 2.79 | ELXG500VSN682MR50S |
| | 6,800 | 35×40 | 0.20 | 2.78 | ELXG500VSN682MA40S |
| | 10,000 | 35×50 | 0.20 | 3.57 | ELXG500VSN103MA50S |
| 63 | 1,000 | 22×25 | 0.15 | 1.00 | ELXG630VSN102MP25S |
| | 1,200 | 22×30 | 0.15 | 1.15 | ELXG630VSN122MP30S |
| | 1,200 | 25.4×25 | 0.15 | 1.15 | ELXG630VSN122MQ25S |
| | 1,500 | 22×35 | 0.15 | 1.32 | ELXG630VSN152MP35S |
| | 1,800 | 22×40 | 0.15 | 1.49 | ELXG630VSN182MP40S |
| | 1,800 | 25.4×30 | 0.15 | 1.45 | ELXG630VSN182MQ30S |
| | 1,800 | 30×25 | 0.15 | 1.48 | ELXG630VSN182MR25S |
| | 2,200 | 25.4×35 | 0.15 | 1.67 | ELXG630VSN222MQ35S |
| | 2,200 | 30×30 | 0.15 | 1.68 | ELXG630VSN222MR30S |
| | 2,200 | 35×25 | 0.15 | 1.71 | ELXG630VSN222MA25S |
| | 2,700 | 22×50 | 0.15 | 1.92 | ELXG630VSN272MP50S |
| | 2,700 | 25.4×40 | 0.15 | 1.90 | ELXG630VSN272MQ40S |
| | 2,700 | 30×35 | 0.15 | 1.93 | ELXG630VSN272MR35S |
| | 3,300 | 25.4×50 | 0.15 | 2.20 | ELXG630VSN332MQ50S |
| | 3,300 | 35×30 | 0.15 | 2.18 | ELXG630VSN332MA30S |
| | 3,900 | 30×40 | 0.15 | 2.41 | ELXG630VSN392MR40S |
| | 3,900 | 35×35 | 0.15 | 2.43 | ELXG630VSN392MA35S |
| | 4,700 | 30×50 | 0.15 | 2.80 | ELXG630VSN472MR50S |
| | 4,700 | 35×40 | 0.15 | 2.78 | ELXG630VSN472MA40S |
| | 6,800 | 35×50 | 0.15 | 3.55 | ELXG630VSN682MA50S |
| 80 | 680 | 22×25 | 0.15 | 0.97 | ELXG800VSN681MP25S |
| | 820 | 22×30 | 0.15 | 1.12 | ELXG800VSN821MP30S |
| | 1,000 | 22×35 | 0.15 | 1.27 | ELXG800VSN102MP35S |
| | 1,000 | 25.4×25 | 0.15 | 1.23 | ELXG800VSN102MQ25S |
| | 1,200 | 22×40 | 0.15 | 1.42 | ELXG800VSN122MP40S |
| | 1,200 | 25.4×30 | 0.15 | 1.39 | ELXG800VSN122MQ30S |
| | 1,200 | 30×25 | 0.15 | 1.41 | ELXG800VSN122MR25S |
| | 1,500 | 25.4×35 | 0.15 | 1.62 | ELXG800VSN152MQ35S |
| | 1,800 | 22×50 | 0.15 | 1.84 | ELXG800VSN182MP50S |
| | 1,800 | 25.4×40 | 0.15 | 1.82 | ELXG800VSN182MQ40S |
| | 1,800 | 30×30 | 0.15 | 1.78 | ELXG800VSN182MR30S |
| | 1,800 | 35×25 | 0.15 | 1.82 | ELXG800VSN182MA25S |
| | 2,200 | 25.4×50 | 0.15 | 2.11 | ELXG800VSN222MQ50S |
| | 2,200 | 30×35 | 0.15 | 2.05 | ELXG800VSN222MR35S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

## LXG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 80 | 2,200 | 35 × 30 | 0.15 | 2.09 | ELXG800VSN222MA30S |
| | 2,700 | 30 × 40 | 0.15 | 2.35 | ELXG800VSN272MR40S |
| | 2,700 | 35 × 35 | 0.15 | 2.37 | ELXG800VSN272MA35S |
| | 3,300 | 30 × 50 | 0.15 | 2.75 | ELXG800VSN332MR50S |
| | 3,300 | 35 × 40 | 0.15 | 2.73 | ELXG800VSN332MA40S |
| | 4,700 | 35 × 50 | 0.15 | 3.46 | ELXG800VSN472MA50S |
| 100 | 390 | 22 × 25 | 0.15 | 0.78 | ELXG101VSN391MP25S |
| | 560 | 22 × 30 | 0.15 | 0.99 | ELXG101VSN561MP30S |
| | 560 | 25.4 × 25 | 0.15 | 0.98 | ELXG101VSN561MQ25S |
| | 680 | 22 × 35 | 0.15 | 1.12 | ELXG101VSN681MP35S |
| | 820 | 22 × 40 | 0.15 | 1.26 | ELXG101VSN821MP40S |
| | 820 | 25.4 × 30 | 0.15 | 1.23 | ELXG101VSN821MQ30S |
| | 820 | 30 × 25 | 0.15 | 1.25 | ELXG101VSN821MR25S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 100 | 1,000 | 25.4 × 35 | 0.15 | 1.41 | ELXG101VSN102MQ35S |
| | 1,000 | 30 × 30 | 0.15 | 1.42 | ELXG101VSN102MR30S |
| | 1,000 | 35 × 25 | 0.15 | 1.45 | ELXG101VSN102MA25S |
| | 1,200 | 22 × 50 | 0.15 | 1.60 | ELXG101VSN122MP50S |
| | 1,200 | 25.4 × 40 | 0.15 | 1.59 | ELXG101VSN122MQ40S |
| | 1,200 | 30 × 35 | 0.15 | 1.61 | ELXG101VSN122MR35S |
| | 1,500 | 25.4 × 50 | 0.15 | 1.86 | ELXG101VSN152MQ50S |
| | 1,500 | 30 × 40 | 0.15 | 1.87 | ELXG101VSN152MR40S |
| | 1,500 | 35 × 30 | 0.15 | 1.85 | ELXG101VSN152MA30S |
| | 1,800 | 35 × 35 | 0.15 | 2.07 | ELXG101VSN182MA35S |
| | 2,200 | 30 × 50 | 0.15 | 2.40 | ELXG101VSN222MR50S |
| | 2,200 | 35 × 40 | 0.15 | 2.39 | ELXG101VSN222MA40S |
| | 2,700 | 35 × 50 | 0.15 | 2.81 | ELXG101VSN272MA50S |

### ◆MAXIMUM IMPEDANCE [mΩ/20℃, 30kHz]

| Vdc / Case size φD×L(mm) | 10 to 63 | 80 | 100 |
|---|---|---|---|
| 22×25 | 120 | 150 | |
| 22×30 | 100 | 120 | |
| 22×35 | 80 | 95 | |
| 22×40 | 70 | 80 | |
| 22×50 | 50 | 60 | |
| 25.4×25 | 90 | 110 | |
| 25.4×30 | 70 | 85 | |
| 25.4×35 | 60 | 70 | |
| 25.4×40 | 50 | 60 | |
| 25.4×50 | 40 | 45 | |
| 30×25 | 70 | 80 | |
| 30×30 | 50 | 60 | |
| 30×35 | 40 | 50 | |
| 30×40 | 35 | 40 | |
| 30×50 | 25 | 30 | |
| 35×25 | 65 | 70 | |
| 35×30 | 45 | 50 | |
| 35×35 | 38 | 40 | |
| 35×40 | 30 | 30 | |
| 35×50 | 23 | 25 | |

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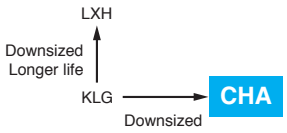
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105℃

## CHA Series

- Doesn't spark with DC over voltage
- Downsized from current KLG series
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

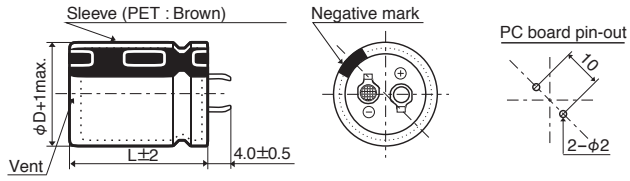


## ◆SPECIFICATIONS

| Items | Characteristics | | |
|---|---|---|---|
| Category Temperature Range | −25 to +105℃ | | |
| Rated Voltage Range | 200 to 450Vdc | | |
| Capacitance Tolerance | ±20% (M) | | (at 20℃, 120Hz) |
| Leakage Current | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) | | (at 20℃ after 5 minutes) |
| Dissipation Factor (tanδ) | 200Vdc : 0.15 max. (0.20 max. for φD=35mm)<br>400Vdc : 0.15 max. | | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max.Impedance Ratio) | Rated Voltage (Vdc) | 200 to 450V | (at 120Hz) |
| | Z(-25℃) / Z(+20℃) | 4 | |
| ESL | 50nH max. | | (at 20℃, 1MHz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | | |
| | Capacitance change | ≦±20% of the initial value | |
| | D.F. (tanδ) | ≦200% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | |
| | Capacitance change | ≦±15% of the initial value | |
| | D.F. (tanδ) | ≦150% of the initial specified value | |
| | Leakage current | ≦The initial specified value | |

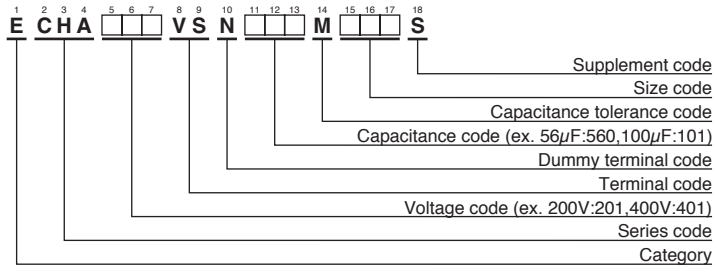
## ◆DIMENSIONS [mm]

- Terminal Code : VS (φ22 to φ35)




The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 200 to 450Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105℃

## CHA Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 200 | 180 | 22×20 | 0.15 | 0.82 | ECHA201VSN181MP20S |
| | 220 | 22×20 | 0.15 | 0.90 | ECHA201VSN221MP20S |
| | 270 | 22×25 | 0.15 | 1.02 | ECHA201VSN271MP25S |
| | 330 | 22×30 | 0.15 | 1.20 | ECHA201VSN331MP30S |
| | 330 | 25.4×25 | 0.15 | 1.20 | ECHA201VSN331MQ25S |
| | 390 | 22×30 | 0.15 | 1.35 | ECHA201VSN391MP30S |
| | 390 | 25.4×25 | 0.15 | 1.35 | ECHA201VSN391MQ25S |
| | 470 | 22×35 | 0.15 | 1.45 | ECHA201VSN471MP35S |
| | 470 | 25.4×30 | 0.15 | 1.45 | ECHA201VSN471MQ30S |
| | 470 | 30×25 | 0.15 | 1.47 | ECHA201VSN471MR25S |
| | 560 | 22×40 | 0.15 | 1.62 | ECHA201VSN561MP40S |
| | 560 | 25.4×30 | 0.15 | 1.60 | ECHA201VSN561MQ30S |
| | 560 | 30×25 | 0.15 | 1.60 | ECHA201VSN561MR25S |
| | 680 | 25.4×35 | 0.15 | 1.82 | ECHA201VSN681MQ35S |
| | 680 | 30×30 | 0.15 | 1.81 | ECHA201VSN681MR30S |
| | 680 | 35×25 | 0.20 | 1.86 | ECHA201VSN681MA25S |
| | 820 | 25.4×45 | 0.15 | 2.11 | ECHA201VSN821MQ45S |
| | 820 | 30×35 | 0.15 | 2.11 | ECHA201VSN821MR35S |
| | 820 | 35×25 | 0.20 | 2.11 | ECHA201VSN821MA25S |
| | 1,000 | 30×35 | 0.15 | 2.40 | ECHA201VSN102MR35S |
| | 1,000 | 35×30 | 0.20 | 2.40 | ECHA201VSN102MA30S |
| | 1,200 | 30×45 | 0.15 | 2.69 | ECHA201VSN122MR45S |
| | 1,200 | 35×35 | 0.20 | 2.65 | ECHA201VSN122MA35S |
| 250 | 120 | 22×20 | 0.15 | 0.68 | ECHA251VSN121MP20S |
| | 180 | 22×25 | 0.15 | 0.87 | ECHA251VSN181MP25S |
| | 180 | 25.4×20 | 0.15 | 0.93 | ECHA251VSN181MQ20S |
| | 220 | 22×30 | 0.15 | 1.00 | ECHA251VSN221MP30S |
| | 270 | 22×35 | 0.15 | 1.14 | ECHA251VSN271MP35S |
| | 270 | 25.4×25 | 0.15 | 1.13 | ECHA251VSN271MQ25S |
| | 270 | 30×20 | 0.15 | 1.25 | ECHA251VSN271MR20S |
| | 330 | 22×40 | 0.15 | 1.28 | ECHA251VSN331MP40S |
| | 330 | 25.4×30 | 0.15 | 1.29 | ECHA251VSN331MQ30S |
| | 390 | 22×45 | 0.15 | 1.42 | ECHA251VSN391MP45S |
| | 390 | 25.4×35 | 0.15 | 1.46 | ECHA251VSN391MQ35S |
| | 390 | 30×25 | 0.15 | 1.52 | ECHA251VSN391MR25S |
| | 390 | 35×20 | 0.20 | 1.62 | ECHA251VSN391MA20S |
| | 470 | 25.4×40 | 0.15 | 1.64 | ECHA251VSN471MQ40S |
| | 470 | 30×30 | 0.15 | 1.67 | ECHA251VSN471MR30S |
| | 560 | 25.4×45 | 0.15 | 1.82 | ECHA251VSN561MQ45S |
| | 560 | 30×35 | 0.15 | 1.87 | ECHA251VSN561MR35S |
| | 560 | 35×25 | 0.20 | 1.99 | ECHA251VSN561MA25S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 250 | 680 | 30×40 | 0.15 | 2.12 | ECHA251VSN681MR40S |
| | 680 | 35×30 | 0.20 | 2.19 | ECHA251VSN681MA30S |
| | 820 | 30×45 | 0.15 | 2.39 | ECHA251VSN821MR45S |
| | 820 | 35×35 | 0.20 | 2.42 | ECHA251VSN821MA35S |
| 400 | 56 | 22×20 | 0.15 | 0.45 | ECHA401VSN560MP20S |
| | 68 | 22×20 | 0.15 | 0.51 | ECHA401VSN680MP20S |
| | 82 | 22×25 | 0.15 | 0.58 | ECHA401VSN820MP25S |
| | 100 | 22×25 | 0.15 | 0.66 | ECHA401VSN101MP25S |
| | 100 | 25.4×25 | 0.15 | 0.66 | ECHA401VSN101MQ25S |
| | 120 | 22×30 | 0.15 | 0.76 | ECHA401VSN121MP30S |
| | 120 | 25.4×25 | 0.15 | 0.76 | ECHA401VSN121MQ25S |
| | 150 | 22×35 | 0.15 | 0.85 | ECHA401VSN151MP35S |
| | 150 | 25.4×30 | 0.15 | 0.85 | ECHA401VSN151MQ30S |
| | 150 | 30×25 | 0.15 | 0.85 | ECHA401VSN151MR25S |
| | 180 | 22×40 | 0.15 | 0.94 | ECHA401VSN181MP40S |
| | 180 | 25.4×35 | 0.15 | 0.95 | ECHA401VSN181MQ35S |
| | 180 | 30×25 | 0.15 | 0.95 | ECHA401VSN181MR25S |
| | 220 | 25.4×35 | 0.15 | 1.24 | ECHA401VSN221MQ35S |
| | 220 | 30×30 | 0.15 | 1.24 | ECHA401VSN221MR30S |
| | 220 | 35×25 | 0.15 | 1.24 | ECHA401VSN221MA25S |
| | 270 | 25.4×45 | 0.15 | 1.30 | ECHA401VSN271MQ45S |
| | 270 | 30×35 | 0.15 | 1.30 | ECHA401VSN271MR35S |
| | 270 | 35×25 | 0.15 | 1.30 | ECHA401VSN271MA25S |
| | 330 | 30×35 | 0.15 | 1.45 | ECHA401VSN331MR35S |
| | 330 | 30×40 | 0.15 | 1.47 | ECHA401VSN331MR40S |
| | 330 | 35×30 | 0.15 | 1.47 | ECHA401VSN331MA30S |
| 450 | 82 | 25.4×25 | 0.20 | 0.61 | ECHA451VSN820MQ25S |
| | 120 | 25.4×30 | 0.20 | 0.76 | ECHA451VSN121MQ30S |
| | 120 | 30×25 | 0.20 | 0.77 | ECHA451VSN121MR25S |
| | 150 | 25.4×35 | 0.20 | 0.88 | ECHA451VSN151MQ35S |
| | 180 | 25.4×40 | 0.20 | 0.99 | ECHA451VSN181MQ40S |
| | 180 | 30×30 | 0.20 | 0.97 | ECHA451VSN181MR30S |
| | 180 | 30×35 | 0.20 | 1.00 | ECHA451VSN181MR35S |
| | 220 | 30×35 | 0.20 | 1.30 | ECHA451VSN221MR35S |
| | 220 | 35×25 | 0.20 | 1.20 | ECHA451VSN221MA25S |
| | 270 | 30×40 | 0.20 | 1.28 | ECHA451VSN271MR40S |
| | 270 | 35×30 | 0.20 | 1.30 | ECHA451VSN271MA30S |
| | 330 | 35×35 | 0.20 | 1.40 | ECHA451VSN331MA35S |
| | 390 | 35×40 | 0.20 | 1.60 | ECHA451VSN391MA40S |
| | 420 | 35×50 | 0.20 | 1.56 | ECHA451VSN421MA50S |

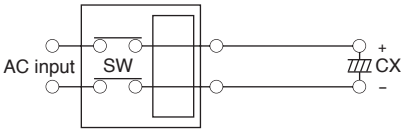
### ◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

●Test DC voltage

| Rated Voltage | Nominal Capacitance | Current Limit | Test Voltage |
|---|---|---|---|
| 200Vdc | <330 | 4A | 300/375Vdc |
| | 330μF≦C<470μF | 5A | |
| | ≧470μF | 7A | |
| 250Vdc | <330μF | 4A | 350/450Vdc |
| | 330μF≦C<470μF | 5A | |
| | ≧470μF | 7A | |
| 400Vdc | <100μF | 2A | 500/600Vdc |
| | 100μF≦C<220μF | 4A | |
| | ≧220μF | 7A | |
| 450Vdc | <100μF | 2A | 550/675Vdc |
| | 100μF≦C<220μF | 4A | |
| | ≧220μF | 7A | |

●Test Circuit




Constant DC voltage/current power supply

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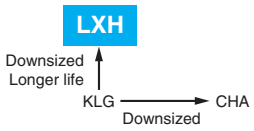
CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Long life, Overvoltage resistant design, 105℃

## LXH Series

- Doesn't spark with DC over voltage
- Same case sizes of KMH
- Endurance with ripple current : 5,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

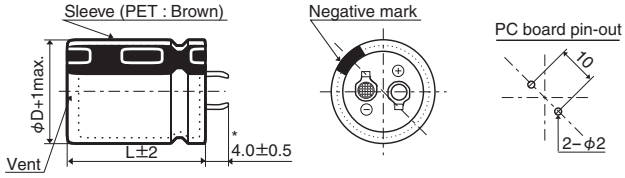


## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +105℃ |
| **Rated Voltage** | 200 & 400Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 3mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.15 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Z(−25℃) /Z(+20℃)≦4 (at 120Hz) |
| **ESL** | 50nH max. (at 20℃, 1MHz) |
| **DC Overvoltage Test** | When an excessive DC voltage is applied to the capacitors under the test conditions on next page, the vent shall operate and then the capacitors shall become open-circuit without burning materials. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 or 3,000 hours at 105℃ |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦200% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. |
| | Capacitance change: ≦±15% of the initial value |
| | D.F. (tanδ): ≦150% of the initial specified value |
| | Leakage current: ≦The initial specified value |

## ◆DIMENSIONS [mm]

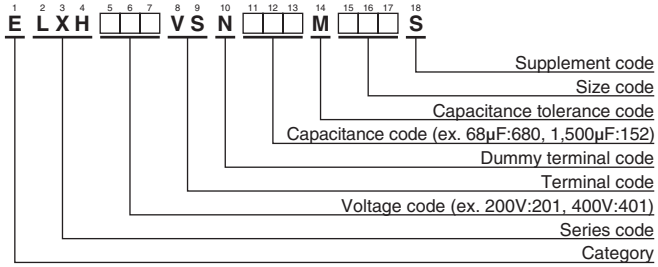
- Terminal Code : VS (φ22 to φ35)




*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

## ◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| 200Vdc | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 400Vdc | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Long life, Overvoltage resistant design, 105℃

## LXH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/105℃,120Hz) | | Part No. |
|---|---|---|---|---|---|---|
| | | | | 5,000 hours | 3,000 hours | |
| 200 | 270 | 22×25 | 0.15 | 0.45 | 0.87 | ELXH201VSN271MP25S |
| | 330 | 22×30 | 0.15 | 0.62 | 1.20 | ELXH201VSN331MP30S |
| | 330 | 25.4×25 | 0.15 | 0.62 | 1.21 | ELXH201VSN331MQ25S |
| | 390 | 22×35 | 0.15 | 0.67 | 1.31 | ELXH201VSN391MP35S |
| | 390 | 25.4×30 | 0.15 | 0.66 | 1.28 | ELXH201VSN391MQ30S |
| | 470 | 22×40 | 0.15 | 0.72 | 1.40 | ELXH201VSN471MP40S |
| | 470 | 25.4×30 | 0.15 | 0.72 | 1.41 | ELXH201VSN471MQ30S |
| | 470 | 30×25 | 0.15 | 0.77 | 1.50 | ELXH201VSN471MR25S |
| | 560 | 22×45 | 0.15 | 0.80 | 1.56 | ELXH201VSN561MP45S |
| | 560 | 25.4×35 | 0.15 | 0.78 | 1.53 | ELXH201VSN561MQ35S |
| | 560 | 30×30 | 0.15 | 0.81 | 1.57 | ELXH201VSN561MR30S |
| | 680 | 22×50 | 0.15 | 0.89 | 1.74 | ELXH201VSN681MP50S |
| | 680 | 25.4×40 | 0.15 | 0.89 | 1.74 | ELXH201VSN681MQ40S |
| | 680 | 30×30 | 0.15 | 0.89 | 1.74 | ELXH201VSN681MR30S |
| | 680 | 35×25 | 0.15 | 0.88 | 1.72 | ELXH201VSN681MA25S |
| | 820 | 25.4×50 | 0.15 | 1.05 | 2.04 | ELXH201VSN821MQ50S |
| | 820 | 30×35 | 0.15 | 1.03 | 2.00 | ELXH201VSN821MR35S |
| | 820 | 35×30 | 0.15 | 1.05 | 2.04 | ELXH201VSN821MA30S |
| | 1,000 | 30×45 | 0.15 | 1.18 | 2.30 | ELXH201VSN102MR45S |
| | 1,000 | 35×35 | 0.15 | 1.18 | 2.30 | ELXH201VSN102MA35S |
| | 1,200 | 30×50 | 0.15 | 1.33 | 2.60 | ELXH201VSN122MR50S |
| | 1,200 | 35×40 | 0.15 | 1.36 | 2.65 | ELXH201VSN122MA40S |
| | 1,500 | 35×45 | 0.15 | 1.57 | 3.08 | ELXH201VSN152MA45S |
| 400 | 68 | 22×25 | 0.15 | 0.26 | 0.51 | ELXH401VSN680MP25S |
| | 68 | 25.4×20 | 0.15 | 0.24 | 0.46 | ELXH401VSN680MQ20S |
| | 82 | 22×30 | 0.15 | 0.30 | 0.58 | ELXH401VSN820MP30S |
| | 82 | 25.4×25 | 0.15 | 0.30 | 0.58 | ELXH401VSN820MQ25S |
| | 100 | 22×35 | 0.15 | 0.34 | 0.66 | ELXH401VSN101MP35S |
| | 100 | 25.4×30 | 0.15 | 0.34 | 0.66 | ELXH401VSN101MQ30S |
| | 120 | 22×40 | 0.15 | 0.37 | 0.72 | ELXH401VSN121MP40S |
| | 120 | 25.4×30 | 0.15 | 0.37 | 0.72 | ELXH401VSN121MQ30S |
| | 120 | 30×25 | 0.15 | 0.39 | 0.76 | ELXH401VSN121MR25S |
| | 150 | 22×45 | 0.15 | 0.42 | 0.82 | ELXH401VSN151MP45S |
| | 150 | 25.4×35 | 0.15 | 0.43 | 0.84 | ELXH401VSN151MQ35S |
| | 150 | 30×30 | 0.15 | 0.43 | 0.84 | ELXH401VSN151MR30S |
| | 180 | 22×50 | 0.15 | 0.49 | 0.95 | ELXH401VSN181MP50S |
| | 180 | 25.4×40 | 0.15 | 0.48 | 0.94 | ELXH401VSN181MQ40S |
| | 180 | 30×30 | 0.15 | 0.47 | 0.92 | ELXH401VSN181MR30S |
| | 180 | 35×25 | 0.15 | 0.48 | 0.94 | ELXH401VSN181MA25S |
| | 220 | 25.4×45 | 0.15 | 0.55 | 1.07 | ELXH401VSN221MQ45S |
| | 220 | 30×35 | 0.15 | 0.54 | 1.06 | ELXH401VSN221MR35S |
| | 220 | 35×30 | 0.15 | 0.55 | 1.08 | ELXH401VSN221MA30S |
| | 270 | 25.4×50 | 0.15 | 0.62 | 1.21 | ELXH401VSN271MQ50S |
| | 270 | 30×40 | 0.15 | 0.62 | 1.21 | ELXH401VSN271MR40S |
| | 270 | 35×30 | 0.15 | 0.59 | 1.15 | ELXH401VSN271MA30S |
| | 330 | 30×45 | 0.15 | 0.71 | 1.39 | ELXH401VSN331MR45S |
| | 330 | 35×35 | 0.15 | 0.69 | 1.35 | ELXH401VSN331MA35S |
| | 390 | 30×50 | 0.15 | 0.80 | 1.55 | ELXH401VSN391MR50S |
| | 390 | 35×40 | 0.15 | 0.79 | 1.54 | ELXH401VSN391MA40S |
| | 470 | 35×45 | 0.15 | 0.89 | 1.74 | ELXH401VSN471MA45S |

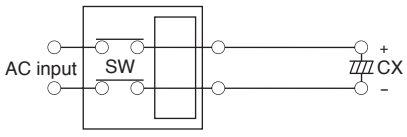
### ◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

●Test DC voltage

| Rated Voltage | Capacitance | Current limit | Test DC voltage |
|---|---|---|---|
| 200Vdc | <330μF | 4A | 300/375Vdc |
| | 330≦C<470μF | 5A | |
| | ≧470μF | 7A | |
| 400Vdc | <100μF | 2A | 500/600Vdc |
| | 100≦C<220μF | 4A | |
| | ≧220μF | 7A | |

●Test Circuit




Constant DC voltage/current power supply

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NIPPON CHEMI-CON

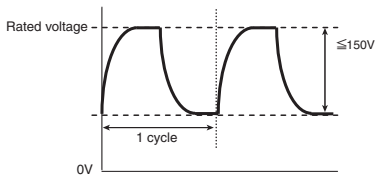
# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Snap-ins, 105℃

## KMV Series

- For frequently change of regenerative voltage from AC servo amplifier and inverter control
- Ideal use to power supply, specially power source with turn on and off frequently and highly voltage fluctuation
- Improved the resistance for charge and discharge from same dimension of KMQ series
- Endurance with ripple current : 3,000 hours at 105℃
- Rated voltage range : 350 to 450Vdc, Capacitance 82 to 1,200μF
- Non Solvent resistant type
- **RoHS Compliant**

## ◆SPECIFICATIONS

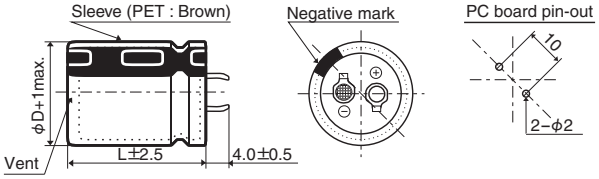
| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +105℃ |
| **Rated Voltage Range** | 350 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I≦3√CV<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Rated voltage (Vdc) 350 & 400V / 420 & 450V<br>tanδ (Max.) 0.15 / 0.20 (at 20℃, 120Hz) |
| **Low Temperature Characteristics (Max. Impedance Ratio)** | Rated voltage (Vdc) 350 to 450V<br>Z(−25℃)/Z(+20℃) 8 (at 120Hz) |
| **Charge and Discharge** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to charge and discharge test with the voltage waveform shown below at room temperature (15 to 35℃).<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value<br>Frequency: 6Hz<br>Number of cycles: 50 million times<br>Voltage waveform:  |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±15% of the initial value<br>D.F. (tanδ): ≦150% of the initial specified value<br>Leakage current: ≦The initial specified value |



*Please consult with us about charge and discharge conditions.

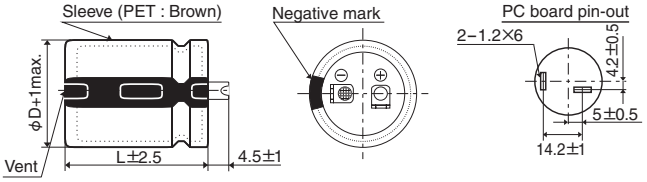
## ◆DIMENSIONS [mm]

●Terminal Code : VS (ϕ22 to ϕ35) : Standard




No plastic disk is the standard design.

●Terminal Code : LI (ϕ35)

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CAT. No. E1001M

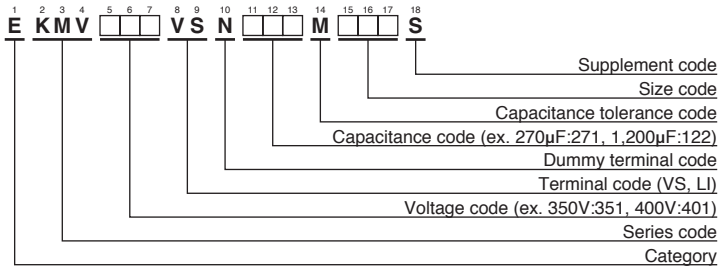
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Snap-ins, 105℃

## KMV Series

### ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (snap-in type)"

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/ 105℃,120Hz) | Max. charge current and Max.discharge current (Arms/ 6Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 120 | 22×25 | 0.74 | 0.42 | EKMV351VSN121MP25S |
| | 150 | 22×30 | 0.87 | 0.49 | EKMV351VSN151MP30S |
| | 180 | 25.4×25 | 0.92 | 0.54 | EKMV351VSN181MQ25S |
| | 220 | 22×35 | 1.08 | 0.60 | EKMV351VSN221MP35S |
| | 220 | 22×40 | 1.10 | 0.62 | EKMV351VSN221MP40S |
| | 220 | 25.4×30 | 1.05 | 0.61 | EKMV351VSN221MQ30S |
| | 270 | 22×45 | 1.24 | 0.71 | EKMV351VSN271MP45S |
| | 270 | 25.4×35 | 1.21 | 0.70 | EKMV351VSN271MQ35S |
| | 270 | 30×25 | 1.15 | 0.68 | EKMV351VSN271MR25S |
| | 330 | 22×50 | 1.41 | 0.80 | EKMV351VSN331MP50S |
| | 330 | 25.4×40 | 1.37 | 0.80 | EKMV351VSN331MQ40S |
| | 330 | 30×30 | 1.29 | 0.77 | EKMV351VSN331MR30S |
| | 330 | 35×25 | 1.31 | 0.78 | EKMV351VSN331MA25S |
| | 390 | 25.4×45 | 1.51 | 0.89 | EKMV351VSN391MQ45S |
| | 390 | 30×35 | 1.44 | 0.88 | EKMV351VSN391MR35S |
| | 470 | 25.4×50 | 1.69 | 0.99 | EKMV351VSN471MQ50S |
| | 470 | 30×40 | 1.62 | 1.00 | EKMV351VSN471MR40S |
| | 470 | 35×30 | 1.61 | 0.97 | EKMV351VSN471MA30S |
| | 560 | 30×45 | 1.82 | 1.12 | EKMV351VSN561MR45S |
| | 560 | 35×35 | 1.77 | 1.08 | EKMV351VSN561MA35S |
| | 680 | 30×50 | 2.04 | 1.27 | EKMV351VSN681MR50S |
| | 680 | 35×40 | 2.02 | 1.25 | EKMV351VSN681MA40S |
| | 820 | 35×45 | 2.27 | 1.41 | EKMV351VSN821MA45S |
| | 820 | 35×50 | 2.32 | 1.46 | EKMV351VSN821MA50S |
| | 1,200 | 35×60 | 2.88 | 1.84 | EKMV351VSN122MA60S |
| 400 | 100 | 22×25 | 0.69 | 0.38 | EKMV401VSN101MP25S |
| | 120 | 22×30 | 0.79 | 0.44 | EKMV401VSN121MP30S |
| | 150 | 25.4×25 | 0.87 | 0.49 | EKMV401VSN151MQ25S |
| | 180 | 22×35 | 0.99 | 0.55 | EKMV401VSN181MP35S |
| | 180 | 22×40 | 1.01 | 0.56 | EKMV401VSN181MP40S |
| | 180 | 25.4×30 | 0.98 | 0.55 | EKMV401VSN181MQ30S |
| | 220 | 22×45 | 1.14 | 0.64 | EKMV401VSN221MP45S |
| | 220 | 25.4×35 | 1.13 | 0.63 | EKMV401VSN221MQ35S |
| | 220 | 30×25 | 1.10 | 0.61 | EKMV401VSN221MR25S |
| | 270 | 22×50 | 1.30 | 0.73 | EKMV401VSN271MP50S |
| | 270 | 25.4×40 | 1.28 | 0.72 | EKMV401VSN271MQ40S |
| | 270 | 30×30 | 1.22 | 0.70 | EKMV401VSN271MR30S |
| | 270 | 35×25 | 1.26 | 0.71 | EKMV401VSN271MA25S |
| | 330 | 25.4×45 | 1.44 | 0.82 | EKMV401VSN331MQ45S |
| | 330 | 30×35 | 1.38 | 0.81 | EKMV401VSN331MR35S |
| | 390 | 25.4×50 | 1.59 | 0.91 | EKMV401VSN391MQ50S |
| | 390 | 30×40 | 1.55 | 0.91 | EKMV401VSN391MR40S |
| | 390 | 35×30 | 1.55 | 0.89 | EKMV401VSN391MA30S |
| | 470 | 30×45 | 1.74 | 1.03 | EKMV401VSN471MR45S |
| | 470 | 35×35 | 1.71 | 1.00 | EKMV401VSN471MA35S |
| | 560 | 30×50 | 1.93 | 1.15 | EKMV401VSN561MR50S |
| | 560 | 35×40 | 1.94 | 1.14 | EKMV401VSN561MA40S |
| | 680 | 35×45 | 2.19 | 1.29 | EKMV401VSN681MA45S |
| | 820 | 35×50 | 2.45 | 1.44 | EKMV401VSN821MA50S |
| | 1,000 | 35×60 | 2.79 | 1.70 | EKMV401VSN102MA60S |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/ 105℃,120Hz) | Max. charge current and Max.discharge current (Arms/ 6Hz) | Part No. |
|---|---|---|---|---|---|
| 420 | 82 | 22×25 | 0.64 | 0.34 | EKMV421VSN820MP25S |
| | 120 | 22×30 | 0.81 | 0.44 | EKMV421VSN121MP30S |
| | 120 | 25.4×25 | 0.81 | 0.44 | EKMV421VSN121MQ25S |
| | 150 | 22×35 | 0.93 | 0.50 | EKMV421VSN151MP35S |
| | 150 | 25.4×30 | 0.93 | 0.50 | EKMV421VSN151MQ30S |
| | 180 | 22×40 | 1.04 | 0.56 | EKMV421VSN181MP40S |
| | 180 | 22×45 | 1.06 | 0.58 | EKMV421VSN181MP45S |
| | 180 | 25.4×35 | 1.06 | 0.58 | EKMV421VSN181MQ35S |
| | 180 | 30×25 | 1.02 | 0.56 | EKMV421VSN181MR25S |
| | 220 | 22×50 | 1.20 | 0.66 | EKMV421VSN221MP50S |
| | 220 | 25.4×40 | 1.20 | 0.65 | EKMV421VSN221MQ40S |
| | 220 | 30×30 | 1.14 | 0.63 | EKMV421VSN221MR30S |
| | 270 | 25.4×45 | 1.36 | 0.74 | EKMV421VSN271MQ45S |
| | 270 | 30×35 | 1.29 | 0.73 | EKMV421VSN271MR35S |
| | 270 | 35×25 | 1.26 | 0.71 | EKMV421VSN271MA25S |
| | 330 | 25.4×50 | 1.52 | 0.83 | EKMV421VSN331MQ50S |
| | 330 | 30×40 | 1.47 | 0.84 | EKMV421VSN331MR40S |
| | 330 | 35×30 | 1.42 | 0.82 | EKMV421VSN331MA30S |
| | 390 | 30×45 | 1.64 | 0.94 | EKMV421VSN391MR45S |
| | 390 | 35×35 | 1.56 | 0.91 | EKMV421VSN391MA35S |
| | 470 | 30×50 | 1.83 | 1.06 | EKMV421VSN471MR50S |
| | 470 | 35×40 | 1.78 | 1.05 | EKMV421VSN471MA40S |
| | 560 | 35×45 | 1.98 | 1.18 | EKMV421VSN561MA45S |
| | 680 | 35×50 | 2.23 | 1.34 | EKMV421VSN681MA50S |
| | 820 | 35×60 | 2.52 | 1.55 | EKMV421VSN821MA60S |
| 450 | 82 | 22×25 | 0.64 | 0.34 | EKMV451VSN820MP25S |
| | 100 | 22×30 | 0.72 | 0.40 | EKMV451VSN101MP30S |
| | 100 | 25.4×25 | 0.72 | 0.40 | EKMV451VSN101MQ25S |
| | 120 | 22×35 | 0.81 | 0.45 | EKMV451VSN121MP35S |
| | 150 | 22×40 | 0.93 | 0.51 | EKMV451VSN151MP40S |
| | 150 | 25.4×30 | 0.91 | 0.50 | EKMV451VSN151MQ30S |
| | 150 | 30×25 | 0.90 | 0.51 | EKMV451VSN151MR25S |
| | 180 | 22×45 | 1.03 | 0.58 | EKMV451VSN181MP45S |
| | 180 | 22×50 | 1.06 | 0.59 | EKMV451VSN181MP50S |
| | 180 | 25.4×35 | 1.04 | 0.57 | EKMV451VSN181MQ35S |
| | 220 | 25.4×40 | 1.18 | 0.65 | EKMV451VSN221MQ40S |
| | 220 | 25.4×45 | 1.20 | 0.67 | EKMV451VSN221MQ45S |
| | 220 | 30×30 | 1.10 | 0.63 | EKMV451VSN221MR30S |
| | 220 | 35×25 | 1.12 | 0.64 | EKMV451VSN221MA25S |
| | 270 | 25.4×50 | 1.35 | 0.75 | EKMV451VSN271MQ50S |
| | 270 | 30×35 | 1.25 | 0.73 | EKMV451VSN271MR35S |
| | 270 | 35×30 | 1.27 | 0.74 | EKMV451VSN271MA30S |
| | 330 | 30×40 | 1.42 | 0.84 | EKMV451VSN331MR40S |
| | 330 | 30×45 | 1.46 | 0.87 | EKMV451VSN331MR45S |
| | 330 | 35×35 | 1.41 | 0.84 | EKMV451VSN331MA35S |
| | 390 | 30×50 | 1.61 | 0.97 | EKMV451VSN391MR50S |
| | 390 | 35×40 | 1.59 | 0.96 | EKMV451VSN391MA40S |
| | 470 | 35×45 | 1.79 | 1.08 | EKMV451VSN471MA45S |
| | 560 | 35×50 | 2.00 | 1.22 | EKMV451VSN561MA50S |
| | 680 | 35×60 | 2.26 | 1.42 | EKMV451VSN681MA60S |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Snap-ins, 105℃

## KMV Series

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---|---|---|---|---|---|---|
| Coefficient | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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CAT. No. E1001M

# Screw Terminal Aluminum Electrolytic Capacitors

## (Large Capacitors)

# PART NUMBERING SYSTEM

## Product code guide (Screw mount terminal type)

**(Example : KMH series, 400V-3,300μF, φ63.5×120L, Without mounting clamp)**

Please refer to the following table

| Contents | Code |
|---|---|
| Polar | E |

| Series | Code |
|---|---|
| KMH | KMH |

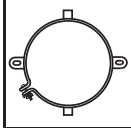
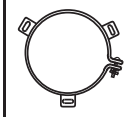
| Type | Code |
|---|---|
| Screw terminal | LG |

| Tol.(%) | Code |
|---|---|
| ±20 | M |

| Sleeve Material | Code |
|---|---|
| Pb-free PVC | M |

| 1 | 2 3 4 | 5 6 7 | 8 9 | 10 | 11 12 13 | 14 | 15 16 17 | 18 |
|---|---|---|---|---|---|---|---|---|
| E | KMH | 401 | LG | N | 332 | M | DC0 | M |
| Category | Series code | Voltage code | Terminal code | Mounting clamp code | Capacitance code | Capacitance tolerance | Size code | Supplement code |

| Voltage(V) | Code |
|---|---|
| 10 | 100 |
| 25 | 250 |
| 100 | 101 |
| 250 | 251 |
| 315 | 3B1 |
| 525 | 5C1 |
| ⋮ | ⋮ |

| Type | Code |
|---|---|
|  | B |
|  | C |
| Without clamp | N |

| Cap.(μF) | Code |
|---|---|
| 100 | 101 |
| 470 | 471 |
| 1,000 | 102 |
| 4,700 | 472 |
| 10,000 | 103 |
| 47,000 | 473 |
| 100,000 | 104 |
| ⋮ | ⋮ |

| φD(mm) | Code |
|---|---|
| 35 | A |
| 50 | C |
| 63.5 | D |
| 76.2 | E |
| 89 | F |
| 100 | G |

| L(mm) | Code |
|---|---|
| 50 | 50 |
| 55 | 55 |
| 60 | 60 |
| 65 | 65 |
| 75 | 75 |
| 80 | 80 |
| 85 | 85 |
| 90 | 90 |
| 96 | 96 |
| 100 | A0 |
| 105 | A5 |
| 110 | B0 |
| 115 | B5 |
| 120 | C0 |
| 125 | C5 |
| 130 | D0 |
| 140 | E0 |
| 145 | E5 |
| 155 | F5 |
| 170 | H0 |
| 190 | K0 |
| 220 | N0 |
| 250 | R0 |
| 270 | T0 |

*Refer to the appendix (Part number) for codes not listed here.

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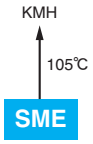
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 85℃

# SME Series

●Endurance with ripple current : 2,000 hours at 85℃
●**RoHS Compliant**

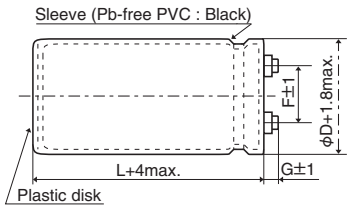


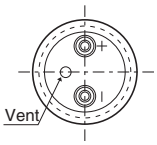
## ◆SPECIFICATIONS

| Items | Characteristics | |
|---|---|---|
| **Category Temperature Range** | −40 to +85℃ (10 to 100Vdc) | |
| **Rated Voltage Range** | 10 to 100Vdc | |
| **Capacitance Tolerance** | ±20% (M) | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Shall not exceed the values shown in the STANDARD RATINGS | (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(−25℃)/C(+20℃)≧0.7 | (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. | |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. | |
| | Capacitance change | ≦±20% of the initial value |
| | D.F. (tanδ) | ≦200% of the initial specified value |
| | Leakage current | ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | |
| | Capacitance change | ≦±20% of the initial value |
| | D.F. (tanδ) | ≦150% of the initial specified value |
| | Leakage current | ≦The initial specified value |

## ◆DIMENSIONS (Screw-Mount) [mm]

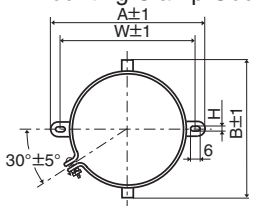
●Terminal Code : LG



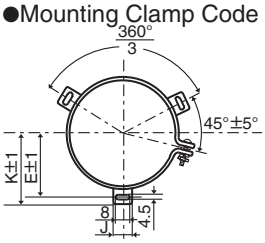

ϕ35 to ϕ63.5 : G=6
ϕ76.2 & ϕ89 : G=5

●Mounting Clamp Code : B




| ϕD | A | B | W | H | F |
|---|---|---|---|---|---|
| **35** | 58.0 | 44.0 | 48.0 | 3.5 | 12.7 |
| **50** | 78.0 | 64.0 | 68.0 | 4.5 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 4.5 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 4.5 | 31.5 |

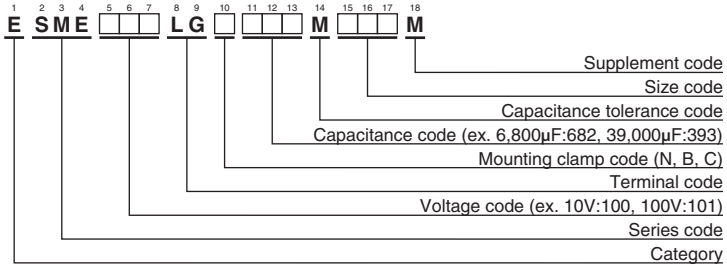
●Mounting Clamp Code : C




| ϕD | E | K | J | F |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 14.0 | 22.4 |
| **63.5** | 38.1 | 43.5 | 14.0 | 28.0 |
| **76.2** | 44.5 | 50.0 | 14.0 | 31.5 |
| **89** | 50.8 | 56.5 | 16.0 | 31.5 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 85℃

## SME Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 10 | 39,000 | 35×50 | 0.60 | 4.70 | ESME100LGB393MA50M |
| | 82,000 | 35×80 | 0.60 | 7.40 | ESME100LGB823MA80M |
| | 100,000 | 35×100 | 0.70 | 8.00 | ESME100LGB104MAA0M |
| | 120,000 | 35×120 | 0.70 | 9.40 | ESME100LGB124MAC0M |
| | 150,000 | 50×80 | 0.90 | 9.80 | ESME100LGC154MC80M |
| | 220,000 | 50×100 | 1.00 | 12.1 | ESME100LGC224MCA0M |
| | 270,000 | 50×120 | 1.20 | 13.6 | ESME100LGC274MCC0M |
| | 390,000 | 63.5×100 | 1.50 | 15.3 | ESME100LGC394MDA0M |
| | 470,000 | 63.5×120 | 2.00 | 16.0 | ESME100LGC474MDC0M |
| | 560,000 | 76.2×100 | 2.50 | 17.3 | ESME100LGC564MEA0M |
| | 680,000 | 76.2×120 | 3.00 | 18.7 | ESME100LGC684MEC0M |
| 16 | 27,000 | 35×50 | 0.45 | 4.20 | ESME160LGB273MA50M |
| | 56,000 | 35×80 | 0.60 | 6.50 | ESME160LGB563MA80M |
| | 82,000 | 35×100 | 0.70 | 8.00 | ESME160LGB823MAA0M |
| | 100,000 | 35×120 | 0.70 | 9.60 | ESME160LGB104MAC0M |
| | 120,000 | 50×80 | 0.80 | 9.60 | ESME160LGC124MC80M |
| | 150,000 | 50×100 | 0.90 | 11.2 | ESME160LGC154MCA0M |
| | 220,000 | 50×120 | 1.00 | 14.2 | ESME160LGC224MCC0M |
| | 270,000 | 63.5×100 | 1.20 | 15.3 | ESME160LGC274MDA0M |
| | 330,000 | 63.5×120 | 1.30 | 17.1 | ESME160LGC334MDC0M |
| | 390,000 | 76.2×100 | 1.60 | 18.0 | ESME160LGC394MEA0M |
| | 470,000 | 76.2×120 | 1.80 | 19.3 | ESME160LGC474MEC0M |
| | 560,000 | 76.2×140 | 2.00 | 20.7 | ESME160LGC564MEE0M |
| 25 | 18,000 | 35×50 | 0.35 | 4.00 | ESME250LGB183MA50M |
| | 39,000 | 35×80 | 0.40 | 6.20 | ESME250LGB393MA80M |
| | 47,000 | 35×100 | 0.40 | 7.40 | ESME250LGB473MAA0M |
| | 56,000 | 35×120 | 0.45 | 8.30 | ESME250LGB563MAC0M |
| | 82,000 | 50×80 | 0.50 | 9.70 | ESME250LGC823MC80M |
| | 100,000 | 50×100 | 0.60 | 10.8 | ESME250LGC104MCA0M |
| | 120,000 | 50×120 | 0.60 | 12.8 | ESME250LGC124MCC0M |
| | 180,000 | 63.5×100 | 0.75 | 14.7 | ESME250LGC184MDA0M |
| | 220,000 | 63.5×120 | 0.80 | 16.8 | ESME250LGC224MDC0M |
| | 270,000 | 76.2×100 | 0.90 | 18.3 | ESME250LGC274MEA0M |
| | 330,000 | 76.2×120 | 1.00 | 20.7 | ESME250LGC334MEC0M |
| | 390,000 | 76.2×140 | 1.20 | 22.1 | ESME250LGC394MEE0M |
| | 560,000 | 89×140 | 1.50 | 25.8 | ESME250LGC564MFE0M |
| 35 | 15,000 | 35×50 | 0.30 | 3.90 | ESME350LGB153MA50M |
| | 33,000 | 35×80 | 0.40 | 6.00 | ESME350LGB333MA80M |
| | 39,000 | 35×100 | 0.40 | 7.00 | ESME350LGB393MAA0M |
| | 47,000 | 35×120 | 0.45 | 8.00 | ESME350LGB473MAC0M |
| | 68,000 | 50×80 | 0.50 | 9.00 | ESME350LGC683MC80M |
| | 82,000 | 50×100 | 0.55 | 10.3 | ESME350LGC823MCA0M |
| | 120,000 | 50×120 | 0.60 | 12.8 | ESME350LGC124MCC0M |
| | 150,000 | 63.5×100 | 0.70 | 14.0 | ESME350LGC154MDA0M |
| | 180,000 | 63.5×120 | 0.70 | 16.6 | ESME350LGC184MDC0M |
| | 220,000 | 76.2×100 | 0.75 | 17.3 | ESME350LGC224MEA0M |
| | 270,000 | 76.2×120 | 0.80 | 19.8 | ESME350LGC274MEC0M |
| | 330,000 | 76.2×140 | 0.90 | 22.5 | ESME350LGC334MEE0M |
| | 470,000 | 89×140 | 1.00 | 28.3 | ESME350LGC474MFE0M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 50 | 10,000 | 35×50 | 0.25 | 4.10 | ESME500LGB103MA50M |
| | 18,000 | 35×80 | 0.25 | 5.20 | ESME500LGB183MA80M |
| | 22,000 | 35×100 | 0.30 | 5.90 | ESME500LGB223MAA0M |
| | 27,000 | 35×120 | 0.35 | 6.60 | ESME500LGB273MAC0M |
| | 39,000 | 50×80 | 0.40 | 7.40 | ESME500LGC393MC80M |
| | 56,000 | 50×100 | 0.40 | 9.80 | ESME500LGC563MCA0M |
| | 68,000 | 50×120 | 0.45 | 11.1 | ESME500LGC683MCC0M |
| | 82,000 | 63.5×100 | 0.50 | 12.2 | ESME500LGC823MDA0M |
| | 120,000 | 63.5×120 | 0.50 | 16.0 | ESME500LGC124MDC0M |
| | 150,000 | 76.2×120 | 0.60 | 18.1 | ESME500LGC154MEC0M |
| | 180,000 | 76.2×140 | 0.70 | 19.5 | ESME500LGC184MEE0M |
| | 270,000 | 89×140 | 0.80 | 24.6 | ESME500LGC274MFE0M |
| 63 | 5,600 | 35×50 | 0.20 | 3.00 | ESME630LGB562MA50M |
| | 10,000 | 35×80 | 0.25 | 4.00 | ESME630LGB103MA80M |
| | 15,000 | 35×100 | 0.25 | 5.30 | ESME630LGB153MAA0M |
| | 18,000 | 35×120 | 0.25 | 6.20 | ESME630LGB183MAC0M |
| | 22,000 | 50×80 | 0.30 | 6.50 | ESME630LGC223MC80M |
| | 33,000 | 50×100 | 0.35 | 8.10 | ESME630LGC333MCA0M |
| | 39,000 | 50×120 | 0.35 | 9.60 | ESME630LGC393MCC0M |
| | 47,000 | 63.5×100 | 0.40 | 10.2 | ESME630LGC473MDA0M |
| | 68,000 | 63.5×120 | 0.40 | 13.3 | ESME630LGC683MDC0M |
| | 100,000 | 76.2×120 | 0.45 | 17.1 | ESME630LGC104MEC0M |
| | 120,000 | 76.2×140 | 0.50 | 19.0 | ESME630LGC124MEE0M |
| | 150,000 | 89×140 | 0.55 | 22.0 | ESME630LGC154MFE0M |
| 80 | 3,300 | 35×50 | 0.15 | 2.50 | ESME800LGB332MA50M |
| | 6,800 | 35×80 | 0.20 | 3.70 | ESME800LGB682MA80M |
| | 10,000 | 35×100 | 0.20 | 4.90 | ESME800LGB103MAA0M |
| | 12,000 | 35×120 | 0.20 | 5.40 | ESME800LGB123MAC0M |
| | 15,000 | 50×80 | 0.25 | 6.00 | ESME800LGC153MC80M |
| | 22,000 | 50×100 | 0.30 | 7.10 | ESME800LGC223MCA0M |
| | 27,000 | 50×120 | 0.30 | 8.60 | ESME800LGC273MCC0M |
| | 33,000 | 63.5×100 | 0.35 | 9.30 | ESME800LGC333MDA0M |
| | 47,000 | 63.5×120 | 0.35 | 12.0 | ESME800LGC473MDC0M |
| | 68,000 | 76.2×120 | 0.35 | 15.4 | ESME800LGC683MEC0M |
| | 82,000 | 76.2×140 | 0.35 | 18.1 | ESME800LGC823MEE0M |
| | 100,000 | 89×140 | 0.40 | 21.0 | ESME800LGC104MFE0M |
| 100 | 2,200 | 35×50 | 0.10 | 2.50 | ESME101LGB222MA50M |
| | 4,700 | 35×80 | 0.15 | 3.40 | ESME101LGB472MA80M |
| | 6,800 | 35×100 | 0.15 | 4.20 | ESME101LGB682MAA0M |
| | 8,200 | 35×120 | 0.15 | 5.00 | ESME101LGB822MAC0M |
| | 10,000 | 50×80 | 0.20 | 5.20 | ESME101LGC103MC80M |
| | 18,000 | 50×120 | 0.20 | 8.10 | ESME101LGC183MCC0M |
| | 22,000 | 63.5×100 | 0.25 | 8.60 | ESME101LGC223MDA0M |
| | 27,000 | 63.5×120 | 0.25 | 10.3 | ESME101LGC273MDC0M |
| | 33,000 | 76.2×100 | 0.25 | 11.1 | ESME101LGC333MEA0M |
| | 39,000 | 76.2×120 | 0.25 | 12.4 | ESME101LGC393MEC0M |
| | 47,000 | 76.2×140 | 0.25 | 14.3 | ESME101LGC473MEE0M |
| | 68,000 | 89×140 | 0.30 | 18.0 | ESME101LGC683MFE0M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Rated voltage (Vdc) | Case diameter (mm) | Frequency (Hz) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 50 | 120 | 300 | 1k | 10k | 50k |
| 10 to 50 | φ35 to φ89 | 0.95 | 1.00 | 1.03 | 1.05 | 1.09 | 1.12 |
| 63 & 80 | φ35 | 0.90 | 1.00 | 1.06 | 1.10 | 1.18 | 1.22 |
| | φ50 to φ89 | 0.95 | 1.00 | 1.03 | 1.05 | 1.09 | 1.12 |
| 100 | φ35 | 0.82 | 1.00 | 1.12 | 1.22 | 1.30 | 1.33 |
| | φ50 | 0.90 | 1.00 | 1.06 | 1.10 | 1.18 | 1.22 |
| | φ63.5 to φ89 | 0.95 | 1.00 | 1.03 | 1.05 | 1.09 | 1.12 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

New!

## KMQ Series

●Endurance with ripple current : 2,000 hours at 105℃
●Downsized and high ripple current from KMH series
●**RoHS Compliant**

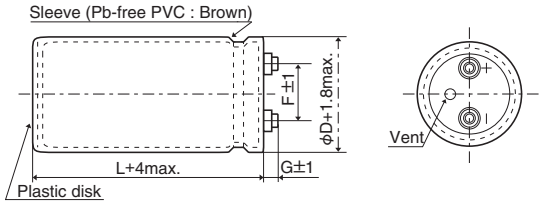
KMQ
↑ Downsized Higher ripple
KMH

## ◆SPECIFICATIONS

| Items | Characteristics | |
|---|---|---|
| **Category Temperature Range** | −25 to +105℃ | |
| **Rated Voltage Range** | 315 to 450Vdc | |
| **Capacitance Tolerance** | ±20% (M) | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Shall not exceed the values shown in the STANDARD RATINGS | (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(−25℃)/C(+20℃)≧0.7 | (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. | |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. | |
| | Capacitance change | ≦±20% of the initial value |
| | D.F. (tanδ) | ≦200% of the initial specified value |
| | Leakage current | ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | |
| | Capacitance change | ≦±20% of the initial value |
| | D.F. (tanδ) | ≦200% of the initial specified value |
| | Leakage current | ≦The initial specified value |

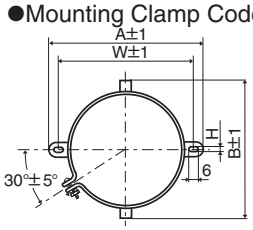
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



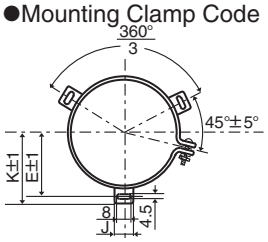

ϕ35 to ϕ63.5 : G=6
ϕ76.2 & ϕ89 : G=5

●Mounting Clamp Code : B




| ϕD | A | B | W | H | F |
|---|---|---|---|---|---|
| **35** | 58.0 | 44.0 | 48.0 | 3.5 | 12.7 |
| **50** | 78.0 | 64.0 | 68.0 | 4.5 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 4.5 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 4.5 | 31.5 |

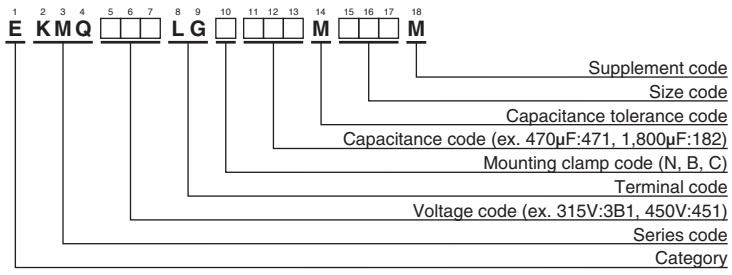
●Mounting Clamp Code : C




| ϕD | E | K | J | F |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 14.0 | 22.4 |
| **63.5** | 38.1 | 43.5 | 14.0 | 28.0 |
| **76.2** | 44.5 | 50.0 | 14.0 | 31.5 |
| **89** | 50.8 | 56.5 | 16.0 | 31.5 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

New!

## KMQ Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 315 | 560 | 35×55 | 0.10 | 2.4 | EKMQ3B1LGB561MA55M |
| | 680 | 35×65 | 0.15 | 2.9 | EKMQ3B1LGB681MA65M |
| | 820 | 35×75 | 0.15 | 3.3 | EKMQ3B1LGB821MA75M |
| | 1,000 | 35×80 | 0.15 | 3.8 | EKMQ3B1LGB102MA80M |
| | 1,200 | 35×100 | 0.15 | 4.5 | EKMQ3B1LGB122MAA0M |
| | 1,500 | 50×70 | 0.15 | 5.4 | EKMQ3B1LGC152MC70M |
| | 1,800 | 50×75 | 0.15 | 6.0 | EKMQ3B1LGC182MC75M |
| | 2,200 | 50×90 | 0.15 | 7.2 | EKMQ3B1LGC222MC90M |
| | 2,700 | 50×100 | 0.15 | 8.4 | EKMQ3B1LGC272MCA0M |
| | 3,300 | 63.5×85 | 0.15 | 9.9 | EKMQ3B1LGC332MD85M |
| | 3,900 | 63.5×96 | 0.15 | 11.3 | EKMQ3B1LGC392MD96M |
| | 4,700 | 76.2×85 | 0.15 | 13.1 | EKMQ3B1LGC472ME85M |
| | 5,600 | 76.2×96 | 0.15 | 15.0 | EKMQ3B1LGC562ME96M |
| | 6,800 | 76.2×110 | 0.15 | 17.6 | EKMQ3B1LGC682MEB0M |
| | 8,200 | 89×100 | 0.15 | 17.2 | EKMQ3B1LGC822MFA0M |
| | 10,000 | 89×115 | 0.15 | 20.1 | EKMQ3B1LGC103MFB5M |
| 350 | 470 | 35×55 | 0.10 | 2.2 | EKMQ351LGB471MA55M |
| | 560 | 35×60 | 0.10 | 2.5 | EKMQ351LGB561MA60M |
| | 680 | 35×70 | 0.15 | 2.9 | EKMQ351LGB681MA70M |
| | 820 | 35×80 | 0.15 | 3.4 | EKMQ351LGB821MA80M |
| | 1,000 | 35×90 | 0.15 | 4.0 | EKMQ351LGB102MA90M |
| | 1,200 | 50×65 | 0.15 | 4.6 | EKMQ351LGC122MC65M |
| | 1,500 | 50×75 | 0.15 | 5.5 | EKMQ351LGC152MC75M |
| | 1,800 | 50×85 | 0.15 | 6.4 | EKMQ351LGC182MC85M |
| | 2,200 | 50×100 | 0.15 | 7.6 | EKMQ351LGC222MCA0M |
| | 2,700 | 63.5×85 | 0.15 | 9.0 | EKMQ351LGC272MD85M |
| | 3,900 | 76.2×80 | 0.15 | 11.7 | EKMQ351LGC392ME80M |
| | 5,600 | 76.2×105 | 0.15 | 15.6 | EKMQ351LGC562MEA5M |
| | 6,800 | 76.2×125 | 0.15 | 18.6 | EKMQ351LGC682MEC5M |
| | 8,200 | 89×115 | 0.15 | 18.2 | EKMQ351LGC822MFB5M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 390 | 35×55 | 0.10 | 2.0 | EKMQ401LGB391MA55M |
| | 470 | 35×60 | 0.10 | 2.3 | EKMQ401LGB471MA60M |
| | 560 | 35×70 | 0.15 | 2.7 | EKMQ401LGB561MA70M |
| | 680 | 35×80 | 0.15 | 3.1 | EKMQ401LGB681MA80M |
| | 820 | 35×90 | 0.15 | 3.6 | EKMQ401LGB821MA90M |
| | 1,000 | 50×65 | 0.15 | 4.2 | EKMQ401LGC102MC65M |
| | 1,200 | 50×75 | 0.15 | 4.9 | EKMQ401LGC122MC75M |
| | 1,500 | 50×85 | 0.15 | 5.8 | EKMQ401LGC152MC85M |
| | 2,200 | 63.5×85 | 0.15 | 8.1 | EKMQ401LGC222MD85M |
| | 3,300 | 63.5×105 | 0.15 | 10.8 | EKMQ401LGC332MDA5M |
| | 4,700 | 76.2×105 | 0.15 | 14.3 | EKMQ401LGC472MEA5M |
| | 5,600 | 89×96 | 0.15 | 13.9 | EKMQ401LGC562MF96M |
| | 6,800 | 89×115 | 0.15 | 16.6 | EKMQ401LGC682MFB5M |
| | 8,200 | 89×130 | 0.15 | 19.2 | EKMQ401LGC822MFD0M |
| 450 | 330 | 35×55 | 0.10 | 1.8 | EKMQ451LGB331MA55M |
| | 390 | 35×65 | 0.10 | 2.2 | EKMQ451LGB391MA65M |
| | 470 | 35×75 | 0.10 | 2.5 | EKMQ451LGB471MA75M |
| | 560 | 35×80 | 0.15 | 2.8 | EKMQ451LGB561MA80M |
| | 680 | 35×100 | 0.15 | 3.5 | EKMQ451LGB681MAA0M |
| | 820 | 35×110 | 0.15 | 4.1 | EKMQ451LGB821MAB0M |
| | 1,000 | 50×80 | 0.15 | 4.6 | EKMQ451LGC102MC80M |
| | 1,200 | 50×90 | 0.15 | 5.3 | EKMQ451LGC122MC90M |
| | 1,500 | 50×105 | 0.15 | 6.4 | EKMQ451LGC152MCA5M |
| | 2,200 | 63.5×96 | 0.15 | 8.5 | EKMQ451LGC222MD96M |
| | 3,300 | 63.5×130 | 0.15 | 11.9 | EKMQ451LGC332MDD0M |
| | 4,700 | 76.2×130 | 0.15 | 15.7 | EKMQ451LGC472MED0M |
| | 5,600 | 76.2×155 | 0.15 | 18.5 | EKMQ451LGC562MEF5M |
| | 5,600 | 89×120 | 0.15 | 15.3 | EKMQ451LGC562MFC0M |
| | 6,800 | 89×140 | 0.15 | 18.0 | EKMQ451LGC682MFE0M |
| | 8,200 | 89×170 | 0.15 | 21.6 | EKMQ451LGC822MFH0M |

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50Hz | 120Hz | 300Hz | 1kHz | 3kHz |
|---|---|---|---|---|---|
| φ35, 50 | 0.70 | 1.00 | 1.30 | 1.70 | 1.80 |
| φ63.5 to 89 | 0.80 | 1.00 | 1.10 | 1.15 | 1.15 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

## KMH Series

●Endurance with ripple current : 2,000 hours at 105℃
●**RoHS Compliant**

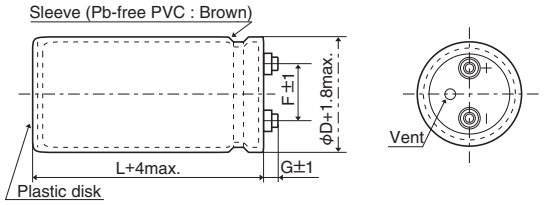
KMH
105℃
SME

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +105℃ (10 to 100Vdc)　−25 to +105℃ (160 to 400Vdc) |
| **Rated Voltage Range** | 10 to 400Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | Shall not exceed the values shown in the STANDARD RATINGS (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change　10 to 100Vdc : C(−40℃)/C(+20℃)≧0.6<br>160 to 400Vdc : C(−25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

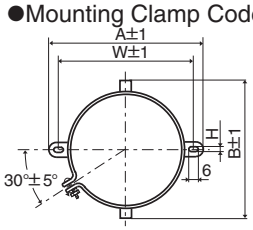
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



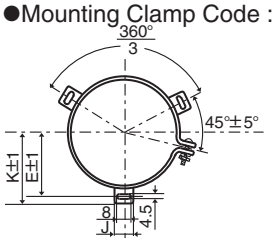

ϕ35 to ϕ63.5 : G=6
ϕ76.2 & ϕ89 : G=5

●Mounting Clamp Code : B




| ϕD | A | B | W | H | F |
|---|---|---|---|---|---|
| **35** | 58.0 | 44.0 | 48.0 | 3.5 | 12.7 |
| **50** | 78.0 | 64.0 | 68.0 | 4.5 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 4.5 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 4.5 | 31.5 |

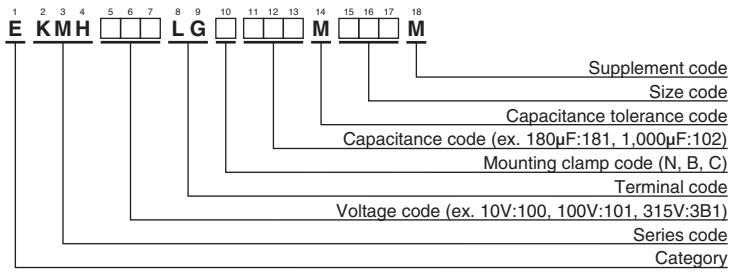
●Mounting Clamp Code : C




| ϕD | E | K | J | F |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 14.0 | 22.4 |
| **63.5** | 38.1 | 43.5 | 14.0 | 28.0 |
| **76.2** | 44.5 | 50.0 | 14.0 | 31.5 |
| **89** | 50.8 | 56.5 | 16.0 | 31.5 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

## KMH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 10 | 27,000 | 35×50 | 0.45 | 4.90 | EKMH100LGB273MA50M |
| | 33,000 | 35×50 | 0.50 | 5.10 | EKMH100LGB333MA50M |
| | 39,000 | 35×60 | 0.50 | 5.90 | EKMH100LGB393MA60M |
| | 47,000 | 35×80 | 0.50 | 7.10 | EKMH100LGB473MA80M |
| | 56,000 | 35×80 | 0.60 | 7.10 | EKMH100LGB563MA80M |
| | 68,000 | 35×100 | 0.60 | 8.50 | EKMH100LGB683MAA0M |
| | 82,000 | 35×100 | 0.65 | 8.90 | EKMH100LGB823MAA0M |
| | 100,000 | 35×120 | 0.65 | 10.7 | EKMH100LGB104MAC0M |
| | 120,000 | 50×80 | 0.75 | 11.0 | EKMH100LGC124MC80M |
| | 150,000 | 50×100 | 0.80 | 13.2 | EKMH100LGC154MCA0M |
| | 180,000 | 50×120 | 0.80 | 15.7 | EKMH100LGC184MCC0M |
| | 220,000 | 50×120 | 0.85 | 16.8 | EKMH100LGC224MCC0M |
| | 270,000 | 63.5×120 | 1.00 | 19.6 | EKMH100LGC274MDC0M |
| | 330,000 | 63.5×120 | 1.20 | 19.7 | EKMH100LGC334MDC0M |
| | 390,000 | 76.2×120 | 1.50 | 21.3 | EKMH100LGC394MEC0M |
| | 470,000 | 76.2×120 | 1.80 | 21.4 | EKMH100LGC474MEC0M |
| | 560,000 | 76.2×140 | 2.00 | 23.6 | EKMH100LGC564MEE0M |
| | 680,000 | 89×140 | 2.40 | 26.0 | EKMH100LGC684MFE0M |
| 16 | 18,000 | 35×50 | 0.40 | 4.20 | EKMH160LGB183MA50M |
| | 22,000 | 35×50 | 0.40 | 4.70 | EKMH160LGB223MA50M |
| | 27,000 | 35×60 | 0.40 | 5.50 | EKMH160LGB273MA60M |
| | 33,000 | 35×60 | 0.45 | 5.70 | EKMH160LGB333MA60M |
| | 39,000 | 35×80 | 0.45 | 6.80 | EKMH160LGB393MA80M |
| | 47,000 | 35×80 | 0.50 | 7.10 | EKMH160LGB473MA80M |
| | 56,000 | 35×100 | 0.50 | 8.40 | EKMH160LGB563MAA0M |
| | 68,000 | 35×100 | 0.55 | 8.80 | EKMH160LGB683MAA0M |
| | 82,000 | 50×80 | 0.55 | 10.7 | EKMH160LGC823MC80M |
| | 100,000 | 50×80 | 0.65 | 10.8 | EKMH160LGC104MC80M |
| | 120,000 | 50×100 | 0.65 | 13.1 | EKMH160LGC124MCA0M |
| | 150,000 | 50×120 | 0.70 | 15.3 | EKMH160LGC154MCC0M |
| | 180,000 | 50×120 | 0.80 | 15.7 | EKMH160LGC184MCC0M |
| | 220,000 | 63.5×120 | 0.85 | 19.2 | EKMH160LGC224MDC0M |
| | 270,000 | 63.5×120 | 1.00 | 19.6 | EKMH160LGC274MDC0M |
| | 330,000 | 76.2×120 | 1.30 | 21.1 | EKMH160LGC334MEC0M |
| | 390,000 | 76.2×120 | 1.50 | 21.3 | EKMH160LGC394MEC0M |
| | 470,000 | 76.2×140 | 1.60 | 24.2 | EKMH160LGC474MEE0M |
| | 560,000 | 89×140 | 2.00 | 28.1 | EKMH160LGC564MFE0M |
| | 680,000 | 89×140 | 2.40 | 28.5 | EKMH160LGC684MFE0M |
| 25 | 12,000 | 35×50 | 0.35 | 3.70 | EKMH250LGB123MA50M |
| | 15,000 | 35×50 | 0.35 | 4.10 | EKMH250LGB153MA50M |
| | 18,000 | 35×60 | 0.35 | 4.80 | EKMH250LGB183MA60M |
| | 22,000 | 35×60 | 0.35 | 5.30 | EKMH250LGB223MA60M |
| | 27,000 | 35×80 | 0.35 | 6.40 | EKMH250LGB273MA80M |
| | 33,000 | 35×80 | 0.40 | 6.70 | EKMH250LGB333MA80M |
| | 39,000 | 35×100 | 0.40 | 7.80 | EKMH250LGB393MAA0M |
| | 47,000 | 35×120 | 0.40 | 9.30 | EKMH250LGB473MAC0M |
| | 56,000 | 50×80 | 0.45 | 9.70 | EKMH250LGC563MC80M |
| | 68,000 | 50×100 | 0.45 | 11.2 | EKMH250LGC683MCA0M |
| | 82,000 | 50×100 | 0.50 | 11.2 | EKMH250LGC823MCA0M |
| | 100,000 | 50×120 | 0.50 | 14.8 | EKMH250LGC104MCC0M |
| | 120,000 | 63.5×100 | 0.65 | 14.9 | EKMH250LGC124MDA0M |
| | 150,000 | 63.5×120 | 0.65 | 17.9 | EKMH250LGC154MDC0M |
| | 180,000 | 63.5×120 | 0.80 | 17.9 | EKMH250LGC184MDC0M |
| | 220,000 | 76.2×120 | 0.85 | 21.3 | EKMH250LGC224MEC0M |
| | 270,000 | 76.2×120 | 1.00 | 21.7 | EKMH250LGC274MEC0M |
| | 330,000 | 76.2×140 | 1.20 | 23.4 | EKMH250LGC334MEE0M |
| | 390,000 | 89×140 | 1.50 | 24.9 | EKMH250LGC394MFE0M |
| 35 | 8,200 | 35×50 | 0.30 | 3.30 | EKMH350LGB822MA50M |
| | 10,000 | 35×50 | 0.30 | 3.60 | EKMH350LGB103MA50M |
| | 12,000 | 35×60 | 0.30 | 4.20 | EKMH350LGB123MA60M |
| | 15,000 | 35×60 | 0.30 | 4.70 | EKMH350LGB153MA60M |
| | 18,000 | 35×80 | 0.30 | 5.70 | EKMH350LGB183MA80M |
| | 22,000 | 35×80 | 0.30 | 6.30 | EKMH350LGB223MA80M |
| | 27,000 | 35×100 | 0.30 | 7.50 | EKMH350LGB273MAA0M |
| | 33,000 | 35×120 | 0.30 | 9.00 | EKMH350LGB333MAC0M |
| | 39,000 | 50×80 | 0.35 | 9.20 | EKMH350LGC393MC80M |
| | 47,000 | 50×100 | 0.35 | 11.2 | EKMH350LGC473MCA0M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 35 | 56,000 | 50×100 | 0.40 | 11.4 | EKMH350LGC563MCA0M |
| | 68,000 | 50×120 | 0.40 | 13.6 | EKMH350LGC683MCC0M |
| | 82,000 | 63.5×100 | 0.45 | 14.8 | EKMH350LGC823MDA0M |
| | 100,000 | 63.5×120 | 0.45 | 17.6 | EKMH350LGC104MDC0M |
| | 120,000 | 63.5×120 | 0.55 | 17.6 | EKMH350LGC124MDC0M |
| | 150,000 | 76.2×120 | 0.65 | 19.8 | EKMH350LGC154MEC0M |
| | 180,000 | 76.2×120 | 0.80 | 19.8 | EKMH350LGC184MEC0M |
| | 220,000 | 76.2×140 | 0.80 | 23.4 | EKMH350LGC224MEE0M |
| | 270,000 | 89×140 | 1.00 | 25.5 | EKMH350LGC274MFE0M |
| 50 | 3,900 | 35×50 | 0.20 | 2.80 | EKMH500LGB392MA50M |
| | 4,700 | 35×50 | 0.20 | 3.10 | EKMH500LGB472MA50M |
| | 5,600 | 35×50 | 0.20 | 3.30 | EKMH500LGB562MA50M |
| | 6,800 | 35×50 | 0.25 | 3.30 | EKMH500LGB682MA50M |
| | 8,200 | 35×60 | 0.25 | 3.80 | EKMH500LGB822MA60M |
| | 10,000 | 35×80 | 0.25 | 4.60 | EKMH500LGB103MA80M |
| | 12,000 | 35×80 | 0.25 | 5.10 | EKMH500LGB123MA80M |
| | 15,000 | 35×80 | 0.25 | 5.70 | EKMH500LGB153MA80M |
| | 18,000 | 35×100 | 0.25 | 6.70 | EKMH500LGB183MAA0M |
| | 22,000 | 35×120 | 0.25 | 8.10 | EKMH500LGB223MAC0M |
| | 27,000 | 50×80 | 0.25 | 9.10 | EKMH500LGC273MC80M |
| | 33,000 | 50×100 | 0.25 | 11.1 | EKMH500LGC333MCA0M |
| | 39,000 | 50×120 | 0.25 | 13.1 | EKMH500LGC393MCC0M |
| | 47,000 | 50×120 | 0.30 | 13.9 | EKMH500LGC473MCC0M |
| | 56,000 | 63.5×100 | 0.35 | 13.9 | EKMH500LGC563MDA0M |
| | 68,000 | 63.5×120 | 0.35 | 16.6 | EKMH500LGC683MDC0M |
| | 82,000 | 76.2×120 | 0.40 | 18.9 | EKMH500LGC823MEC0M |
| | 100,000 | 76.2×120 | 0.45 | 19.5 | EKMH500LGC104MEC0M |
| | 120,000 | 76.2×120 | 0.55 | 19.5 | EKMH500LGC124MEC0M |
| | 150,000 | 89×140 | 0.60 | 23.9 | EKMH500LGC154MFE0M |
| | 180,000 | 89×140 | 0.75 | 23.9 | EKMH500LGC184MFE0M |
| 63 | 2,700 | 35×50 | 0.20 | 2.30 | EKMH630LGB272MA50M |
| | 3,300 | 35×50 | 0.20 | 2.50 | EKMH630LGB332MA50M |
| | 3,900 | 35×50 | 0.20 | 2.80 | EKMH630LGB392MA50M |
| | 4,700 | 35×50 | 0.20 | 3.10 | EKMH630LGB472MA50M |
| | 5,600 | 35×60 | 0.20 | 3.50 | EKMH630LGB562MA60M |
| | 6,800 | 35×60 | 0.20 | 3.90 | EKMH630LGB682MA60M |
| | 8,200 | 35×80 | 0.20 | 4.70 | EKMH630LGB822MA80M |
| | 10,000 | 35×80 | 0.25 | 4.70 | EKMH630LGB103MA80M |
| | 12,000 | 35×100 | 0.25 | 5.50 | EKMH630LGB123MAA0M |
| | 15,000 | 35×120 | 0.25 | 6.60 | EKMH630LGB153MAC0M |
| | 18,000 | 50×80 | 0.25 | 7.40 | EKMH630LGC183MC80M |
| | 22,000 | 50×100 | 0.25 | 9.00 | EKMH630LGC223MCA0M |
| | 27,000 | 50×120 | 0.25 | 10.9 | EKMH630LGC273MCC0M |
| | 33,000 | 50×120 | 0.25 | 12.0 | EKMH630LGC333MCC0M |
| | 39,000 | 63.5×100 | 0.30 | 12.5 | EKMH630LGC393MDA0M |
| | 47,000 | 63.5×120 | 0.30 | 14.9 | EKMH630LGC473MDC0M |
| | 56,000 | 63.5×120 | 0.30 | 16.3 | EKMH630LGC563MDC0M |
| | 68,000 | 76.2×120 | 0.35 | 18.4 | EKMH630LGC683MEC0M |
| | 82,000 | 76.2×140 | 0.40 | 20.0 | EKMH630LGC823MEE0M |
| | 100,000 | 76.2×140 | 0.50 | 20.0 | EKMH630LGC104MEE0M |
| | 120,000 | 89×140 | 0.60 | 21.8 | EKMH630LGC124MFE0M |
| 80 | 2,200 | 35×50 | 0.15 | 2.40 | EKMH800LGB222MA50M |
| | 2,700 | 35×50 | 0.15 | 2.70 | EKMH800LGB272MA50M |
| | 3,300 | 35×50 | 0.15 | 3.00 | EKMH800LGB332MA50M |
| | 3,900 | 35×60 | 0.15 | 3.40 | EKMH800LGB392MA60M |
| | 4,700 | 35×60 | 0.15 | 3.70 | EKMH800LGB472MA60M |
| | 5,600 | 35×80 | 0.15 | 4.50 | EKMH800LGB562MA80M |
| | 6,800 | 35×80 | 0.15 | 4.90 | EKMH800LGB682MA80M |
| | 8,200 | 35×100 | 0.20 | 5.10 | EKMH800LGB822MAA0M |
| | 10,000 | 35×120 | 0.20 | 6.10 | EKMH800LGB103MAC0M |
| | 12,000 | 50×80 | 0.20 | 6.70 | EKMH800LGC123MC80M |
| | 15,000 | 50×100 | 0.20 | 8.30 | EKMH800LGC153MCA0M |
| | 18,000 | 50×120 | 0.20 | 9.90 | EKMH800LGC183MCC0M |
| | 22,000 | 50×120 | 0.20 | 11.0 | EKMH800LGC223MCC0M |
| | 27,000 | 63.5×100 | 0.25 | 11.4 | EKMH800LGC273MDA0M |
| | 33,000 | 76.2×100 | 0.25 | 13.9 | EKMH800LGC333MEA0M |
| | 39,000 | 76.2×100 | 0.30 | 13.9 | EKMH800LGC393MEA0M |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

## KMH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 80 | 47,000 | 76.2×120 | 0.30 | 16.5 | EKMH800LGC473MEC0M |
| | 56,000 | 76.2×120 | 0.30 | 18.1 | EKMH800LGC563MEC0M |
| | 68,000 | 76.2×140 | 0.35 | 19.7 | EKMH800LGC683MEE0M |
| | 82,000 | 89×140 | 0.40 | 22.1 | EKMH800LGC823MFE0M |
| 100 | 1,800 | 35×50 | 0.10 | 2.70 | EKMH101LGB182MA50M |
| | 2,200 | 35×50 | 0.10 | 3.00 | EKMH101LGB222MA50M |
| | 2,700 | 35×60 | 0.10 | 3.50 | EKMH101LGB272MA60M |
| | 3,300 | 35×80 | 0.10 | 4.20 | EKMH101LGB332MA80M |
| | 3,900 | 35×80 | 0.12 | 4.20 | EKMH101LGB392MA80M |
| | 4,700 | 35×100 | 0.12 | 5.00 | EKMH101LGB472MAA0M |
| | 5,600 | 35×100 | 0.12 | 5.40 | EKMH101LGB562MAA0M |
| | 6,800 | 35×120 | 0.15 | 5.80 | EKMH101LGB682MAC0M |
| | 8,200 | 50×80 | 0.15 | 6.40 | EKMH101LGC822MC80M |
| | 10,000 | 50×100 | 0.15 | 7.80 | EKMH101LGC103MCA0M |
| | 12,000 | 50×120 | 0.15 | 9.30 | EKMH101LGC123MCC0M |
| | 15,000 | 50×120 | 0.15 | 10.4 | EKMH101LGC153MCC0M |
| | 18,000 | 63.5×100 | 0.20 | 10.4 | EKMH101LGC183MDA0M |
| | 22,000 | 63.5×120 | 0.20 | 12.5 | EKMH101LGC223MDC0M |
| | 27,000 | 76.2×120 | 0.25 | 13.7 | EKMH101LGC273MEC0M |
| | 33,000 | 76.2×120 | 0.25 | 15.2 | EKMH101LGC333MEC0M |
| | 39,000 | 76.2×140 | 0.30 | 16.1 | EKMH101LGC393MEE0M |
| | 47,000 | 89×140 | 0.30 | 19.3 | EKMH101LGC473MFE0M |
| | 56,000 | 89×140 | 0.30 | 21.1 | EKMH101LGC563MFE0M |
| 160 | 560 | 35×50 | 0.15 | 1.20 | EKMH161LGB561MA50M |
| | 680 | 35×50 | 0.15 | 1.30 | EKMH161LGB681MA50M |
| | 820 | 35×50 | 0.15 | 1.40 | EKMH161LGB821MA50M |
| | 1,000 | 35×50 | 0.15 | 1.60 | EKMH161LGB102MA50M |
| | 1,200 | 35×60 | 0.15 | 1.90 | EKMH161LGB122MA60M |
| | 1,500 | 35×60 | 0.15 | 2.10 | EKMH161LGB152MA60M |
| | 1,800 | 35×80 | 0.15 | 2.50 | EKMH161LGB182MA80M |
| | 2,200 | 35×80 | 0.15 | 2.80 | EKMH161LGB222MA80M |
| | 2,700 | 35×100 | 0.15 | 3.30 | EKMH161LGB272MAA0M |
| | 3,300 | 35×120 | 0.15 | 3.80 | EKMH161LGB332MAC0M |
| | 3,900 | 50×80 | 0.20 | 3.80 | EKMH161LGC392MC80M |
| | 4,700 | 50×100 | 0.20 | 4.60 | EKMH161LGC472MCA0M |
| | 5,600 | 50×100 | 0.20 | 5.10 | EKMH161LGC562MCA0M |
| | 6,800 | 50×120 | 0.20 | 6.10 | EKMH161LGC682MCC0M |
| | 8,200 | 63.5×100 | 0.20 | 7.00 | EKMH161LGC822MDA0M |
| | 10,000 | 63.5×120 | 0.20 | 8.40 | EKMH161LGC103MDC0M |
| | 12,000 | 76.2×100 | 0.20 | 9.40 | EKMH161LGC123MEA0M |
| | 15,000 | 76.2×120 | 0.20 | 11.4 | EKMH161LGC153MEC0M |
| | 18,000 | 76.2×140 | 0.20 | 13.4 | EKMH161LGC183MEE0M |
| | 22,000 | 89×140 | 0.25 | 14.5 | EKMH161LGC223MFE0M |
| | 27,000 | 89×140 | 0.25 | 16.0 | EKMH161LGC273MFE0M |
| 200 | 330 | 35×50 | 0.15 | 0.90 | EKMH201LGB331MA50M |
| | 390 | 35×50 | 0.15 | 1.00 | EKMH201LGB391MA50M |
| | 470 | 35×50 | 0.15 | 1.10 | EKMH201LGB471MA50M |
| | 560 | 35×50 | 0.15 | 1.20 | EKMH201LGB561MA50M |
| | 680 | 35×50 | 0.15 | 1.30 | EKMH201LGB681MA50M |
| | 820 | 35×50 | 0.15 | 1.40 | EKMH201LGB821MA50M |
| | 1,000 | 35×60 | 0.15 | 1.70 | EKMH201LGB102MA60M |
| | 1,200 | 35×60 | 0.15 | 1.90 | EKMH201LGB122MA60M |
| | 1,500 | 35×80 | 0.15 | 2.30 | EKMH201LGB152MA80M |
| | 1,800 | 35×80 | 0.15 | 2.50 | EKMH201LGB182MA80M |
| | 2,200 | 35×100 | 0.15 | 3.00 | EKMH201LGB222MAA0M |
| | 2,700 | 35×120 | 0.15 | 3.60 | EKMH201LGB272MAC0M |
| | 3,300 | 50×80 | 0.15 | 4.10 | EKMH201LGC332MC80M |
| | 3,900 | 50×100 | 0.15 | 4.90 | EKMH201LGC392MCA0M |
| | 4,700 | 63.5×100 | 0.20 | 5.30 | EKMH201LGC472MDA0M |
| | 5,600 | 63.5×100 | 0.20 | 5.80 | EKMH201LGC562MDA0M |
| | 6,800 | 63.5×120 | 0.20 | 6.90 | EKMH201LGC682MDC0M |
| | 8,200 | 63.5×120 | 0.20 | 7.60 | EKMH201LGC822MDC0M |
| | 10,000 | 76.2×120 | 0.20 | 9.30 | EKMH201LGC103MEC0M |
| | 12,000 | 76.2×120 | 0.20 | 10.2 | EKMH201LGC123MEC0M |
| | 15,000 | 76.2×140 | 0.20 | 12.2 | EKMH201LGC153MEE0M |
| | 18,000 | 89×140 | 0.25 | 13.1 | EKMH201LGC183MFE0M |
| 250 | 270 | 35×50 | 0.15 | 0.80 | EKMH251LGB271MA50M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 250 | 330 | 35×50 | 0.15 | 0.90 | EKMH251LGB331MA50M |
| | 390 | 35×50 | 0.15 | 1.00 | EKMH251LGB391MA50M |
| | 470 | 35×50 | 0.15 | 1.10 | EKMH251LGB471MA50M |
| | 560 | 35×50 | 0.15 | 1.20 | EKMH251LGB561MA50M |
| | 680 | 35×60 | 0.15 | 1.40 | EKMH251LGB681MA60M |
| | 820 | 35×80 | 0.15 | 1.60 | EKMH251LGB821MA80M |
| | 1,000 | 35×80 | 0.20 | 1.60 | EKMH251LGB102MA80M |
| | 1,200 | 35×80 | 0.20 | 1.80 | EKMH251LGB122MA80M |
| | 1,500 | 35×100 | 0.20 | 2.10 | EKMH251LGB152MAA0M |
| | 1,800 | 35×120 | 0.20 | 2.50 | EKMH251LGB182MAC0M |
| | 2,200 | 50×80 | 0.20 | 2.90 | EKMH251LGC222MC80M |
| | 2,700 | 50×100 | 0.20 | 3.50 | EKMH251LGC272MCA0M |
| | 3,300 | 50×120 | 0.20 | 4.20 | EKMH251LGC332MCC0M |
| | 3,900 | 50×120 | 0.20 | 4.60 | EKMH251LGC392MCC0M |
| | 4,700 | 63.5×120 | 0.20 | 5.70 | EKMH251LGC472MDC0M |
| | 5,600 | 63.5×120 | 0.20 | 6.30 | EKMH251LGC562MDC0M |
| | 6,800 | 76.2×120 | 0.20 | 7.70 | EKMH251LGC682MEC0M |
| | 8,200 | 76.2×120 | 0.20 | 8.40 | EKMH251LGC822MEC0M |
| | 10,000 | 76.2×140 | 0.20 | 10.0 | EKMH251LGC103MEE0M |
| | 12,000 | 89×140 | 0.20 | 11.9 | EKMH251LGC123MFE0M |
| 315 | 180 | 35×50 | 0.10 | 0.80 | EKMH3B1LGB181MA50M |
| | 220 | 35×50 | 0.10 | 0.90 | EKMH3B1LGB221MA50M |
| | 270 | 35×50 | 0.10 | 1.00 | EKMH3B1LGB271MA50M |
| | 330 | 35×50 | 0.10 | 1.10 | EKMH3B1LGB331MA50M |
| | 390 | 35×50 | 0.10 | 1.20 | EKMH3B1LGB391MA50M |
| | 470 | 35×60 | 0.10 | 1.40 | EKMH3B1LGB471MA60M |
| | 560 | 35×60 | 0.10 | 1.50 | EKMH3B1LGB561MA60M |
| | 680 | 35×80 | 0.10 | 1.70 | EKMH3B1LGB681MA80M |
| | 820 | 35×80 | 0.15 | 1.70 | EKMH3B1LGB821MA80M |
| | 1,000 | 35×100 | 0.15 | 2.00 | EKMH3B1LGB102MAA0M |
| | 1,200 | 35×120 | 0.15 | 2.40 | EKMH3B1LGB122MAC0M |
| | 1,500 | 50×80 | 0.15 | 2.70 | EKMH3B1LGC152MC80M |
| | 1,800 | 50×100 | 0.15 | 3.30 | EKMH3B1LGC182MCA0M |
| | 2,200 | 50×120 | 0.15 | 4.00 | EKMH3B1LGC222MCC0M |
| | 2,700 | 50×120 | 0.15 | 4.40 | EKMH3B1LGC272MCC0M |
| | 3,300 | 63.5×100 | 0.15 | 5.10 | EKMH3B1LGC332MDA0M |
| | 3,900 | 63.5×120 | 0.15 | 6.00 | EKMH3B1LGC392MDC0M |
| | 4,700 | 76.2×100 | 0.15 | 6.80 | EKMH3B1LGC472MEA0M |
| | 5,600 | 76.2×120 | 0.15 | 8.00 | EKMH3B1LGC562MEC0M |
| | 6,800 | 76.2×130 | 0.15 | 9.20 | EKMH3B1LGC682MED0M |
| | 8,200 | 89×140 | 0.15 | 11.4 | EKMH3B1LGC822MFE0M |
| | 10,000 | 89×140 | 0.15 | 12.6 | EKMH3B1LGC103MFE0M |
| 350 | 180 | 35×50 | 0.10 | 0.80 | EKMH351LGB181MA50M |
| | 220 | 35×50 | 0.10 | 0.90 | EKMH351LGB221MA50M |
| | 270 | 35×50 | 0.10 | 1.00 | EKMH351LGB271MA50M |
| | 330 | 35×50 | 0.10 | 1.10 | EKMH351LGB331MA50M |
| | 390 | 35×60 | 0.10 | 1.30 | EKMH351LGB391MA60M |
| | 470 | 35×60 | 0.10 | 1.40 | EKMH351LGB471MA60M |
| | 560 | 35×80 | 0.10 | 1.60 | EKMH351LGB561MA80M |
| | 680 | 35×80 | 0.15 | 1.60 | EKMH351LGB681MA80M |
| | 820 | 35×100 | 0.15 | 1.80 | EKMH351LGB821MAA0M |
| | 1,000 | 35×120 | 0.15 | 2.20 | EKMH351LGB102MAC0M |
| | 1,200 | 50×80 | 0.15 | 2.40 | EKMH351LGC122MC80M |
| | 1,500 | 50×100 | 0.15 | 3.00 | EKMH351LGC152MCA0M |
| | 1,800 | 50×120 | 0.15 | 3.60 | EKMH351LGC182MCC0M |
| | 2,200 | 50×120 | 0.15 | 4.00 | EKMH351LGC222MCC0M |
| | 2,700 | 63.5×100 | 0.15 | 4.60 | EKMH351LGC272MDA0M |
| | 3,900 | 76.2×120 | 0.15 | 6.70 | EKMH351LGC392MEC0M |
| | 5,600 | 76.2×130 | 0.15 | 8.30 | EKMH351LGC562MED0M |
| | 6,800 | 76.2×140 | 0.15 | 9.50 | EKMH351LGC682MEE0M |
| | 8,200 | 89×140 | 0.15 | 11.4 | EKMH351LGC822MFE0M |
| 400 | 180 | 35×50 | 0.10 | 0.80 | EKMH401LGB181MA50M |
| | 220 | 35×50 | 0.10 | 0.90 | EKMH401LGB221MA50M |
| | 270 | 35×50 | 0.10 | 1.00 | EKMH401LGB271MA50M |
| | 330 | 35×60 | 0.10 | 1.20 | EKMH401LGB331MA60M |
| | 390 | 35×60 | 0.10 | 1.30 | EKMH401LGB391MA60M |
| | 470 | 35×80 | 0.10 | 1.40 | EKMH401LGB471MA80M |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

## KMH Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 560 | 35×80 | 0.15 | 1.40 | EKMH401LGB561MA80M |
| | 680 | 35×100 | 0.15 | 1.70 | EKMH401LGB681MAA0M |
| | 820 | 35×120 | 0.15 | 2.00 | EKMH401LGB821MAC0M |
| | 1,000 | 50×80 | 0.15 | 2.20 | EKMH401LGC102MC80M |
| | 1,200 | 50×100 | 0.15 | 2.70 | EKMH401LGC122MCA0M |
| | 1,500 | 50×120 | 0.15 | 3.30 | EKMH401LGC152MCC0M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 2,200 | 63.5×100 | 0.15 | 4.20 | EKMH401LGC222MDA0M |
| | 3,300 | 63.5×120 | 0.15 | 5.50 | EKMH401LGC332MDC0M |
| | 4,700 | 76.2×130 | 0.15 | 7.60 | EKMH401LGC472MED0M |
| | 5,600 | 89×140 | 0.15 | 9.40 | EKMH401LGC562MFE0M |
| | 6,800 | 89×140 | 0.15 | 10.4 | EKMH401LGC682MFE0M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Rated voltage (Vdc) | Case diameter (mm) | Frequency (Hz) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 50 | 120 | 300 | 1k | 10k | 50k |
| 10 to 50 | φ35 to φ89 | 0.95 | 1.00 | 1.03 | 1.05 | 1.09 | 1.12 |
| 63 & 80 | φ35 | 0.90 | 1.00 | 1.06 | 1.10 | 1.18 | 1.22 |
| | φ50 to φ89 | 0.95 | 1.00 | 1.03 | 1.05 | 1.09 | 1.12 |
| 100 | φ35 | 0.82 | 1.00 | 1.12 | 1.22 | 1.30 | 1.33 |
| | φ50 | 0.90 | 1.00 | 1.06 | 1.10 | 1.18 | 1.22 |
| | φ63.5 to φ89 | 0.95 | 1.00 | 1.03 | 1.05 | 1.09 | 1.12 |
| 160 to 250 | φ35 | 0.80 | 1.00 | 1.19 | 1.34 | 1.46 | 1.52 |
| | φ50 & φ63.5 | 0.81 | 1.00 | 1.14 | 1.26 | 1.36 | 1.41 |
| | φ76.2 & φ89 | 0.82 | 1.00 | 1.12 | 1.22 | 1.30 | 1.33 |
| 315 to 400 | φ35 to φ89 | 0.80 | 1.00 | 1.19 | 1.34 | 1.46 | 1.52 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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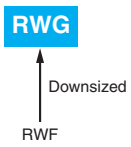
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWG Series

- Downsized, high ripple version of RWF series
- 20% better ripple current at 300Hz than RWF series
- Endurance with ripple current : 5,000 hours at 85℃
- **RoHS Compliant**

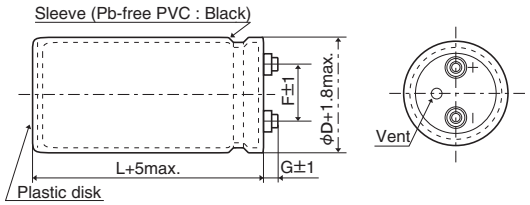


## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +85℃ |
| **Rated Voltage Range** | 350 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.25 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for (the peak voltage shall not exceed the rated voltage) 5,000 hours at 85℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

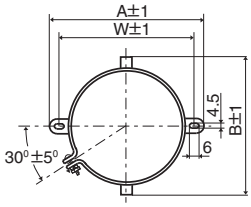
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



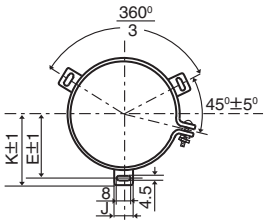

ϕ50 : G=6
ϕ63.5, ϕ76.2 : G=5
ϕ89 : G=4

●Mounting Clamp Code : B




| ϕD | A | B | W | F |
|---|---|---|---|---|
| **50** | 78.0 | 64.0 | 68.0 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 31.5 |

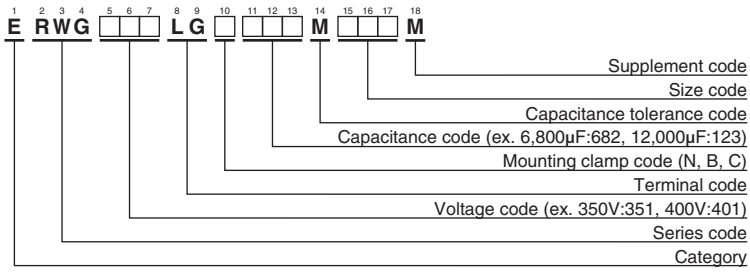
●Mounting Clamp Code : C




| ϕD | E | K | F | J |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 22.4 | 14.0 |
| **63.5** | 38.1 | 43.5 | 28.0 | 14.0 |
| **76.2** | 44.5 | 50.0 | 31.5 | 14.0 |
| **89** | 50.8 | 56.5 | 31.5 | 16.0 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.



CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWG Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/85℃) | | Part No. |
|---|---|---|---|---|---|---|
| | | | | 120Hz | 300Hz | |
| 350 | 2,200 | 50×96 | 0.25 | 7.70 | 9.20 | ERWG351LGC222MC96M |
| | 2,700 | 50×105 | 0.25 | 8.90 | 10.6 | ERWG351LGC272MCA5M |
| | 3,300 | 50×115 | 0.25 | 10.3 | 12.3 | ERWG351LGC332MCB5M |
| | 3,900 | 50×130 | 0.25 | 11.8 | 14.1 | ERWG351LGC392MCD0M |
| | 4,700 | 63.5×115 | 0.25 | 13.6 | 16.3 | ERWG351LGC472MDB5M |
| | 5,600 | 63.5×130 | 0.25 | 15.7 | 18.8 | ERWG351LGC562MDD0M |
| | 6,800 | 63.5×155 | 0.25 | 18.8 | 22.5 | ERWG351LGC682MDF5M |
| | 6,800 | 76.2×115 | 0.25 | 18.2 | 21.8 | ERWG351LGC682MEB5M |
| | 8,200 | 63.5×190 | 0.25 | 22.6 | 27.1 | ERWG351LGC822MDK0M |
| | 8,200 | 76.2×130 | 0.25 | 21.0 | 25.2 | ERWG351LGC822MED0M |
| | 10,000 | 76.2×155 | 0.25 | 25.1 | 30.1 | ERWG351LGC103MEF5M |
| | 12,000 | 76.2×170 | 0.25 | 28.7 | 34.4 | ERWG351LGC123MEH0M |
| | 15,000 | 89×155 | 0.25 | 33.6 | 40.3 | ERWG351LGC153MFF5M |
| | 15,000 | 89×170 | 0.25 | 35.0 | 42.0 | ERWG351LGC153MFH0M |
| | 18,000 | 89×190 | 0.25 | 40.3 | 48.3 | ERWG351LGC183MFK0M |
| 400 | 1,800 | 50×96 | 0.25 | 7.00 | 8.40 | ERWG401LGC182MC96M |
| | 2,200 | 50×105 | 0.25 | 8.10 | 9.70 | ERWG401LGC222MCA5M |
| | 2,700 | 50×115 | 0.25 | 9.30 | 11.1 | ERWG401LGC272MCB5M |
| | 3,300 | 50×130 | 0.25 | 10.9 | 13.0 | ERWG401LGC332MCD0M |
| | 3,900 | 63.5×115 | 0.25 | 12.4 | 14.8 | ERWG401LGC392MDB5M |
| | 4,700 | 63.5×130 | 0.25 | 14.4 | 17.2 | ERWG401LGC472MDD0M |
| | 5,600 | 63.5×155 | 0.25 | 17.0 | 20.4 | ERWG401LGC562MDF5M |
| | 5,600 | 76.2×115 | 0.25 | 16.5 | 19.8 | ERWG401LGC562MEB5M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/85℃) | | Part No. |
|---|---|---|---|---|---|---|
| | | | | 120Hz | 300Hz | |
| 400 | 6,800 | 63.5×190 | 0.25 | 20.6 | 24.7 | ERWG401LGC682MDK0M |
| | 6,800 | 76.2×130 | 0.25 | 19.2 | 23.0 | ERWG401LGC682MED0M |
| | 8,200 | 76.2×155 | 0.25 | 22.7 | 27.2 | ERWG401LGC822MEF5M |
| | 10,000 | 76.2×170 | 0.25 | 26.2 | 31.4 | ERWG401LGC103MEH0M |
| | 12,000 | 89×155 | 0.25 | 30.0 | 36.0 | ERWG401LGC123MFF5M |
| | 12,000 | 89×170 | 0.25 | 31.3 | 37.5 | ERWG401LGC123MFH0M |
| | 15,000 | 89×190 | 0.25 | 36.7 | 44.0 | ERWG401LGC153MFK0M |
| 450 | 1,500 | 50×96 | 0.25 | 6.40 | 7.60 | ERWG451LGC152MC96M |
| | 1,800 | 50×105 | 0.25 | 7.30 | 8.70 | ERWG451LGC182MCA5M |
| | 2,200 | 50×115 | 0.25 | 8.40 | 10.0 | ERWG451LGC222MCB5M |
| | 2,700 | 50×130 | 0.25 | 9.80 | 11.7 | ERWG451LGC272MCD0M |
| | 3,300 | 63.5×115 | 0.25 | 11.4 | 13.6 | ERWG451LGC332MDB5M |
| | 3,900 | 63.5×130 | 0.25 | 13.1 | 15.7 | ERWG451LGC392MDD0M |
| | 4,700 | 63.5×155 | 0.25 | 15.6 | 18.7 | ERWG451LGC472MDF5M |
| | 4,700 | 76.2×115 | 0.25 | 15.1 | 18.1 | ERWG451LGC472MEB5M |
| | 5,600 | 63.5×190 | 0.25 | 18.7 | 22.4 | ERWG451LGC562MDK0M |
| | 5,600 | 76.2×130 | 0.25 | 17.4 | 20.8 | ERWG451LGC562MED0M |
| | 6,800 | 76.2×155 | 0.25 | 20.7 | 24.8 | ERWG451LGC682MEF5M |
| | 8,200 | 76.2×170 | 0.25 | 23.7 | 28.4 | ERWG451LGC822MEH0M |
| | 10,000 | 89×155 | 0.25 | 27.4 | 32.8 | ERWG451LGC103MFF5M |
| | 10,000 | 89×170 | 0.25 | 28.6 | 34.3 | ERWG451LGC103MFH0M |
| | 12,000 | 89×190 | 0.25 | 32.9 | 39.4 | ERWG451LGC123MFK0M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 3k |
|---|---|---|---|---|---|
| Coefficient | 0.8 | 1.0 | 1.2 | 1.4 | 1.5 |

Note : The endurancce of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWG series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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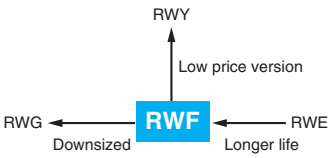
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWF Series

- ●High ripple capability
- ●Endurance with ripple current : 5,000 hours at 85℃
- ●Wide range of case sizes from φ50 to φ100
- ●**RoHS Compliant**

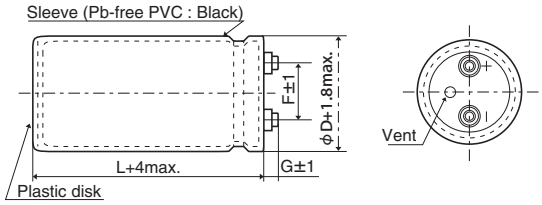


## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +85℃ |
| **Rated Voltage Range** | 350 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.25 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃. |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦200% of the initial specified value |
| | Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. |
| | Capacitance change: ≦±20% of the initial value |
| | D.F. (tanδ): ≦200% of the initial specified value |
| | Leakage current: ≦The initial specified value |

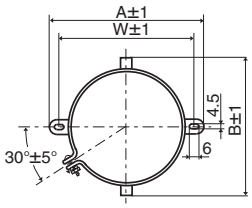
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



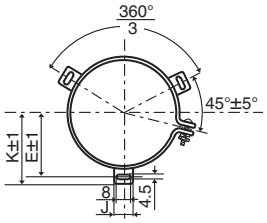

φ50 & φ63.5 : G=6
φ76.2 & φ89 : G=5
φ100 : G=10

●Mounting Clamp Code : B




| φD | A | B | W | F |
|---|---|---|---|---|
| 50 | 78.0 | 64.0 | 68.0 | 22.4 |
| 63.5 | 90.0 | 76.0 | 80.0 | 28.0 |
| 76.2 | 104.5 | 90.0 | 93.5 | 31.5 |

●Mounting Clamp Code : C



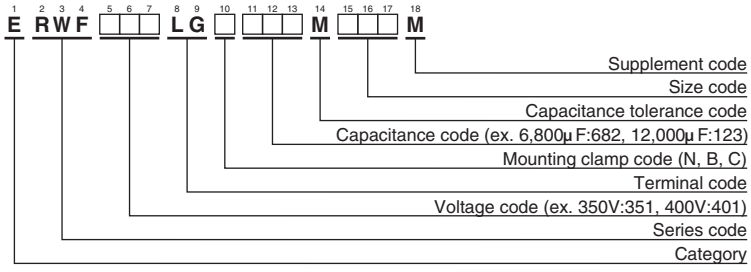

| φD | E | K | F | J |
|---|---|---|---|---|
| 50 | 32.5 | 37.0 | 22.4 | 14.0 |
| 63.5 | 38.1 | 43.5 | 28.0 | 14.0 |
| 76.2 | 44.5 | 50.0 | 31.5 | 14.0 |
| 89 | 50.8 | 56.5 | 31.5 | 16.0 |
| 100 | 56.5 | 63.4 | 41.5 | 18.0 |

<Screw specifications>
to φ89 Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm

φ100 Cross-recessed head (phillips) screw : M8×1.25×16
Spring washer,Washer
Maximum screw tightening torque :6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWF Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 1,200 | 50×60 | 0.25 | 4.90 | ERWF351LGC122MC60M |
| | 1,800 | 50×75 | 0.25 | 6.50 | ERWF351LGC182MC75M |
| | 2,200 | 50×85 | 0.25 | 7.50 | ERWF351LGC222MC85M |
| | 2,200 | 50×96 | 0.25 | 7.70 | ERWF351LGC222MC96M |
| | 2,700 | 50×115 | 0.25 | 9.30 | ERWF351LGC272MCB5M |
| | 3,300 | 50×130 | 0.25 | 10.8 | ERWF351LGC332MCD0M |
| | 3,900 | 63.5×115 | 0.25 | 12.1 | ERWF351LGC392MDB5M |
| | 4,700 | 63.5×130 | 0.25 | 14.0 | ERWF351LGC472MDD0M |
| | 5,600 | 63.5×155 | 0.25 | 16.6 | ERWF351LGC562MDF5M |
| | 5,600 | 76.2×115 | 0.25 | 16.1 | ERWF351LGC562MEB5M |
| | 6,800 | 63.5×190 | 0.25 | 20.0 | ERWF351LGC682MDK0M |
| | 6,800 | 76.2×130 | 0.25 | 18.6 | ERWF351LGC682MED0M |
| | 8,200 | 76.2×155 | 0.25 | 22.2 | ERWF351LGC822MEF5M |
| | 10,000 | 76.2×170 | 0.25 | 25.2 | ERWF351LGC103MEH0M |
| | 12,000 | 89×155 | 0.25 | 29.1 | ERWF351LGC123MFF5M |
| | 15,000 | 89×190 | 0.25 | 35.7 | ERWF351LGC153MFK0M |
| | 18,000 | 100×190 | 0.25 | 36.9 | ERWF351LGC183MGK0M |
| | 22,000 | 100×250 | 0.25 | 46.1 | ERWF351LGC223MGR0M |
| 400 | 1,000 | 50×60 | 0.25 | 4.40 | ERWF401LGC102MC60M |
| | 1,500 | 50×75 | 0.25 | 5.90 | ERWF401LGC152MC75M |
| | 1,800 | 50×85 | 0.25 | 6.80 | ERWF401LGC182MC85M |
| | 1,800 | 50×96 | 0.25 | 7.00 | ERWF401LGC182MC96M |
| | 2,200 | 50×105 | 0.25 | 8.00 | ERWF401LGC222MCA5M |
| | 2,700 | 50×130 | 0.25 | 9.80 | ERWF401LGC272MCD0M |
| | 3,300 | 63.5×115 | 0.25 | 11.1 | ERWF401LGC332MDB5M |
| | 3,900 | 63.5×130 | 0.25 | 12.7 | ERWF401LGC392MDD0M |
| | 4,700 | 63.5×155 | 0.25 | 15.2 | ERWF401LGC472MDF5M |
| | 4,700 | 76.2×115 | 0.25 | 14.7 | ERWF401LGC472MEB5M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 5,600 | 63.5×190 | 0.25 | 18.2 | ERWF401LGC562MDK0M |
| | 5,600 | 76.2×130 | 0.25 | 16.9 | ERWF401LGC562MED0M |
| | 6,800 | 76.2×155 | 0.25 | 20.2 | ERWF401LGC682MEF5M |
| | 8,200 | 76.2×170 | 0.25 | 22.8 | ERWF401LGC822MEH0M |
| | 10,000 | 89×155 | 0.25 | 26.6 | ERWF401LGC103MFF5M |
| | 12,000 | 89×170 | 0.25 | 30.0 | ERWF401LGC123MFH0M |
| | 15,000 | 100×190 | 0.25 | 33.7 | ERWF401LGC153MGK0M |
| | 18,000 | 100×220 | 0.25 | 37.4 | ERWF401LGC183MGN0M |
| 450 | 820 | 50×60 | 0.25 | 4.00 | ERWF451LGC821MC60M |
| | 1,000 | 50×75 | 0.25 | 4.80 | ERWF451LGC102MC75M |
| | 1,200 | 50×85 | 0.25 | 5.60 | ERWF451LGC122MC85M |
| | 1,200 | 50×96 | 0.25 | 5.70 | ERWF451LGC122MC96M |
| | 1,500 | 50×96 | 0.25 | 6.30 | ERWF451LGC152MC96M |
| | 1,800 | 50×115 | 0.25 | 7.60 | ERWF451LGC182MCB5M |
| | 2,200 | 50×130 | 0.25 | 8.80 | ERWF451LGC222MCD0M |
| | 2,700 | 63.5×115 | 0.25 | 10.1 | ERWF451LGC272MDB5M |
| | 3,300 | 63.5×130 | 0.25 | 11.7 | ERWF451LGC332MDD0M |
| | 3,900 | 63.5×155 | 0.25 | 13.8 | ERWF451LGC392MDF5M |
| | 3,900 | 76.2×115 | 0.25 | 13.4 | ERWF451LGC392MEB5M |
| | 4,700 | 63.5×190 | 0.25 | 16.7 | ERWF451LGC472MDK0M |
| | 4,700 | 76.2×130 | 0.25 | 15.5 | ERWF451LGC472MED0M |
| | 5,600 | 76.2×155 | 0.25 | 18.3 | ERWF451LGC562MEF5M |
| | 6,800 | 76.2×170 | 0.25 | 20.7 | ERWF451LGC682MEH0M |
| | 8,200 | 89×155 | 0.25 | 24.1 | ERWF451LGC822MFF5M |
| | 10,000 | 89×170 | 0.25 | 27.8 | ERWF451LGC103MFH0M |
| | 12,000 | 100×190 | 0.25 | 29.3 | ERWF451LGC123MGK0M |
| | 15,000 | 100×250 | 0.25 | 37.0 | ERWF451LGC153MGR0M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 3k |
|---|---|---|---|---|---|
| Coefficient | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 |

Note : The endurancce of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWF series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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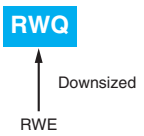
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWQ Series

●Downsized and high ripple current from RWE series
●Endurance with ripple current : 2,000 hours at 85℃
●**RoHS Compliant**

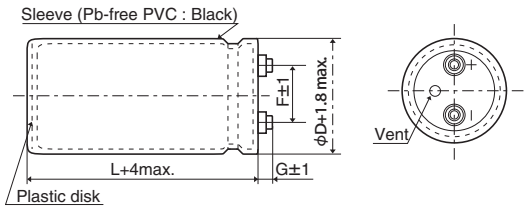


## ◆SPECIFICATIONS

| Items | Characteristics | | | |
|---|---|---|---|---|
| **Category Temperature Range** | −25 to +85℃ | | | |
| **Rated Voltage Range** | 350 to 550Vdc | | | |
| **Capacitance Tolerance** | ±20% (M) | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.25 max. | | | (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Rated voltage (Vdc) | 350 to 450V | 500 to 550V | |
| | C(-25℃) / C(+20℃) | ≧0.7 | ≧0.6 | (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. | | | |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. | | | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied.Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JISC 5101-4. | | | |
| | Capacitance change | ≦±20% of the initial value | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | |
| | Leakage current | ≦The initial specified value | | |

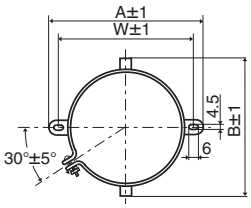
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



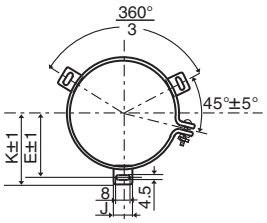

ϕ50 & ϕ63.5 : G=6
ϕ76.2 & ϕ89 : G=5

●Mounting Clamp Code : B




| ϕD | A | B | W | F |
|---|---|---|---|---|
| **50** | 78.0 | 64.0 | 68.0 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 31.5 |

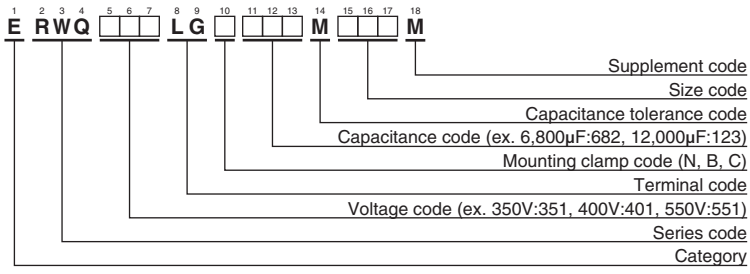
●Mounting Clamp Code : C




| ϕD | E | K | F | J |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 22.4 | 14.0 |
| **63.5** | 38.1 | 43.5 | 28.0 | 14.0 |
| **76.2** | 44.5 | 50.0 | 31.5 | 14.0 |
| **89** | 50.8 | 56.5 | 31.5 | 16.0 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWQ Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 1,500 | 50×65 | 0.25 | 5.09 | ERWQ351LGC152MC65M |
| | 1,800 | 50×75 | 0.25 | 5.93 | ERWQ351LGC182MC75M |
| | 2,200 | 50×96 | 0.25 | 7.30 | ERWQ351LGC222MC96M |
| | 2,700 | 50×115 | 0.25 | 8.76 | ERWQ351LGC272MCB5M |
| | 3,300 | 63.5×85 | 0.25 | 9.71 | ERWQ351LGC332MD85M |
| | 3,900 | 50×130 | 0.25 | 11.1 | ERWQ351LGC392MCD0M |
| | 3,900 | 63.5×96 | 0.25 | 11.1 | ERWQ351LGC392MD96M |
| | 4,700 | 63.5×115 | 0.25 | 13.2 | ERWQ351LGC472MDB5M |
| | 5,600 | 63.5×130 | 0.25 | 15.2 | ERWQ351LGC562MDD0M |
| | 5,600 | 76.2×96 | 0.25 | 14.3 | ERWQ351LGC562ME96M |
| | 6,800 | 76.2×115 | 0.25 | 17.0 | ERWQ351LGC682MEB5M |
| | 8,200 | 76.2×130 | 0.25 | 19.6 | ERWQ351LGC822MED0M |
| | 10,000 | 76.2×155 | 0.25 | 23.4 | ERWQ351LGC103MEF5M |
| | 12,000 | 89×130 | 0.25 | 24.1 | ERWQ351LGC123MFD0M |
| | 15,000 | 89×155 | 0.25 | 29.1 | ERWQ351LGC153MFF5M |
| 400 | 1,200 | 50×65 | 0.25 | 4.55 | ERWQ401LGC122MC65M |
| | 1,500 | 50×75 | 0.25 | 5.41 | ERWQ401LGC152MC75M |
| | 1,800 | 50×85 | 0.25 | 6.26 | ERWQ401LGC182MC85M |
| | 2,200 | 50×96 | 0.25 | 7.30 | ERWQ401LGC222MC96M |
| | 2,700 | 50×115 | 0.25 | 8.76 | ERWQ401LGC272MCB5M |
| | 3,300 | 63.5×96 | 0.25 | 10.2 | ERWQ401LGC332MD96M |
| | 3,900 | 63.5×115 | 0.25 | 12.0 | ERWQ401LGC392MDB5M |
| | 4,700 | 63.5×130 | 0.25 | 13.9 | ERWQ401LGC472MDD0M |
| | 4,700 | 76.2×96 | 0.25 | 13.1 | ERWQ401LGC472ME96M |
| | 5,600 | 63.5×155 | 0.25 | 16.5 | ERWQ401LGC562MDF5M |
| | 6,800 | 76.2×115 | 0.25 | 17.0 | ERWQ401LGC682MEB5M |
| | 8,200 | 76.2×155 | 0.25 | 21.2 | ERWQ401LGC822MEF5M |
| | 10,000 | 89×130 | 0.25 | 22.0 | ERWQ401LGC103MFD0M |
| | 12,000 | 89×155 | 0.25 | 26.0 | ERWQ401LGC123MFF5M |
| 450 | 1,000 | 50×70 | 0.25 | 3.87 | ERWQ451LGC102MC70M |
| | 1,200 | 50×75 | 0.25 | 4.36 | ERWQ451LGC122MC75M |
| | 1,500 | 50×90 | 0.25 | 5.28 | ERWQ451LGC152MC90M |
| | 1,800 | 50×96 | 0.25 | 5.95 | ERWQ451LGC182MC96M |
| | 2,200 | 50×130 | 0.25 | 7.54 | ERWQ451LGC222MCD0M |
| | 2,700 | 63.5×96 | 0.25 | 8.34 | ERWQ451LGC272MD96M |
| | 3,300 | 63.5×115 | 0.25 | 9.97 | ERWQ451LGC332MDB5M |
| | 3,900 | 63.5×130 | 0.25 | 11.4 | ERWQ451LGC392MDD0M |
| | 3,900 | 76.2×96 | 0.25 | 11.1 | ERWQ451LGC392ME96M |
| | 4,700 | 63.5×155 | 0.25 | 13.6 | ERWQ451LGC472MDF5M |
| | 4,700 | 76.2×115 | 0.25 | 13.2 | ERWQ451LGC472MEB5M |
| | 5,600 | 76.2×130 | 0.25 | 15.2 | ERWQ451LGC562MED0M |
| | 6,800 | 76.2×155 | 0.25 | 18.1 | ERWQ451LGC682MEF5M |
| | 8,200 | 89×130 | 0.25 | 19.2 | ERWQ451LGC822MFD0M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 500 | 470 | 50×60 | 0.25 | 2.17 | ERWQ501LGC471MC60M |
| | 680 | 50×65 | 0.25 | 2.70 | ERWQ501LGC681MC65M |
| | 820 | 50×75 | 0.25 | 3.15 | ERWQ501LGC821MC75M |
| | 1,000 | 50×85 | 0.25 | 3.67 | ERWQ501LGC102MC85M |
| | 1,200 | 50×96 | 0.25 | 4.22 | ERWQ501LGC122MC96M |
| | 1,500 | 50×115 | 0.25 | 5.14 | ERWQ501LGC152MCB5M |
| | 1,500 | 63.5×96 | 0.25 | 5.42 | ERWQ501LGC152MD96M |
| | 1,800 | 50×130 | 0.25 | 5.95 | ERWQ501LGC182MCD0M |
| | 1,800 | 63.5×96 | 0.25 | 5.94 | ERWQ501LGC182MD96M |
| | 2,200 | 63.5×115 | 0.25 | 7.10 | ERWQ501LGC222MDB5M |
| | 2,200 | 76.2×96 | 0.25 | 7.30 | ERWQ501LGC222ME96M |
| | 2,700 | 63.5×130 | 0.25 | 8.31 | ERWQ501LGC272MDD0M |
| | 3,300 | 76.2×115 | 0.25 | 9.65 | ERWQ501LGC332MEB5M |
| | 3,900 | 76.2×130 | 0.25 | 11.1 | ERWQ501LGC392MED0M |
| | 4,700 | 76.2×155 | 0.25 | 13.1 | ERWQ501LGC472MEF5M |
| | 6,800 | 89×155 | 0.25 | 15.9 | ERWQ501LGC682MFF5M |
| 550 | 390 | 50×60 | 0.25 | 1.98 | ERWQ551LGC391MC60M |
| | 560 | 50×65 | 0.25 | 2.45 | ERWQ551LGC561MC65M |
| | 680 | 50×75 | 0.25 | 2.87 | ERWQ551LGC681MC75M |
| | 820 | 50×85 | 0.25 | 3.32 | ERWQ551LGC821MC85M |
| | 1,200 | 50×115 | 0.25 | 4.60 | ERWQ551LGC122MCB5M |
| | 1,500 | 63.5×96 | 0.25 | 5.42 | ERWQ551LGC152MD96M |
| | 1,800 | 76.2×80 | 0.25 | 6.12 | ERWQ551LGC182ME80M |
| | 2,200 | 76.2×96 | 0.25 | 7.30 | ERWQ551LGC222ME96M |
| | 2,700 | 76.2×115 | 0.25 | 8.73 | ERWQ551LGC272MEB5M |
| | 3,300 | 76.2×130 | 0.25 | 10.2 | ERWQ551LGC332MED0M |
| | 5,600 | 89×155 | 0.25 | 14.5 | ERWQ551LGC562MFF5M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 3k |
|---|---|---|---|---|---|
| Coefficient | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 |

Note : The endurancce of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWQ series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For the details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWE Series

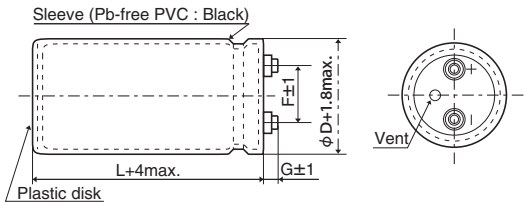
●Rated voltage range : 350 to 550Vdc
●Endurance with ripple current : 85℃ 2,000 hours
●**RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics | | | | |
|---|---|---|---|---|---|
| **Category Temperature Range** | −25 to +85℃ | | | | |
| **Rated Voltage Range** | 350 to 550Vdc | | | | |
| **Capacitance Tolerance** | ±20% (M) | | | | (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.25 max. | | | | (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change | Rated Voltage (Vdc) | 350 to 450V | 500 & 550V | (at 120Hz) |
| | | C(−25℃)/C(+20℃) | ≧0.7 | ≧0.6 | |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. | | | | |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. | | | | |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | D.F. (tanδ) | ≦300% of the initial specified value | | | |
| | Leakage current | ≦The initial specified value | | | |

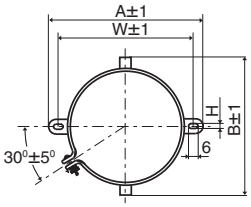
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



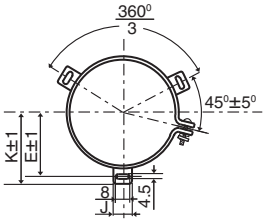

φ35 to φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B




| φD | A | B | W | H | F |
|---|---|---|---|---|---|
| **35** | 58.0 | 44.0 | 48.0 | 3.5 | 12.7 |
| **50** | 78.0 | 64.0 | 68.0 | 4.5 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 4.5 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 4.5 | 31.5 |

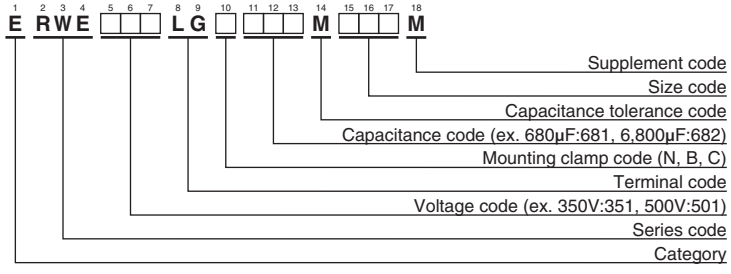
●Mounting Clamp Code : C




| φD | E | K | F | J |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 22.4 | 14.0 |
| **63.5** | 38.1 | 43.5 | 28.0 | 14.0 |
| **76.2** | 44.5 | 50.0 | 31.5 | 14.0 |
| **89** | 50.8 | 56.5 | 31.5 | 16.0 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWE Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 390 | 35×50 | 0.25 | 1.90 | ERWE351LGB391MA50M |
| | 680 | 35×80 | 0.25 | 2.90 | ERWE351LGB681MA80M |
| | 1,000 | 35×100 | 0.25 | 3.80 | ERWE351LGB102MAA0M |
| | 1,200 | 35×120 | 0.25 | 4.20 | ERWE351LGB122MAC0M |
| | 1,500 | 50×75 | 0.25 | 4.70 | ERWE351LGC152MC75M |
| | 2,200 | 50×96 | 0.25 | 6.30 | ERWE351LGC222MC96M |
| | 3,300 | 50×130 | 0.25 | 8.80 | ERWE351LGC332MCD0M |
| | 3,300 | 63.5×96 | 0.25 | 8.80 | ERWE351LGC332MD96M |
| | 3,900 | 63.5×115 | 0.25 | 10.3 | ERWE351LGC392MDB5M |
| | 4,700 | 63.5×130 | 0.25 | 12.0 | ERWE351LGC472MDD0M |
| | 4,700 | 76.2×96 | 0.25 | 11.7 | ERWE351LGC472ME96M |
| | 5,600 | 76.2×115 | 0.25 | 12.6 | ERWE351LGC562MEB5M |
| | 6,800 | 76.2×130 | 0.25 | 15.9 | ERWE351LGC682MED0M |
| | 8,200 | 76.2×155 | 0.25 | 19.0 | ERWE351LGC822MEF5M |
| | 12,000 | 89×155 | 0.25 | 22.5 | ERWE351LGC123MFF5M |
| 400 | 330 | 35×50 | 0.25 | 1.70 | ERWE401LGB331MA50M |
| | 560 | 35×80 | 0.25 | 2.70 | ERWE401LGB561MA80M |
| | 820 | 35×100 | 0.25 | 3.40 | ERWE401LGB821MAA0M |
| | 1,000 | 35×120 | 0.25 | 3.90 | ERWE401LGB102MAC0M |
| | 1,200 | 50×75 | 0.25 | 4.20 | ERWE401LGC122MC75M |
| | 1,800 | 50×96 | 0.25 | 5.70 | ERWE401LGC182MC96M |
| | 2,200 | 50×130 | 0.25 | 7.20 | ERWE401LGC222MCD0M |
| | 2,700 | 63.5×96 | 0.25 | 7.90 | ERWE401LGC272MD96M |
| | 3,300 | 63.5×115 | 0.25 | 9.50 | ERWE401LGC332MDB5M |
| | 3,900 | 63.5×130 | 0.25 | 10.9 | ERWE401LGC392MDD0M |
| | 3,900 | 76.2×96 | 0.25 | 10.6 | ERWE401LGC392ME96M |
| | 4,700 | 76.2×115 | 0.25 | 12.6 | ERWE401LGC472MEB5M |
| | 5,600 | 76.2×130 | 0.25 | 14.5 | ERWE401LGC562MED0M |
| | 6,800 | 76.2×155 | 0.25 | 17.3 | ERWE401LGC682MEF5M |
| | 10,000 | 89×155 | 0.25 | 20.5 | ERWE401LGC103MFF5M |
| 450 | 270 | 35×50 | 0.25 | 1.60 | ERWE451LGB271MA50M |
| | 470 | 35×80 | 0.25 | 2.40 | ERWE451LGB471MA80M |
| | 680 | 35×100 | 0.25 | 3.10 | ERWE451LGB681MAA0M |
| | 820 | 35×120 | 0.25 | 3.50 | ERWE451LGB821MAC0M |
| | 1,000 | 50×75 | 0.25 | 3.90 | ERWE451LGC102MC75M |
| | 1,200 | 50×96 | 0.25 | 4.70 | ERWE451LGC122MC96M |
| | 1,500 | 50×115 | 0.25 | 5.60 | ERWE451LGC152MCB5M |
| | 1,800 | 50×130 | 0.25 | 6.50 | ERWE451LGC182MCD0M |
| | 2,200 | 63.5×96 | 0.25 | 7.20 | ERWE451LGC222MD96M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 2,700 | 63.5×115 | 0.25 | 8.60 | ERWE451LGC272MDB5M |
| | 3,300 | 63.5×130 | 0.25 | 10.0 | ERWE451LGC332MDD0M |
| | 3,300 | 76.2×96 | 0.25 | 9.80 | ERWE451LGC332ME96M |
| | 3,900 | 76.2×115 | 0.25 | 11.5 | ERWE451LGC392MEB5M |
| | 4,700 | 76.2×130 | 0.25 | 13.3 | ERWE451LGC472MED0M |
| | 5,600 | 76.2×155 | 0.25 | 15.7 | ERWE451LGC562MEF5M |
| | 8,200 | 89×155 | 0.25 | 18.6 | ERWE451LGC822MFF5M |
| 500 | 120 | 35×50 | 0.25 | 0.70 | ERWE501LGB121MA50M |
| | 270 | 35×80 | 0.25 | 1.20 | ERWE501LGB271MA80M |
| | 330 | 35×100 | 0.25 | 1.40 | ERWE501LGB331MAA0M |
| | 390 | 35×120 | 0.25 | 1.70 | ERWE501LGB391MAC0M |
| | 470 | 50×75 | 0.25 | 1.80 | ERWE501LGC471MC75M |
| | 680 | 50×96 | 0.25 | 2.50 | ERWE501LGC681MC96M |
| | 820 | 50×115 | 0.25 | 2.90 | ERWE501LGC821MCB5M |
| | 1,000 | 50×130 | 0.25 | 3.40 | ERWE501LGC102MCD0M |
| | 1,000 | 63.5×96 | 0.25 | 3.40 | ERWE501LGC102MD96M |
| | 1,500 | 63.5×115 | 0.25 | 4.50 | ERWE501LGC152MDB5M |
| | 1,500 | 76.2×96 | 0.25 | 4.60 | ERWE501LGC152ME96M |
| | 1,800 | 63.5×130 | 0.25 | 5.20 | ERWE501LGC182MDD0M |
| | 2,200 | 76.2×115 | 0.25 | 6.10 | ERWE501LGC222MEB5M |
| | 2,700 | 76.2×155 | 0.25 | 7.70 | ERWE501LGC272MEF5M |
| | 3,900 | 89×155 | 0.25 | 10.1 | ERWE501LGC392MFF5M |
| 550 | 100 | 35×50 | 0.25 | 0.60 | ERWE551LGB101MA50M |
| | 180 | 35×80 | 0.25 | 1.00 | ERWE551LGB181MA80M |
| | 270 | 35×100 | 0.25 | 1.30 | ERWE551LGB271MAA0M |
| | 330 | 35×120 | 0.25 | 1.60 | ERWE551LGB331MAC0M |
| | 390 | 50×75 | 0.25 | 1.70 | ERWE551LGC391MC75M |
| | 560 | 50×96 | 0.25 | 2.10 | ERWE551LGC561MC96M |
| | 560 | 63.5×96 | 0.25 | 2.50 | ERWE551LGC561MD96M |
| | 680 | 50×115 | 0.25 | 2.70 | ERWE551LGC681MCB5M |
| | 680 | 63.5×115 | 0.25 | 3.00 | ERWE551LGC681MDB5M |
| | 820 | 50×130 | 0.25 | 3.10 | ERWE551LGC821MCD0M |
| | 820 | 63.5×130 | 0.25 | 3.50 | ERWE551LGC821MDD0M |
| | 1,200 | 76.2×96 | 0.25 | 4.20 | ERWE551LGC122ME96M |
| | 1,500 | 76.2×115 | 0.25 | 5.00 | ERWE551LGC152MEB5M |
| | 1,800 | 76.2×130 | 0.25 | 5.80 | ERWE551LGC182MED0M |
| | 2,200 | 76.2×155 | 0.25 | 7.00 | ERWE551LGC222MEF5M |
| | 3,300 | 89×155 | 0.25 | 9.30 | ERWE551LGC332MFF5M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 3k |
|---|---|---|---|---|---|
| Coefficient | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 |

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWE series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

# RWY Series

- High ripple capability
- Endurance with ripple current : 5,000 hours at 85℃
- Reduced cost design for three-phase input inverters
- **RoHS Compliant**

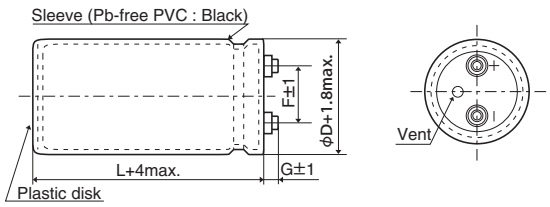
RWY
↑ Low price version
RWF

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +85℃ |
| **Rated Voltage Range** | 350 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.12 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Insulation Resistance** | When it is measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

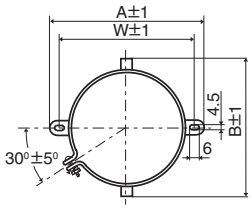
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



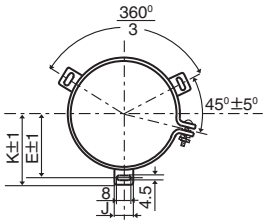

ϕ50 to ϕ76.2 : G=6
ϕ89 : G=4
ϕ100 : G=10

●Mounting Clamp Code : B




| ϕD | A | B | W | F |
|---|---|---|---|---|
| **50** | 78.0 | 64.0 | 68.0 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 31.5 |

●Mounting Clamp Code : C



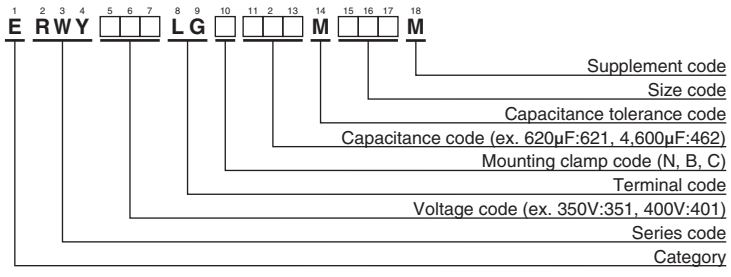

| ϕD | E | K | F | J |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 22.4 | 14.0 |
| **63.5** | 38.1 | 43.5 | 28.0 | 14.0 |
| **76.2** | 44.5 | 50.0 | 31.5 | 14.0 |
| **89** | 50.8 | 56.5 | 31.5 | 16.0 |
| **100** | 56.5 | 63.4 | 41.5 | 18.0 |

<Screw specifications>
to ϕ89 Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm

ϕ100 Cross-recessed head (phillips) screw : M8×1.25×16
Spring washer,Washer
Maximum screw tightening torque :6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

# RWY Series

## ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,300Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 750 | 50×75 | 0.12 | 5.10 | ERWY351LGC751MC75M |
| | 1,100 | 50×96 | 0.12 | 6.90 | ERWY351LGC112MC96M |
| | 1,300 | 50×105 | 0.12 | 7.80 | ERWY351LGC132MCA5M |
| | 1,600 | 50×130 | 0.12 | 9.50 | ERWY351LGC162MCD0M |
| | 1,800 | 63.5×96 | 0.12 | 10.0 | ERWY351LGC182MD96M |
| | 1,900 | 50×145 | 0.12 | 10.7 | ERWY351LGC192MCE5M |
| | 2,400 | 63.5×115 | 0.12 | 12.6 | ERWY351LGC242MDB5M |
| | 2,800 | 63.5×130 | 0.12 | 14.3 | ERWY351LGC282MDD0M |
| | 3,400 | 63.5×155 | 0.12 | 17.1 | ERWY351LGC342MDF5M |
| | 3,500 | 76.2×115 | 0.12 | 16.9 | ERWY351LGC352MEB5M |
| | 3,800 | 63.5×170 | 0.12 | 18.8 | ERWY351LGC382MDH0M |
| | 4,000 | 76.2×130 | 0.12 | 19.0 | ERWY351LGC402MED0M |
| | 5,000 | 76.2×155 | 0.12 | 23.0 | ERWY351LGC502MEF5M |
| | 5,600 | 76.2×170 | 0.12 | 25.3 | ERWY351LGC562MEH0M |
| | 6,900 | 89×155 | 0.12 | 27.2 | ERWY351LGC692MFF5M |
| | 7,700 | 89×170 | 0.12 | 29.6 | ERWY351LGC772MFH0M |
| | 8,400 | 89×190 | 0.12 | 32.9 | ERWY351LGC842MFK0M |
| | 9,500 | 100×190 | 0.12 | 37.3 | ERWY351LGC952MGK0M |
| | 11,000 | 100×220 | 0.12 | 42.9 | ERWY351LGC113MGN0M |
| | 14,000 | 100×270 | 0.12 | 53.1 | ERWY351LGC143MGT0M |
| 400 | 620 | 50×75 | 0.12 | 4.60 | ERWY401LGC621MC75M |
| | 880 | 50×96 | 0.12 | 6.10 | ERWY401LGC881MC96M |
| | 1,000 | 50×105 | 0.12 | 6.80 | ERWY401LGC102MCA5M |
| | 1,400 | 50×130 | 0.12 | 8.90 | ERWY401LGC142MCD0M |
| | 1,500 | 63.5×96 | 0.12 | 9.10 | ERWY401LGC152MD96M |
| | 1,600 | 50×145 | 0.12 | 9.90 | ERWY401LGC162MCE5M |
| | 2,000 | 63.5×115 | 0.12 | 11.5 | ERWY401LGC202MDB5M |
| | 2,300 | 63.5×130 | 0.12 | 13.0 | ERWY401LGC232MDD0M |
| | 2,800 | 63.5×155 | 0.12 | 15.5 | ERWY401LGC282MDF5M |
| | 2,900 | 76.2×115 | 0.12 | 15.4 | ERWY401LGC292MEB5M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,300Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 3,200 | 63.5×170 | 0.12 | 17.3 | ERWY401LGC322MDH0M |
| | 3,400 | 76.2×130 | 0.12 | 17.5 | ERWY401LGC342MED0M |
| | 4,200 | 76.2×155 | 0.12 | 21.1 | ERWY401LGC422MEF5M |
| | 4,600 | 76.2×170 | 0.12 | 23.0 | ERWY401LGC462MEH0M |
| | 5,700 | 89×155 | 0.12 | 24.7 | ERWY401LGC572MFF5M |
| | 6,400 | 89×170 | 0.12 | 27.0 | ERWY401LGC642MFH0M |
| | 7,000 | 89×190 | 0.12 | 30.0 | ERWY401LGC702MFK0M |
| | 7,900 | 100×190 | 0.12 | 34.0 | ERWY401LGC792MGK0M |
| | 9,400 | 100×220 | 0.12 | 39.6 | ERWY401LGC942MGN0M |
| | 12,000 | 100×270 | 0.12 | 49.2 | ERWY401LGC123MGT0M |
| 450 | 500 | 50×75 | 0.12 | 4.00 | ERWY451LGC501MC75M |
| | 710 | 50×96 | 0.12 | 5.20 | ERWY451LGC711MC96M |
| | 840 | 50×105 | 0.12 | 5.90 | ERWY451LGC841MCA5M |
| | 1,100 | 50×130 | 0.12 | 7.50 | ERWY451LGC112MCD0M |
| | 1,200 | 63.5×96 | 0.12 | 7.80 | ERWY451LGC122MD96M |
| | 1,300 | 50×145 | 0.12 | 8.40 | ERWY451LGC132MCE5M |
| | 1,600 | 63.5×115 | 0.12 | 9.80 | ERWY451LGC162MDB5M |
| | 1,800 | 63.5×130 | 0.12 | 10.9 | ERWY451LGC182MDD0M |
| | 2,300 | 63.5×155 | 0.12 | 13.3 | ERWY451LGC232MDF5M |
| | 2,300 | 76.2×115 | 0.12 | 13.0 | ERWY451LGC232MEB5M |
| | 2,500 | 63.5×170 | 0.12 | 14.5 | ERWY451LGC252MDH0M |
| | 2,700 | 76.2×130 | 0.12 | 14.8 | ERWY451LGC272MED0M |
| | 3,300 | 76.2×155 | 0.12 | 17.7 | ERWY451LGC332MEF5M |
| | 3,700 | 76.2×170 | 0.12 | 19.5 | ERWY451LGC372MEH0M |
| | 4,600 | 89×155 | 0.12 | 22.2 | ERWY451LGC462MFF5M |
| | 5,100 | 89×170 | 0.12 | 24.1 | ERWY451LGC512MFH0M |
| | 5,700 | 89×190 | 0.12 | 27.1 | ERWY451LGC572MFK0M |
| | 6,400 | 100×190 | 0.12 | 30.6 | ERWY451LGC642MGK0M |
| | 7,600 | 100×220 | 0.12 | 35.6 | ERWY451LGC762MGN0M |
| | 9,500 | 100×270 | 0.12 | 43.7 | ERWY451LGC952MGT0M |

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 120 | 300 | 1k | 3k |
|---|---|---|---|---|
| Coefficient | 0.83 | 1.00 | 1.25 | 1.33 |

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for RWY series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWL Series

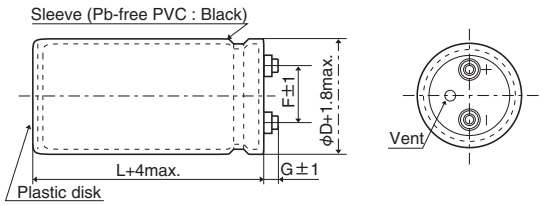
- ●High ripple capability
- ●For train systems and high power consuming inverter circuits
- ●Endurance with ripple current : 20,000 hours at 85℃
- ●**RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +85℃ |
| **Rated Voltage Range** | 350 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.25 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 20,000 hours at 85℃.<br>Capacitance change: ≦±30% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦300% of the initial specified value<br>Leakage current: ≦The initial specified value |

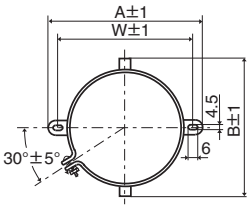
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



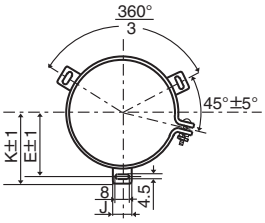

ϕ63.5 : G=6
ϕ76.2 & ϕ89 : G=5

●Mounting Clamp Code : B




| ϕD | A | B | W | F |
|---|---|---|---|---|
| **63.5** | 90.0 | 76.0 | 80.0 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 31.5 |

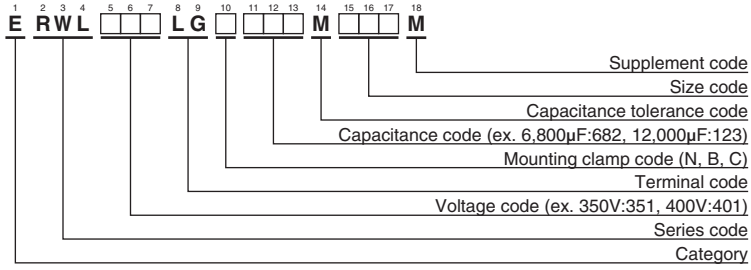
●Mounting Clamp Code : C




| ϕD | E | K | F | J |
|---|---|---|---|---|
| **63.5** | 38.1 | 43.5 | 28.0 | 14.0 |
| **76.2** | 44.5 | 50.0 | 31.5 | 14.0 |
| **89** | 50.8 | 56.5 | 31.5 | 16.0 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## RWL Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 3,300 | 63.5× 115 | 0.25 | 11.1 | ERWL351LGC332MDB5M |
| | 3,900 | 63.5× 130 | 0.25 | 12.8 | ERWL351LGC392MDD0M |
| | 4,700 | 63.5× 155 | 0.25 | 15.2 | ERWL351LGC472MDF5M |
| | 4,700 | 76.2× 115 | 0.25 | 14.7 | ERWL351LGC472MEB5M |
| | 5,600 | 63.5× 170 | 0.25 | 17.3 | ERWL351LGC562MDH0M |
| | 5,600 | 76.2× 130 | 0.25 | 16.9 | ERWL351LGC562MED0M |
| | 6,800 | 63.5× 190 | 0.25 | 20.0 | ERWL351LGC682MDK0M |
| | 6,800 | 76.2× 155 | 0.25 | 20.2 | ERWL351LGC682MEF5M |
| | 8,200 | 76.2× 170 | 0.25 | 23.1 | ERWL351LGC822MEH0M |
| | 10,000 | 89× 155 | 0.25 | 26.6 | ERWL351LGC103MFF5M |
| | 12,000 | 89× 190 | 0.25 | 32.0 | ERWL351LGC123MFK0M |
| 400 | 2,700 | 63.5× 115 | 0.25 | 10.1 | ERWL401LGC272MDB5M |
| | 3,300 | 63.5× 130 | 0.25 | 11.7 | ERWL401LGC332MDD0M |
| | 3,900 | 63.5× 155 | 0.25 | 13.8 | ERWL401LGC392MDF5M |
| | 3,900 | 76.2× 115 | 0.25 | 14.7 | ERWL401LGC392MEB5M |
| | 4,700 | 63.5× 170 | 0.25 | 15.8 | ERWL401LGC472MDH0M |
| | 4,700 | 76.2× 130 | 0.25 | 15.5 | ERWL401LGC472MED0M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 5,600 | 63.5× 190 | 0.25 | 18.2 | ERWL401LGC562MDK0M |
| | 5,600 | 76.2× 155 | 0.25 | 18.3 | ERWL401LGC562MEF5M |
| | 6,800 | 76.2× 170 | 0.25 | 21.0 | ERWL401LGC682MEH0M |
| | 8,200 | 89× 155 | 0.25 | 24.1 | ERWL401LGC822MFF5M |
| | 10,000 | 89× 190 | 0.25 | 29.1 | ERWL401LGC103MFK0M |
| 450 | 2,200 | 63.5× 115 | 0.25 | 9.10 | ERWL451LGC222MDB5M |
| | 2,700 | 63.5× 130 | 0.25 | 10.6 | ERWL451LGC272MDD0M |
| | 2,700 | 76.2× 115 | 0.25 | 11.2 | ERWL451LGC272MEB5M |
| | 3,300 | 63.5× 155 | 0.25 | 12.7 | ERWL451LGC332MDF5M |
| | 3,300 | 76.2× 130 | 0.25 | 13.0 | ERWL451LGC332MED0M |
| | 3,900 | 63.5× 170 | 0.25 | 14.4 | ERWL451LGC392MDH0M |
| | 4,700 | 76.2× 155 | 0.25 | 16.7 | ERWL451LGC472MEF5M |
| | 5,600 | 76.2× 190 | 0.25 | 20.1 | ERWL451LGC562MEK0M |
| | 5,600 | 89× 155 | 0.25 | 19.9 | ERWL451LGC562MFF5M |
| | 6,800 | 89× 170 | 0.25 | 23.0 | ERWL451LGC682MFH0M |
| | 8,200 | 89× 190 | 0.25 | 26.4 | ERWL451LGC822MFK0M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 3k |
|---|---|---|---|---|---|
| Coefficient | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 |

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for RWL series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## FTP Series

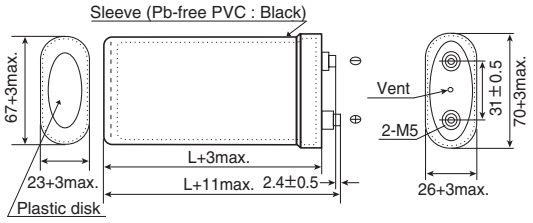
- Ideal for inverter smoothing capacitors such as Electric Vehicles, Hybrid Cars, etc.
- Endurance with ripple current : 5,000 hours at 85℃
- Rated voltage range : 63 to 450Vdc
- Lower profile offers drastic space saving compared with conventional cylindrical type
- Superior heat radiation realizes higher ripple current
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +85℃ (63～100Vdc), −25 to +85℃ (350～450Vdc) |
| **Rated Voltage Range** | 63 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.25 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change 63 to 100Vdc : C(-40℃)/C(+20℃)≧0.6<br>350 to 450Vdc : C(-25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

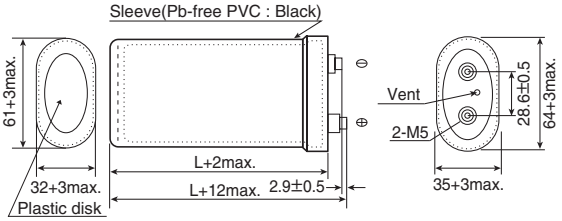
## ◆DIMENSIONS (Screw-Mount) [mm]

- Terminal Code : LG
- Size Code : L




* Polyolefin is available upon request.

- Size Code : R




<Screw specifications>
Plus hexagon-headed screw: M5×0.8
Maximum screw tightening torque: 3.23Nm

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | F | T | P | | | | L | G | N | | | | M | | | | M |

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 270μF:271, 10,000μF:103)
- Mounting clamp code
- Terminal code
- Voltage code (ex. 63V:630, 100V:101, 450V:451)
- Series code
- Category

Please refer to "Product code guide (screw-mount terminal type)"

## ◆SIZE CODE

| Code | Case size H×W×L (mm) |
|---|---|
| L50 | 26×70×50 |
| L75 | 26×70×75 |
| L95 | 26×70×95 |
| R50 | 35×64×50 |
| R75 | 35×64×75 |
| R95 | 35×64×95 |

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

## FTP Series

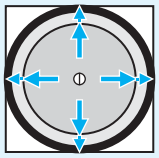
### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size H×W×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,10kHz) | Part No. |
|---|---|---|---|---|---|
| 63 | 6,000 | 26×70×50 | 0.25 | 14.0 | EFTP630LGN602ML50M |
| | 12,000 | 26×70×75 | 0.25 | 19.0 | EFTP630LGN123ML75M |
| | 17,000 | 26×70×95 | 0.25 | 22.0 | EFTP630LGN173ML95M |
| | 7,400 | 35×64×50 | 0.25 | 16.1 | EFTP630LGN742MR50M |
| | 15,000 | 35×64×75 | 0.25 | 21.7 | EFTP630LGN153MR75M |
| | 21,000 | 35×64×95 | 0.25 | 25.3 | EFTP630LGN213MR95M |
| 80 | 4,300 | 26×70×50 | 0.25 | 14.0 | EFTP800LGN432ML50M |
| | 8,600 | 26×70×75 | 0.25 | 19.0 | EFTP800LGN862ML75M |
| | 12,000 | 26×70×95 | 0.25 | 22.0 | EFTP800LGN123ML95M |
| | 5,300 | 35×64×50 | 0.25 | 16.1 | EFTP800LGN532MR50M |
| | 10,000 | 35×64×75 | 0.25 | 21.7 | EFTP800LGN103MR75M |
| | 15,000 | 35×64×95 | 0.25 | 25.3 | EFTP800LGN153MR95M |
| 100 | 2,900 | 26×70×50 | 0.25 | 14.0 | EFTP101LGN292ML50M |
| | 5,700 | 26×70×75 | 0.25 | 19.0 | EFTP101LGN572ML75M |
| | 8,100 | 26×70×95 | 0.25 | 22.0 | EFTP101LGN812ML95M |
| | 3,600 | 35×64×50 | 0.25 | 16.1 | EFTP101LGN362MR50M |
| | 7,100 | 35×64×75 | 0.25 | 21.7 | EFTP101LGN712MR75M |
| | 10,000 | 35×64×95 | 0.25 | 25.3 | EFTP101LGN103MR95M |

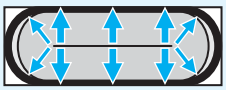
| WV (Vdc) | Cap (μF) | Case size H×W×L(mm) | tanδ | Rated ripple current (Arms/ 85℃,10kHz) | Part No. |
|---|---|---|---|---|---|
| 350 | 400 | 26×70×50 | 0.25 | 10.6 | EFTP351LGN401ML50M |
| | 800 | 26×70×75 | 0.25 | 15.7 | EFTP351LGN801ML75M |
| | 1,100 | 26×70×95 | 0.25 | 18.7 | EFTP351LGN112ML95M |
| | 490 | 35×64×50 | 0.25 | 11.9 | EFTP351LGN491MR50M |
| | 970 | 35×64×75 | 0.25 | 17.6 | EFTP351LGN971MR75M |
| | 1,400 | 35×64×95 | 0.25 | 21.0 | EFTP351LGN142MR95M |
| 400 | 330 | 26×70×50 | 0.25 | 10.6 | EFTP401LGN331ML50M |
| | 660 | 26×70×75 | 0.25 | 15.7 | EFTP401LGN661ML75M |
| | 930 | 26×70×95 | 0.25 | 18.7 | EFTP401LGN931ML95M |
| | 400 | 35×64×50 | 0.25 | 11.9 | EFTP401LGN401MR50M |
| | 800 | 35×64×75 | 0.25 | 17.6 | EFTP401LGN801MR75M |
| | 1,100 | 35×64×95 | 0.25 | 21.0 | EFTP401LGN112MR95M |
| 450 | 270 | 26×70×50 | 0.25 | 10.1 | EFTP451LGN271ML50M |
| | 540 | 26×70×75 | 0.25 | 15.0 | EFTP451LGN541ML75M |
| | 760 | 26×70×95 | 0.25 | 18.0 | EFTP451LGN761ML95M |
| | 330 | 35×64×50 | 0.25 | 11.4 | EFTP451LGN331MR50M |
| | 660 | 35×64×75 | 0.25 | 16.7 | EFTP451LGN661MR75M |
| | 930 | 35×64×95 | 0.25 | 20.1 | EFTP451LGN931MR95M |

### ◆Improvement of space factor and heat radiation

Dead spaces are found in the conventional cylindrial shape. But lower profile offers reduced dead space, and makes the equipment smaller in size. Moreover, the internal element of the lower profile capacitor is in greater contact with the can. This greatly improves the heat dissipation compared with the cylindrical shape.



Cylindrical shape



FTP series

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

## LXA Series

- ●Rated voltage range up to 525Vdc
- ●Endurance with ripple current : 5,000 hours at 105℃ (2,000 hours for 500Vdc & 525Vdc)
- ●High reliability products
- ●**RoHS Compliant**

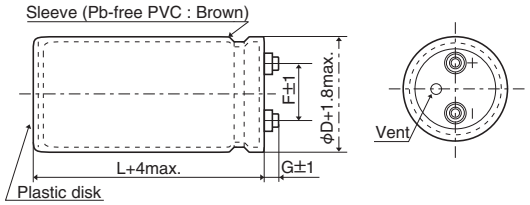
LXA
Long life
KMH

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −40 to +105℃ (10 to 100Vdc) −25 to +105℃ (160 to 525Vdc) |
| **Rated Voltage Range** | 10 to 525Vdc |
| **Capacitance Tolerance** | −10 to +50% (T) (10 to 250Vdc) ±20% (M) (350 to 525Vdc) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | See STANDARD RATINGS (10 to 250Vdc) 0.20max (350 to 525Vdc) (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(-40℃)/C(+20℃)≧0.6(10 to 100Vdc) C(-25℃)/C(+20℃)≧0.7(160 to 250Vdc)<br>C(-25℃)/C(+20℃)≧0.65(350 to 525Vdc) (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours (2,000 hours for 500 & 525Vdc products) at 105℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Rated voltage: 10 to 250Vdc / 350 to 525Vdc<br>Capacitance change: ≦±15% of the initial value / ≦±20% of the initial value<br>D.F. (tanδ): ≦150% of the initial specified value / ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value / ≦The initial specified value |

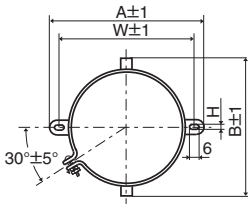
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



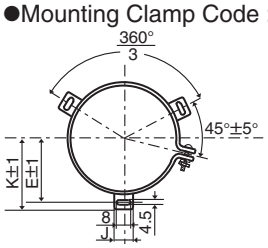

| ϕD | G | |
|---|---|---|
| | 10 to 250Vdc | 350 to 525Vdc |
| ~ϕ63.5 | 6 | 6 |
| ϕ76.2 | 5 | 6 |
| ϕ89 | 5 | 4 |

●Mounting Clamp Code : B




| ϕD | A | B | W | H | F |
|---|---|---|---|---|---|
| 35 | 58 | 44 | 48 | 3.5 | 12.7 |
| 50 | 78 | 64 | 68 | 4.5 | 22.4 |
| 63.5 | 90 | 76 | 80 | 4.5 | 28.0 |
| 76.2 | 104.5 | 90 | 93.5 | 4.5 | 31.5 |

●Mounting Clamp Code : C




| ϕD | E | K | J | F |
|---|---|---|---|---|
| 50 | 32.5 | 37.0 | 14.0 | 22.4 |
| 63.5 | 38.1 | 43.5 | 14.0 | 28.0 |
| 76.2 | 44.5 | 50.0 | 14.0 | 31.5 |
| 89 | 50.8 | 56.5 | 16.0 | 31.5 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | L | X | A | | | | L | G | | | | | | | | | M |

- Supplement code
- Size code
- Capacitance tolerance code (ex. M, T)
- Capacitance code (ex. 390μF:391, 3,300μF:332)
- Mounting clamp code (N, B, C)
- Terminal code
- Voltage code (ex. 10V:100, 100V:101, 525V:5C1)
- Series code
- Category

Please refer to "Product code guide (screw-mount terminal type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

## LXA Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 10 | 27,000 | 35×80 | 0.45 | 4.30 | ELXA100LGB273TA80M |
| | 33,000 | 35×80 | 0.45 | 4.70 | ELXA100LGB333TA80M |
| | 39,000 | 35×80 | 0.45 | 5.30 | ELXA100LGB393TA80M |
| | 47,000 | 35×100 | 0.45 | 6.10 | ELXA100LGB473TAA0M |
| | 56,000 | 35×100 | 0.50 | 6.20 | ELXA100LGB563TAA0M |
| | 68,000 | 35×120 | 0.60 | 6.80 | ELXA100LGB683TAC0M |
| | 82,000 | 50×80 | 0.60 | 7.80 | ELXA100LGC823TC80M |
| | 100,000 | 50×100 | 0.70 | 8.50 | ELXA100LGC104TCA0M |
| | 120,000 | 50×100 | 0.70 | 9.50 | ELXA100LGC124TCA0M |
| | 150,000 | 63.5×100 | 0.80 | 11.0 | ELXA100LGC154TDA0M |
| | 180,000 | 63.5×100 | 0.80 | 12.1 | ELXA100LGC184TDA0M |
| | 220,000 | 76.2×100 | 1.00 | 13.2 | ELXA100LGC224TEA0M |
| | 270,000 | 76.2×120 | 1.20 | 14.4 | ELXA100LGC274TEC0M |
| | 330,000 | 76.2×140 | 1.20 | 17.0 | ELXA100LGC334TEE0M |
| | 390,000 | 89×140 | 1.40 | 18.6 | ELXA100LGC394TFE0M |
| 16 | 15,000 | 35×50 | 0.45 | 2.90 | ELXA160LGB153TA50M |
| | 18,000 | 35×80 | 0.45 | 3.50 | ELXA160LGB183TA80M |
| | 22,000 | 35×80 | 0.45 | 3.90 | ELXA160LGB223TA80M |
| | 27,000 | 35×80 | 0.45 | 4.30 | ELXA160LGB273TA80M |
| | 33,000 | 35×100 | 0.50 | 4.80 | ELXA160LGB333TAA0M |
| | 39,000 | 35×100 | 0.50 | 5.30 | ELXA160LGB393TAA0M |
| | 47,000 | 35×120 | 0.50 | 6.20 | ELXA160LGB473TAC0M |
| | 56,000 | 50×80 | 0.60 | 6.30 | ELXA160LGC563TC80M |
| | 68,000 | 50×100 | 0.60 | 7.60 | ELXA160LGC683TCA0M |
| | 82,000 | 50×120 | 0.70 | 8.30 | ELXA160LGC823TCC0M |
| | 100,000 | 50×120 | 0.70 | 9.20 | ELXA160LGC104TCC0M |
| | 120,000 | 63.5×100 | 0.80 | 9.90 | ELXA160LGC124TDA0M |
| | 150,000 | 76.2×100 | 0.80 | 12.3 | ELXA160LGC154TEA0M |
| | 180,000 | 76.2×120 | 0.80 | 14.5 | ELXA160LGC184TEC0M |
| | 220,000 | 76.2×140 | 1.00 | 15.2 | ELXA160LGC224TEE0M |
| | 270,000 | 89×140 | 1.20 | 16.8 | ELXA160LGC274TFE0M |
| 25 | 12,000 | 35×80 | 0.35 | 3.30 | ELXA250LGB123TA80M |
| | 15,000 | 35×80 | 0.35 | 3.70 | ELXA250LGB153TA80M |
| | 18,000 | 35×80 | 0.35 | 4.00 | ELXA250LGB183TA80M |
| | 22,000 | 35×80 | 0.35 | 4.50 | ELXA250LGB223TA80M |
| | 27,000 | 35×100 | 0.40 | 5.00 | ELXA250LGB273TAA0M |
| | 33,000 | 35×120 | 0.40 | 5.90 | ELXA250LGB333TAC0M |
| | 39,000 | 50×80 | 0.40 | 6.50 | ELXA250LGC393TC80M |
| | 47,000 | 50×100 | 0.40 | 7.90 | ELXA250LGC473TCA0M |
| | 56,000 | 50×120 | 0.40 | 8.80 | ELXA250LGC563TCC0M |
| | 68,000 | 50×120 | 0.50 | 9.10 | ELXA250LGC683TCC0M |
| | 82,000 | 63.5×100 | 0.50 | 10.6 | ELXA250LGC823TDA0M |
| | 100,000 | 63.5×120 | 0.60 | 11.4 | ELXA250LGC104TDC0M |
| | 120,000 | 76.2×100 | 0.60 | 12.8 | ELXA250LGC124TEA0M |
| | 150,000 | 76.2×120 | 0.75 | 13.7 | ELXA250LGC154TEC0M |
| | 180,000 | 76.2×140 | 0.75 | 16.1 | ELXA250LGC184TEE0M |
| | 220,000 | 89×140 | 1.00 | 16.6 | ELXA250LGC224TFE0M |
| 35 | 8,200 | 35×80 | 0.30 | 3.00 | ELXA350LGB822TA80M |
| | 10,000 | 35×80 | 0.30 | 3.30 | ELXA350LGB103TA80M |
| | 12,000 | 35×80 | 0.30 | 3.60 | ELXA350LGB123TA80M |
| | 15,000 | 35×80 | 0.30 | 4.10 | ELXA350LGB153TA80M |
| | 18,000 | 35×100 | 0.30 | 4.80 | ELXA350LGB183TAA0M |
| | 22,000 | 35×120 | 0.35 | 5.20 | ELXA350LGB223TAC0M |
| | 27,000 | 50×80 | 0.40 | 5.90 | ELXA350LGC273TC80M |
| | 33,000 | 50×100 | 0.40 | 6.60 | ELXA350LGC333TCA0M |
| | 39,000 | 50×120 | 0.40 | 7.80 | ELXA350LGC393TCC0M |
| | 47,000 | 50×120 | 0.45 | 8.00 | ELXA350LGC473TCC0M |
| | 56,000 | 63.5×100 | 0.45 | 9.20 | ELXA350LGC563TDA0M |
| | 68,000 | 63.5×120 | 0.45 | 11.0 | ELXA350LGC683TDC0M |
| | 82,000 | 76.2×120 | 0.50 | 12.7 | ELXA350LGC823TEC0M |
| | 100,000 | 76.2×140 | 0.60 | 13.5 | ELXA350LGC104TEE0M |
| | 120,000 | 89×140 | 0.60 | 16.1 | ELXA350LGC124TFE0M |
| 50 | 3,900 | 35×50 | 0.20 | 2.00 | ELXA500LGB392TA50M |
| | 4,700 | 35×50 | 0.25 | 2.20 | ELXA500LGB472TA50M |
| | 5,600 | 35×80 | 0.25 | 2.80 | ELXA500LGB562TA80M |
| | 6,800 | 35×80 | 0.25 | 3.00 | ELXA500LGB682TA80M |
| | 8,200 | 35×80 | 0.25 | 3.30 | ELXA500LGB822TA80M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 50 | 10,000 | 35×80 | 0.25 | 3.70 | ELXA500LGB103TA80M |
| | 12,000 | 35×100 | 0.25 | 4.40 | ELXA500LGB123TAA0M |
| | 15,000 | 35×120 | 0.30 | 4.70 | ELXA500LGB153TAC0M |
| | 18,000 | 50×80 | 0.35 | 4.80 | ELXA500LGC183TC80M |
| | 22,000 | 50×100 | 0.35 | 5.90 | ELXA500LGC223TCA0M |
| | 27,000 | 50×120 | 0.35 | 7.00 | ELXA500LGC273TCC0M |
| | 33,000 | 63.5×100 | 0.40 | 7.60 | ELXA500LGC333TDA0M |
| | 39,000 | 63.5×120 | 0.40 | 8.90 | ELXA500LGC393TDC0M |
| | 47,000 | 63.5×120 | 0.40 | 9.80 | ELXA500LGC473TDC0M |
| | 56,000 | 76.2×120 | 0.40 | 11.9 | ELXA500LGC563TEC0M |
| | 68,000 | 76.2×140 | 0.45 | 13.1 | ELXA500LGC683TEE0M |
| | 82,000 | 89×140 | 0.50 | 14.8 | ELXA500LGC823TFE0M |
| 63 | 2,700 | 35×50 | 0.15 | 1.90 | ELXA630LGB272TA50M |
| | 3,300 | 35×50 | 0.15 | 2.10 | ELXA630LGB332TA50M |
| | 3,900 | 35×80 | 0.20 | 2.70 | ELXA630LGB392TA80M |
| | 4,700 | 35×80 | 0.20 | 2.90 | ELXA630LGB472TA80M |
| | 5,600 | 35×80 | 0.20 | 3.20 | ELXA630LGB562TA80M |
| | 6,800 | 35×80 | 0.20 | 3.50 | ELXA630LGB682TA80M |
| | 8,200 | 35×100 | 0.20 | 4.20 | ELXA630LGB822TAA0M |
| | 10,000 | 35×120 | 0.25 | 4.30 | ELXA630LGB103TAC0M |
| | 12,000 | 50×80 | 0.25 | 4.80 | ELXA630LGC123TC80M |
| | 15,000 | 50×100 | 0.25 | 5.90 | ELXA630LGC153TCA0M |
| | 18,000 | 50×120 | 0.25 | 6.30 | ELXA630LGC183TCC0M |
| | 22,000 | 50×120 | 0.30 | 6.70 | ELXA630LGC223TCC0M |
| | 27,000 | 63.5×120 | 0.30 | 8.80 | ELXA630LGC273TDC0M |
| | 33,000 | 76.2×100 | 0.30 | 10.0 | ELXA630LGC333TEA0M |
| | 39,000 | 76.2×120 | 0.35 | 10.7 | ELXA630LGC393TEC0M |
| | 47,000 | 76.2×140 | 0.35 | 12.5 | ELXA630LGC473TEE0M |
| | 56,000 | 89×140 | 0.40 | 13.8 | ELXA630LGC563TFE0M |
| 80 | 2,200 | 35×50 | 0.15 | 1.90 | ELXA800LGB222TA50M |
| | 2,700 | 35×80 | 0.15 | 2.20 | ELXA800LGB272TA80M |
| | 3,300 | 35×80 | 0.15 | 2.50 | ELXA800LGB332TA80M |
| | 3,900 | 35×80 | 0.15 | 2.90 | ELXA800LGB392TA80M |
| | 4,700 | 35×100 | 0.15 | 3.10 | ELXA800LGB472TAA0M |
| | 5,600 | 35×100 | 0.15 | 3.50 | ELXA800LGB562TAA0M |
| | 6,800 | 35×120 | 0.20 | 4.10 | ELXA800LGB682TAC0M |
| | 8,200 | 50×80 | 0.20 | 4.80 | ELXA800LGC822TC80M |
| | 10,000 | 50×100 | 0.20 | 5.60 | ELXA800LGC103TCA0M |
| | 12,000 | 50×100 | 0.20 | 6.10 | ELXA800LGC123TCA0M |
| | 15,000 | 50×120 | 0.20 | 7.40 | ELXA800LGC153TCC0M |
| | 18,000 | 63.5×120 | 0.25 | 8.00 | ELXA800LGC183TDC0M |
| | 22,000 | 76.2×100 | 0.25 | 9.10 | ELXA800LGC223TEA0M |
| | 27,000 | 76.2×120 | 0.30 | 9.70 | ELXA800LGC273TEC0M |
| | 33,000 | 76.2×140 | 0.30 | 11.5 | ELXA800LGC333TEE0M |
| | 39,000 | 89×140 | 0.35 | 12.5 | ELXA800LGC393TFE0M |
| 100 | 1,200 | 35×50 | 0.15 | 1.40 | ELXA101LGB122TA50M |
| | 1,500 | 35×80 | 0.15 | 1.60 | ELXA101LGB152TA80M |
| | 1,800 | 35×80 | 0.15 | 1.80 | ELXA101LGB182TA80M |
| | 2,200 | 35×80 | 0.15 | 2.00 | ELXA101LGB222TA80M |
| | 2,700 | 35×80 | 0.15 | 2.40 | ELXA101LGB272TA80M |
| | 3,300 | 35×100 | 0.15 | 2.80 | ELXA101LGB332TAA0M |
| | 3,900 | 35×120 | 0.15 | 3.10 | ELXA101LGB392TAC0M |
| | 4,700 | 50×80 | 0.15 | 3.60 | ELXA101LGC472TC80M |
| | 5,600 | 50×100 | 0.15 | 4.30 | ELXA101LGC562TCA0M |
| | 6,800 | 50×120 | 0.15 | 5.00 | ELXA101LGC682TCC0M |
| | 8,200 | 50×120 | 0.15 | 5.50 | ELXA101LGC822TCC0M |
| | 10,000 | 63.5×100 | 0.15 | 6.40 | ELXA101LGC103TDA0M |
| | 12,000 | 63.5×120 | 0.20 | 6.60 | ELXA101LGC123TDC0M |
| | 15,000 | 76.2×100 | 0.20 | 7.50 | ELXA101LGC153TEA0M |
| | 18,000 | 76.2×120 | 0.25 | 8.00 | ELXA101LGC183TEC0M |
| | 22,000 | 76.2×140 | 0.25 | 9.40 | ELXA101LGC223TEE0M |
| | 27,000 | 89×140 | 0.30 | 10.4 | ELXA101LGC273TFE0M |
| 160 | 680 | 35×50 | 0.15 | 1.10 | ELXA161LGB681TA50M |
| | 820 | 35×80 | 0.15 | 1.20 | ELXA161LGB821TA80M |
| | 1,000 | 35×80 | 0.15 | 1.30 | ELXA161LGB102TA80M |
| | 1,200 | 35×80 | 0.15 | 1.50 | ELXA161LGB122TA80M |
| | 1,500 | 35×80 | 0.15 | 1.70 | ELXA161LGB152TA80M |

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

## LXA Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 160 | 1,800 | 35×100 | 0.15 | 2.00 | ELXA161LGB182TAA0M |
| | 2,200 | 35×120 | 0.15 | 2.30 | ELXA161LGB222TAC0M |
| | 2,700 | 35×120 | 0.15 | 2.70 | ELXA161LGB272TAC0M |
| | 3,300 | 50×100 | 0.15 | 3.30 | ELXA161LGC332TCA0M |
| | 3,900 | 50×120 | 0.15 | 3.80 | ELXA161LGC392TCC0M |
| | 4,700 | 50×120 | 0.15 | 4.20 | ELXA161LGC472TCC0M |
| | 5,600 | 50×120 | 0.15 | 4.70 | ELXA161LGC562TCC0M |
| | 6,800 | 63.5×120 | 0.15 | 5.70 | ELXA161LGC682TDC0M |
| | 8,200 | 76.2×100 | 0.20 | 6.40 | ELXA161LGC822TEA0M |
| | 10,000 | 76.2×120 | 0.20 | 6.60 | ELXA161LGC103TEC0M |
| | 12,000 | 76.2×140 | 0.20 | 7.80 | ELXA161LGC123TEE0M |
| | 15,000 | 89×140 | 0.20 | 9.50 | ELXA161LGC153TFE0M |
| 200 | 470 | 35×50 | 0.15 | 0.90 | ELXA201LGB471TA50M |
| | 560 | 35×80 | 0.15 | 1.00 | ELXA201LGB561TA80M |
| | 680 | 35×80 | 0.15 | 1.10 | ELXA201LGB681TA80M |
| | 820 | 35×80 | 0.15 | 1.30 | ELXA201LGB821TA80M |
| | 1,000 | 35×100 | 0.15 | 1.50 | ELXA201LGB102TAA0M |
| | 1,200 | 35×120 | 0.15 | 1.70 | ELXA201LGB122TAC0M |
| | 1,500 | 35×120 | 0.15 | 1.90 | ELXA201LGB152TAC0M |
| | 1,800 | 50×80 | 0.15 | 2.20 | ELXA201LGC182TC80M |
| | 2,200 | 50×100 | 0.15 | 2.70 | ELXA201LGC222TCA0M |
| | 2,700 | 50×120 | 0.15 | 3.20 | ELXA201LGC272TCC0M |
| | 3,300 | 50×120 | 0.15 | 3.50 | ELXA201LGC332TCC0M |
| | 3,900 | 63.5×100 | 0.15 | 4.00 | ELXA201LGC392TDA0M |
| | 4,700 | 63.5×120 | 0.15 | 4.70 | ELXA201LGC472TDC0M |
| | 5,600 | 76.2×100 | 0.15 | 5.30 | ELXA201LGC562TEA0M |
| | 6,800 | 76.2×120 | 0.15 | 6.30 | ELXA201LGC682TEC0M |
| | 8,200 | 76.2×140 | 0.20 | 6.40 | ELXA201LGC822TEE0M |
| | 10,000 | 89×140 | 0.20 | 7.70 | ELXA201LGC103TFE0M |
| 250 | 330 | 35×50 | 0.15 | 0.70 | ELXA251LGB331TA50M |
| | 390 | 35×80 | 0.15 | 0.80 | ELXA251LGB391TA80M |
| | 470 | 35×80 | 0.15 | 0.90 | ELXA251LGB471TA80M |
| | 560 | 35×80 | 0.15 | 1.00 | ELXA251LGB561TA80M |
| | 680 | 35×100 | 0.15 | 1.20 | ELXA251LGB681TAA0M |
| | 820 | 35×100 | 0.15 | 1.40 | ELXA251LGB821TAA0M |
| | 1,000 | 35×120 | 0.15 | 1.60 | ELXA251LGB102TAC0M |
| | 1,200 | 50×80 | 0.15 | 1.80 | ELXA251LGC122TC80M |
| | 1,500 | 50×100 | 0.15 | 2.20 | ELXA251LGC152TCA0M |
| | 1,800 | 50×120 | 0.15 | 2.60 | ELXA251LGC182TCC0M |
| | 2,200 | 50×120 | 0.15 | 2.80 | ELXA251LGC222TCC0M |
| | 2,700 | 63.5×100 | 0.15 | 3.30 | ELXA251LGC272TDA0M |
| | 3,300 | 63.5×120 | 0.15 | 4.00 | ELXA251LGC332TDC0M |
| | 3,900 | 76.2×100 | 0.15 | 4.40 | ELXA251LGC392TEA0M |
| | 4,700 | 76.2×120 | 0.15 | 5.20 | ELXA251LGC472TEC0M |
| | 5,600 | 76.2×140 | 0.15 | 6.10 | ELXA251LGC562TEE0M |
| | 6,800 | 89×140 | 0.15 | 7.40 | ELXA251LGC682TFE0M |
| 350 | 820 | 50×60 | 0.20 | 3.30 | ELXA351LGC821MC60M |
| | 1,500 | 50×85 | 0.20 | 5.20 | ELXA351LGC152MC85M |
| | 2,200 | 50×105 | 0.20 | 7.00 | ELXA351LGC222MCA5M |
| | 2,700 | 50×125 | 0.20 | 8.40 | ELXA351LGC272MCC5M |
| | 2,700 | 63.5×85 | 0.20 | 8.10 | ELXA351LGC272MD85M |
| | 3,300 | 50×145 | 0.20 | 9.90 | ELXA351LGC332MCE5M |
| | 3,300 | 63.5×105 | 0.20 | 9.80 | ELXA351LGC332MDA5M |
| | 3,900 | 63.5×125 | 0.20 | 11.5 | ELXA351LGC392MDC5M |
| | 3,900 | 76.2×85 | 0.20 | 10.8 | ELXA351LGC392ME85M |
| | 5,600 | 63.5×145 | 0.20 | 14.7 | ELXA351LGC562MDE5M |
| | 6,800 | 76.2×125 | 0.20 | 16.8 | ELXA351LGC682MEC5M |
| | 8,200 | 76.2×145 | 0.20 | 19.6 | ELXA351LGC822MEE5M |
| | 8,200 | 89×125 | 0.20 | 18.9 | ELXA351LGC822MFC5M |
| | 10,000 | 76.2×190 | 0.20 | 23.0 | ELXA351LGC103MEK0M |
| | 10,000 | 89×145 | 0.20 | 22.2 | ELXA351LGC103MFE5M |
| | 15,000 | 89×190 | 0.20 | 30.6 | ELXA351LGC153MFK0M |
| | 22,000 | 89×270 | 0.20 | 43.5 | ELXA351LGC223MFT0M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 680 | 50×60 | 0.20 | 3.00 | ELXA401LGC681MC60M |
| | 1,200 | 50×85 | 0.20 | 4.70 | ELXA401LGC122MC85M |
| | 1,800 | 50×105 | 0.20 | 6.30 | ELXA401LGC182MCA5M |
| | 2,200 | 50×125 | 0.20 | 7.50 | ELXA401LGC222MCC5M |
| | 2,200 | 63.5×85 | 0.20 | 7.30 | ELXA401LGC222MD85M |
| | 2,700 | 50×145 | 0.20 | 8.90 | ELXA401LGC272MCE5M |
| | 2,700 | 63.5×105 | 0.20 | 8.80 | ELXA401LGC272MDA5M |
| | 3,300 | 63.5×125 | 0.20 | 10.5 | ELXA401LGC332MDC5M |
| | 3,300 | 76.2×85 | 0.20 | 9.90 | ELXA401LGC332ME85M |
| | 4,700 | 63.5×145 | 0.20 | 13.4 | ELXA401LGC472MDE5M |
| | 4,700 | 76.2×125 | 0.20 | 13.9 | ELXA401LGC472MEC5M |
| | 6,800 | 76.2×145 | 0.20 | 17.9 | ELXA401LGC682MEE5M |
| | 6,800 | 89×125 | 0.20 | 17.2 | ELXA401LGC682MFC5M |
| | 8,200 | 76.2×190 | 0.20 | 20.8 | ELXA401LGC822MEK0M |
| | 8,200 | 89×145 | 0.20 | 20.1 | ELXA401LGC822MFE5M |
| | 12,000 | 89×190 | 0.20 | 27.4 | ELXA401LGC123MFK0M |
| | 18,000 | 89×270 | 0.20 | 39.4 | ELXA401LGC183MFT0M |
| 450 | 560 | 50×60 | 0.20 | 2.60 | ELXA451LGC561MC60M |
| | 1,000 | 50×85 | 0.20 | 4.00 | ELXA451LGC102MC85M |
| | 1,200 | 50×105 | 0.20 | 4.80 | ELXA451LGC122MCA5M |
| | 1,800 | 50×125 | 0.20 | 6.40 | ELXA451LGC182MCC5M |
| | 1,800 | 63.5×85 | 0.20 | 6.20 | ELXA451LGC182MD85M |
| | 2,200 | 50×145 | 0.20 | 7.60 | ELXA451LGC222MCE5M |
| | 2,200 | 63.5×105 | 0.20 | 7.50 | ELXA451LGC222MDA5M |
| | 2,700 | 63.5×125 | 0.20 | 8.90 | ELXA451LGC272MDC5M |
| | 2,700 | 76.2×85 | 0.20 | 8.40 | ELXA451LGC272ME85M |
| | 3,300 | 63.5×145 | 0.20 | 10.6 | ELXA451LGC332MDE5M |
| | 3,300 | 76.2×105 | 0.20 | 10.2 | ELXA451LGC332MEA5M |
| | 3,900 | 76.2×125 | 0.20 | 11.9 | ELXA451LGC392MEC5M |
| | 4,700 | 76.2×145 | 0.20 | 14.0 | ELXA451LGC472MEE5M |
| | 5,600 | 89×125 | 0.20 | 14.2 | ELXA451LGC562MFC5M |
| | 6,800 | 76.2×190 | 0.20 | 17.3 | ELXA451LGC682MEK0M |
| | 6,800 | 89×145 | 0.20 | 16.7 | ELXA451LGC682MFE5M |
| | 10,000 | 89×190 | 0.20 | 22.8 | ELXA451LGC103MFK0M |
| | 15,000 | 89×270 | 0.20 | 32.8 | ELXA451LGC153MFT0M |
| 500 | 470 | 50×60 | 0.20 | 2.40 | ELXA501LGC471MC60M |
| | 820 | 50×85 | 0.20 | 3.60 | ELXA501LGC821MC85M |
| | 1,000 | 50×105 | 0.20 | 4.40 | ELXA501LGC102MCA5M |
| | 1,200 | 50×125 | 0.20 | 5.20 | ELXA501LGC122MCC5M |
| | 1,200 | 63.5×85 | 0.20 | 5.00 | ELXA501LGC122MD85M |
| | 1,500 | 50×145 | 0.20 | 6.30 | ELXA501LGC152MCE5M |
| | 1,800 | 63.5×105 | 0.20 | 6.80 | ELXA501LGC182MDA5M |
| | 2,700 | 63.5×145 | 0.20 | 9.60 | ELXA501LGC272MDE5M |
| | 2,700 | 76.2×105 | 0.20 | 9.20 | ELXA501LGC272MEA5M |
| | 3,900 | 76.2×145 | 0.20 | 12.7 | ELXA501LGC392MEE5M |
| | 3,900 | 89×125 | 0.20 | 11.9 | ELXA501LGC392MFC5M |
| | 6,800 | 89×190 | 0.20 | 18.8 | ELXA501LGC682MFK0M |
| | 10,000 | 89×270 | 0.20 | 26.8 | ELXA501LGC103MFT0M |
| 525 | 390 | 50×60 | 0.20 | 2.20 | ELXA5C1LGC391MC60M |
| | 680 | 50×85 | 0.20 | 3.30 | ELXA5C1LGC681MC85M |
| | 1,000 | 50×125 | 0.20 | 4.80 | ELXA5C1LGC102MCC5M |
| | 1,500 | 63.5×105 | 0.20 | 6.20 | ELXA5C1LGC152MDA5M |
| | 1,800 | 63.5×125 | 0.20 | 7.30 | ELXA5C1LGC182MDC5M |
| | 2,200 | 63.5×145 | 0.20 | 8.60 | ELXA5C1LGC222MDE5M |
| | 2,200 | 76.2×105 | 0.20 | 8.30 | ELXA5C1LGC222MEA5M |
| | 2,700 | 76.2×125 | 0.20 | 9.90 | ELXA5C1LGC272MEC5M |
| | 3,300 | 76.2×145 | 0.20 | 11.7 | ELXA5C1LGC332MEE5M |
| | 4,700 | 76.2×190 | 0.20 | 14.4 | ELXA5C1LGC472MEK0M |
| | 4,700 | 89×145 | 0.20 | 13.9 | ELXA5C1LGC472MFE5M |
| | 5,600 | 89×190 | 0.20 | 17.1 | ELXA5C1LGC562MFK0M |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

## LXA Series

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multiplirs

| Frequency (Hz) | 50 | 120 | 300 | 1k | 3k | 10k | 50k |
|---|---|---|---|---|---|---|---|
| 10 to 50Vdc | 0.95 | 1.00 | 1.03 | 1.05 | — | 1.09 | 1.12 |
| 63 to 80Vdc | 0.90 | 1.00 | 1.06 | 1.10 | — | 1.18 | 1.22 |
| 100 to 250Vdc | 0.80 | 1.00 | 1.12 | 1.22 | — | 1.30 | 1.33 |
| 350 to 525Vdc | 0.80 | 1.00 | 1.20 | 1.50 | 1.60 | — | — |

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is requested in actual use, the rms ripple current has to be reduced. Also, for the LXA series capacitors (350 to 525Vdc products), using them at operating voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-con.

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminals ,105℃

## LXR Series

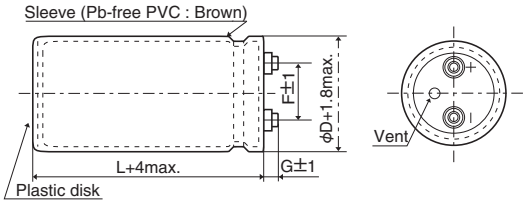
- Higher ripple capability than LXA series
- Endurance with ripple current : 5,000 hours at 105℃
- **RoHS Compliant**

## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +105℃ |
| **Rated Voltage Range** | 350 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.15max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C (−25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

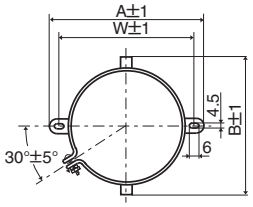
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



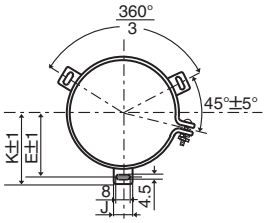

φ63.5 & φ76.2 : G=6
φ89 : G=4
φ100 : G=10

●Mounting Clamp Code : B




| φD | A | B | W | F |
|---|---|---|---|---|
| **63.5** | 90 | 76 | 80 | 28.0 |
| **76.2** | 104.5 | 90 | 93.5 | 31.5 |

●Mounting Clamp Code : C



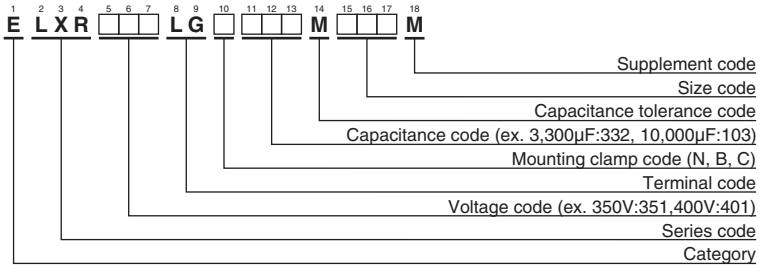

| φD | E | K | F | J |
|---|---|---|---|---|
| **63.5** | 38.1 | 43.5 | 28.0 | 14.0 |
| **76.2** | 44.5 | 50.0 | 31.5 | 14.0 |
| **89** | 50.8 | 56.5 | 31.5 | 16.0 |
| **100** | 56.5 | 63.4 | 41.5 | 18.0 |

<Screw specifications>
to φ89 Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm

φ100 Cross-recessed head (Phillips) screw : M8×1.25×16
Spring washer,Washer
Maximum screw tightening torque :6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

## ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

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CAT. No. E1001M

NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 105℃

## LXR Series

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 3,300 | 63.5×115 | 0.15 | 14.4 | ELXR351LGC332MDB5M |
| | 3,900 | 63.5×130 | 0.15 | 16.6 | ELXR351LGC392MDD0M |
| | 4,700 | 63.5×155 | 0.15 | 19.8 | ELXR351LGC472MDF5M |
| | 4,700 | 76.2×115 | 0.15 | 19.1 | ELXR351LGC472MEB5M |
| | 5,600 | 63.5×170 | 0.15 | 22.5 | ELXR351LGC562MDH0M |
| | 5,600 | 76.2×130 | 0.15 | 21.9 | ELXR351LGC562MED0M |
| | 6,800 | 76.2×155 | 0.15 | 26.2 | ELXR351LGC682MEF5M |
| | 8,200 | 76.2×170 | 0.15 | 30.0 | ELXR351LGC822MEH0M |
| | 8,200 | 89×155 | 0.15 | 29.2 | ELXR351LGC822MFF5M |
| | 10,000 | 89×170 | 0.15 | 33.7 | ELXR351LGC103MFH0M |
| | 12,000 | 100×190 | 0.15 | 37.8 | ELXR351LGC123MGK0M |
| | 15,000 | 100×250 | 0.15 | 47.7 | ELXR351LGC153MGR0M |
| 400 | 2,700 | 63.5×115 | 0.15 | 13.1 | ELXR401LGC272MDB5M |
| | 3,300 | 63.5×130 | 0.15 | 15.2 | ELXR401LGC332MDD0M |
| | 3,900 | 63.5×155 | 0.15 | 17.9 | ELXR401LGC392MDF5M |
| | 3,900 | 76.2×115 | 0.15 | 18.2 | ELXR401LGC392MEB5M |
| | 4,700 | 63.5×170 | 0.15 | 20.5 | ELXR401LGC472MDH0M |
| | 4,700 | 76.2×130 | 0.15 | 20.1 | ELXR401LGC472MED0M |
| | 5,600 | 76.2×155 | 0.15 | 23.8 | ELXR401LGC562MEF5M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Rated ripple current (Arms/ 105℃,120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 6,800 | 76.2×170 | 0.15 | 27.3 | ELXR401LGC682MEH0M |
| | 6,800 | 89×155 | 0.15 | 26.6 | ELXR401LGC682MFF5M |
| | 8,200 | 89×170 | 0.15 | 30.5 | ELXR401LGC822MFH0M |
| | 10,000 | 100×190 | 0.15 | 34.5 | ELXR401LGC103MGK0M |
| | 12,000 | 100×220 | 0.15 | 40.2 | ELXR401LGC123MGN0M |
| 450 | 2,200 | 63.5×115 | 0.15 | 11.8 | ELXR451LGC222MDB5M |
| | 2,700 | 63.5×130 | 0.15 | 13.7 | ELXR451LGC272MDD0M |
| | 2,700 | 76.2×115 | 0.15 | 14.5 | ELXR451LGC272MEB5M |
| | 3,300 | 63.5×155 | 0.15 | 16.5 | ELXR451LGC332MDF5M |
| | 3,300 | 76.2×130 | 0.15 | 16.9 | ELXR451LGC332MED0M |
| | 3,900 | 63.5×170 | 0.15 | 18.7 | ELXR451LGC392MDH0M |
| | 4,700 | 76.2×155 | 0.15 | 21.7 | ELXR451LGC472MEF5M |
| | 5,600 | 76.2×190 | 0.15 | 26.1 | ELXR451LGC562MEK0M |
| | 5,600 | 89×155 | 0.15 | 24.1 | ELXR451LGC562MFF5M |
| | 6,800 | 89×170 | 0.15 | 27.8 | ELXR451LGC682MFH0M |
| | 8,200 | 89×190 | 0.15 | 32.0 | ELXR451LGC822MFK0M |
| | 10,000 | 100×220 | 0.15 | 36.8 | ELXR451LGC103MGN0M |
| | 12,000 | 100×250 | 0.15 | 42.7 | ELXR451LGC123MGR0M |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 120 | 300 | 1k | 3k |
|---|---|---|---|---|
| Coefficient | 1.0 | 1.1 | 1.3 | 1.4 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the LXR series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Screw terminals, 85℃

# RWV Series

- For frequently change of regenerative voltage from AC servo amplifier and inverter control
- Improved the resistance for charge and discharge from same dimension of RWF series
- Endurance with ripple current : 5,000 hours at 85℃
- Rated voltage range : 350 to 450Vdc, Capacitance 820 to 18,000μF
- **RoHS Compliant**

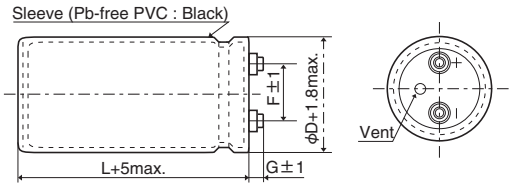
## ◆SPECIFICATIONS

| Items | Characteristics |
|---|---|
| **Category Temperature Range** | −25 to +85℃ |
| **Rated Voltage Range** | 350 to 450Vdc |
| **Capacitance Tolerance** | ±20% (M) (at 20℃, 120Hz) |
| **Leakage Current** | I=0.02CV or 5mA, whichever is smaller.<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes) |
| **Dissipation Factor (tanδ)** | 0.25 max. (at 20℃, 120Hz) |
| **Low Temperature Characteristics** | Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz) |
| **Insulation Resistance** | When measured between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ. |
| **Insulation Withstanding Voltage** | When a voltage of 2,000Vac is applied for 1 minute between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. |
| **Charge and Discharge** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to charge and discharge test with the voltage waveform shown below at room temperature (15 to 35℃).<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value<br>Frequency: 3Hz<br>Number of cycles: 50 million times<br>Voltage waveform: Rated voltage, ≦150V, 1 cycle, 0V |
| **Endurance** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |
| **Shelf Life** | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.<br>Capacitance change: ≦±20% of the initial value<br>D.F. (tanδ): ≦200% of the initial specified value<br>Leakage current: ≦The initial specified value |

*Please consult with us about charge and discharge conditions.

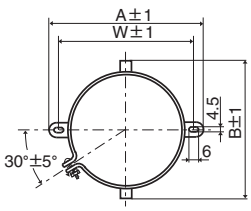
## ◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



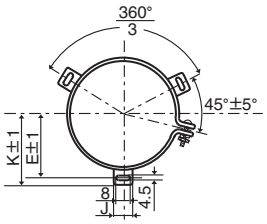

ϕ50 & ϕ63.5 : G=6
ϕ76.2 & ϕ89 : G=5

●Mounting Clamp Code : B




| ϕD | A | B | W | F |
|---|---|---|---|---|
| **50** | 78.0 | 64.0 | 68.0 | 22.4 |
| **63.5** | 90.0 | 76.0 | 80.0 | 28.0 |
| **76.2** | 104.5 | 90.0 | 93.5 | 31.5 |

●Mounting Clamp Code : C




| ϕD | E | K | F | J |
|---|---|---|---|---|
| **50** | 32.5 | 37.0 | 22.4 | 14.0 |
| **63.5** | 38.1 | 43.5 | 28.0 | 14.0 |
| **76.2** | 44.5 | 50.0 | 31.5 | 14.0 |
| **89** | 50.8 | 56.5 | 31.5 | 16.0 |

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

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CAT. No. E1001M

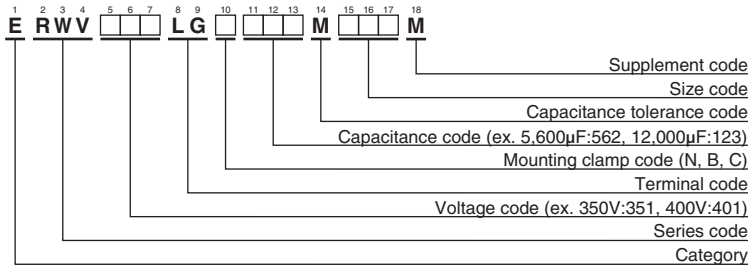
NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Screw terminals, 85℃

## RWV Series

### ◆PART NUMBERING SYSTEM




Please refer to "Product code guide (screw-mount terminal type)"

### ◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/ 85℃,120Hz) | Max. charge current and Max.discharge current (Arms/ 3Hz) | Part No. |
|---|---|---|---|---|---|
| 350 | 1,200 | 50×60 | 4.70 | 1.56 | ERWV351LGC122MC60M |
| | 1,500 | 50×70 | 5.50 | 1.83 | ERWV351LGC152MC70M |
| | 1,800 | 50×80 | 6.40 | 2.13 | ERWV351LGC182MC80M |
| | 2,200 | 50×96 | 7.60 | 2.53 | ERWV351LGC222MC96M |
| | 2,700 | 50×105 | 8.80 | 2.94 | ERWV351LGC272MCA5M |
| | 2,700 | 50×115 | 9.20 | 3.06 | ERWV351LGC272MCB5M |
| | 3,300 | 50×130 | 10.8 | 3.58 | ERWV351LGC332MCD0M |
| | 4,700 | 63.5×115 | 13.2 | 4.61 | ERWV351LGC472MDB5M |
| | 5,600 | 63.5×130 | 15.2 | 5.30 | ERWV351LGC562MDD0M |
| | 5,600 | 76.2×105 | 15.2 | 5.36 | ERWV351LGC562MEA5M |
| | 6,800 | 63.5×155 | 18.1 | 6.32 | ERWV351LGC682MDF5M |
| | 8,200 | 63.5×170 | 20.7 | 7.25 | ERWV351LGC822MDH0M |
| | 8,200 | 76.2×130 | 20.2 | 6.57 | ERWV351LGC822MED0M |
| | 10,000 | 76.2×155 | 24.2 | 8.47 | ERWV351LGC103MEF5M |
| | 10,000 | 89×115 | 23.1 | 8.10 | ERWV351LGC103MFB5M |
| | 12,000 | 76.2×170 | 27.6 | 9.66 | ERWV351LGC123MEH0M |
| | 12,000 | 89×130 | 26.6 | 9.33 | ERWV351LGC123MFD0M |
| | 15,000 | 89×155 | 32.1 | 11.2 | ERWV351LGC153MFF5M |
| | 15,000 | 89×170 | 33.5 | 11.7 | ERWV351LGC153MFH0M |
| | 18,000 | 89×190 | 38.5 | 13.5 | ERWV351LGC183MFK0M |
| 375 | 1,000 | 50×60 | 4.30 | 1.42 | ERWV3H1LGC102MC60M |
| | 1,200 | 50×70 | 4.90 | 1.64 | ERWV3H1LGC122MC70M |
| | 1,500 | 50×80 | 5.80 | 1.94 | ERWV3H1LGC152MC80M |
| | 2,200 | 50×96 | 7.60 | 2.54 | ERWV3H1LGC222MC96M |
| | 2,200 | 50×105 | 8.00 | 2.65 | ERWV3H1LGC222MCA5M |
| | 2,700 | 50×115 | 9.20 | 3.06 | ERWV3H1LGC272MCB5M |
| | 3,300 | 50×130 | 10.8 | 3.58 | ERWV3H1LGC332MCD0M |
| | 4,700 | 63.5×115 | 13.2 | 4.61 | ERWV3H1LGC472MDB5M |
| | 5,600 | 63.5×130 | 15.2 | 5.30 | ERWV3H1LGC562MDD0M |
| | 5,600 | 76.2×105 | 15.2 | 5.36 | ERWV3H1LGC562MEA5M |
| | 6,800 | 63.5×155 | 18.1 | 6.32 | ERWV3H1LGC682MDF5M |
| | 6,800 | 63.5×170 | 18.9 | 6.60 | ERWV3H1LGC682MDH0M |
| | 8,200 | 76.2×130 | 20.2 | 7.09 | ERWV3H1LGC822MED0M |
| | 8,200 | 89×115 | 20.9 | 7.35 | ERWV3H1LGC822MFB5M |
| | 10,000 | 76.2×155 | 24.2 | 8.48 | ERWV3H1LGC103MEF5M |
| | 10,000 | 76.2×170 | 25.2 | 8.85 | ERWV3H1LGC103MEH0M |
| | 10,000 | 89×130 | 24.3 | 8.54 | ERWV3H1LGC103MFD0M |
| | 12,000 | 89×155 | 28.7 | 10.0 | ERWV3H1LGC123MFF5M |
| | 15,000 | 89×170 | 33.5 | 11.7 | ERWV3H1LGC153MFH0M |
| | 15,000 | 89×190 | 35.2 | 12.3 | ERWV3H1LGC153MFK0M |
| 400 | 1,000 | 50×60 | 4.30 | 1.42 | ERWV401LGC102MC60M |
| | 1,200 | 50×70 | 4.90 | 1.64 | ERWV401LGC122MC70M |
| | 1,500 | 50×80 | 5.80 | 1.95 | ERWV401LGC152MC80M |
| | 1,800 | 50×96 | 6.90 | 2.29 | ERWV401LGC182MC96M |
| | 2,200 | 50×105 | 8.00 | 2.65 | ERWV401LGC222MCA5M |
| | 2,200 | 50×115 | 8.30 | 2.77 | ERWV401LGC222MCB5M |
| | 2,700 | 50×130 | 9.80 | 3.23 | ERWV401LGC272MCD0M |
| | 3,900 | 63.5×115 | 12.0 | 4.21 | ERWV401LGC392MDB5M |
| | 4,700 | 63.5×130 | 13.9 | 4.86 | ERWV401LGC472MDD0M |
| | 5,600 | 63.5×155 | 16.4 | 5.75 | ERWV401LGC562MDF5M |

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | Rated ripple current (Arms/ 85℃,120Hz) | Max. charge current and Max.discharge current (Arms/ 3Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 5,600 | 63.5×170 | 17.1 | 5.99 | ERWV401LGC562MDH0M |
| | 5,600 | 76.2×105 | 15.2 | 5.35 | ERWV401LGC562MEA5M |
| | 6,800 | 76.2×130 | 18.4 | 6.47 | ERWV401LGC682MED0M |
| | 8,200 | 76.2×155 | 21.9 | 7.68 | ERWV401LGC822MEF5M |
| | 8,200 | 76.2×170 | 22.8 | 8.02 | ERWV401LGC822MEH0M |
| | 8,200 | 89×115 | 20.9 | 7.35 | ERWV401LGC822MFB5M |
| | 10,000 | 89×130 | 24.3 | 8.26 | ERWV401LGC103MFD0M |
| | 12,000 | 89×155 | 28.7 | 10.0 | ERWV401LGC123MFF5M |
| | 12,000 | 89×170 | 29.9 | 10.5 | ERWV401LGC123MFH0M |
| | 15,000 | 89×190 | 35.2 | 12.3 | ERWV401LGC153MFK0M |
| 420 | 820 | 50×60 | 3.80 | 1.29 | ERWV421LGC821MC60M |
| | 1,000 | 50×70 | 4.40 | 1.50 | ERWV421LGC102MC70M |
| | 1,200 | 50×80 | 5.20 | 1.75 | ERWV421LGC122MC80M |
| | 1,800 | 50×96 | 6.80 | 2.30 | ERWV421LGC182MC96M |
| | 1,800 | 50×105 | 7.10 | 2.40 | ERWV421LGC182MCA5M |
| | 2,200 | 50×115 | 8.20 | 2.77 | ERWV421LGC222MCB5M |
| | 2,700 | 50×130 | 9.60 | 3.25 | ERWV421LGC272MCD0M |
| | 3,300 | 63.5×115 | 11.0 | 3.87 | ERWV421LGC332MDB5M |
| | 3,900 | 63.5×130 | 12.7 | 4.44 | ERWV421LGC392MDD0M |
| | 4,700 | 63.5×155 | 15.0 | 5.28 | ERWV421LGC472MDF5M |
| | 4,700 | 76.2×105 | 13.9 | 4.92 | ERWV421LGC472MEA5M |
| | 5,600 | 63.5×170 | 17.1 | 6.02 | ERWV421LGC562MDH0M |
| | 5,600 | 76.2×130 | 16.6 | 5.90 | ERWV421LGC562MED0M |
| | 6,800 | 76.2×155 | 19.8 | 7.02 | ERWV421LGC682MEF5M |
| | 6,800 | 89×115 | 19.0 | 6.73 | ERWV421LGC682MFB5M |
| | 8,200 | 76.2×170 | 22.7 | 8.04 | ERWV421LGC822MEH0M |
| | 8,200 | 89×130 | 22.0 | 7.78 | ERWV421LGC822MFD0M |
| | 10,000 | 89×155 | 26.2 | 9.24 | ERWV421LGC103MFF5M |
| | 12,000 | 89×170 | 29.9 | 10.5 | ERWV421LGC123MFH0M |
| | 12,000 | 89×190 | 31.5 | 11.0 | ERWV421LGC123MFK0M |
| 450 | 820 | 50×60 | 3.80 | 1.29 | ERWV451LGC821MC60M |
| | 1,000 | 50×70 | 4.40 | 1.50 | ERWV451LGC102MC70M |
| | 1,200 | 50×80 | 5.20 | 1.74 | ERWV451LGC122MC80M |
| | 1,500 | 50×96 | 6.20 | 2.10 | ERWV451LGC152MC96M |
| | 1,800 | 50×105 | 7.10 | 2.41 | ERWV451LGC182MCA5M |
| | 1,800 | 50×115 | 7.40 | 2.51 | ERWV451LGC182MCB5M |
| | 2,200 | 50×130 | 8.70 | 2.93 | ERWV451LGC222MCD0M |
| | 3,300 | 63.5×115 | 11.0 | 3.88 | ERWV451LGC332MDB5M |
| | 3,900 | 63.5×130 | 12.7 | 4.44 | ERWV451LGC392MDD0M |
| | 3,900 | 76.2×105 | 13.2 | 4.49 | ERWV451LGC392MEA5M |
| | 4,700 | 63.5×155 | 15.0 | 5.27 | ERWV451LGC472MDF5M |
| | 4,700 | 63.5×170 | 15.6 | 5.50 | ERWV451LGC472MDH0M |
| | 5,600 | 76.2×130 | 16.6 | 5.88 | ERWV451LGC562MED0M |
| | 6,800 | 76.2×155 | 19.8 | 7.04 | ERWV451LGC682MEF5M |
| | 6,800 | 89×115 | 19.0 | 6.72 | ERWV451LGC682MFB5M |
| | 8,200 | 76.2×170 | 22.7 | 7.97 | ERWV451LGC822MEH0M |
| | 8,200 | 89×130 | 22.0 | 7.72 | ERWV451LGC822MFD0M |
| | 10,000 | 89×155 | 26.2 | 9.22 | ERWV451LGC103MFF5M |
| | 10,000 | 89×170 | 27.3 | 9.66 | ERWV451LGC103MFH0M |
| | 12,000 | 89×190 | 31.5 | 11.1 | ERWV451LGC123MFK0M |

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NIPPON CHEMI-CON

# LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Screw terminals, 85℃

## RWV Series

### ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency (Hz) | 50 | 120 | 300 | 1k | 3k |
|---|---|---|---|---|---|
| Coefficient | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 |

Note : The endurancce of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWV series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For the details, please contact a representative of Nippon Chemi-Con.

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# Technical Note

## Judicious Use of Aluminum Electrolytic Capacitors

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   - 1 − 4 Manufacturing process

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   - 9 − 5 Photoflash Capacitors



CAT. No. E1001M

NIPPON CHEMI-CON

# TECHNICAL NOTE

## 1. Overview of Aluminum Electrolytic Capacitors

### 1-1 Basic Model of Aluminum Electrolytic Capacitors

Capacitors are passive components. Among the various kinds of capacitors, aluminum electrolytic capacitors offer larger CV product per case size and lower cost than the others.
In principles of capacitor, its fundamental model is shown in Fig. 1 and its capacitance (C) is expressed by Equation (1) below:

$$C = 8.854 \times 10^{-12} \frac{\varepsilon S}{d} \text{ (F)} \quad \cdots\cdots (1)$$

ε : Dielectric constant
S : Surface area of dielectric ($m^2$)
d : Thickness of dielectric (m)

Equation (1) shows that the capacitance (C) increases as the dielectric constant ( ε ) and/or its surface area (S) increases and/or the dielectric thickness (d) decreases.
An aluminum electrolytic capacitor comprises a dielectric layer of aluminum oxide ($Al_2O_3$), the dielectric constant ( ε ) of which is 8 to 10. This value is not significantly larger than those of other types of capacitors.
However, by extending the surface area (S) of the aluminum foil electrode by means of etching, and by electrochemically forming a thinner but highly voltage-withstandable layer of oxide layer dielectric, the aluminum electrolytic capacitor can offer a larger CV product per case size than other types of capacitors.
A basic model of aluminum electrolytic capacitor is shown in Fig. 2.
An aluminum electrolytic capacitor comprises:

Anode …Aluminum foil
Dielectric…Electrochemically formed oxide layer ($Al_2O_3$) on the anode
Cathode …A true cathode is electrolytic solution (electrolyte).

Other component materials include a paper separator that holds electrolyte in place and another aluminum foil that functions as a draw-out electrode coming into contact with the true cathode (electrolyte).
In general, an aluminum electrolytic capacitor is asymmetrical in structure and polarized. The other capacitor type known as a bi-polar (non-polar) comprises the anodic aluminum foils for both electrodes.

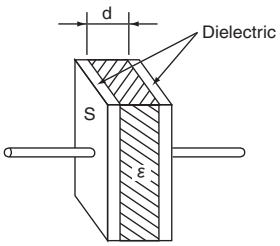
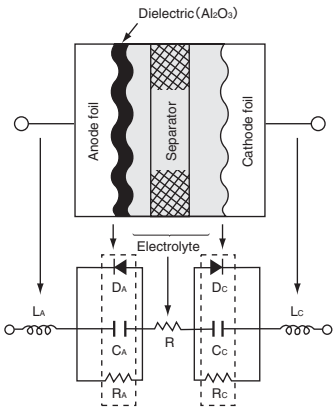



Fig-1 Basic model of capacitor




$C_A$、$C_C$ : Capacitance due to anode and cathodes foils
$D_A$、$D_C$ : Diode effects due to oxide layer on anode and cathode foils
$L_A$、$L_C$ : Inductance due to anode and cathode terminals
R : Resistance of electrolyte and separator
$R_A$、$R_C$ : Internal resistance of oxide layer on anode and cathode foils

Fig-2 Basic model and equivalent circuit of aluminum electrolytic capacitor

### 1-2 Structure of Aluminum Electrolytic Capacitor

The aluminum electrolytic capacitor has, as shown in Fig. 3, a roll of anode foil, paper separator, cathode foil and electrode terminals (internal and external terminals) with the electrolyte impregnated, which is sealed in an aluminum can case with a sealing material.
The terminal draw-out structure, sealing material and structure differ depending on the type of the capacitor.
Figure 4 shows typical examples.

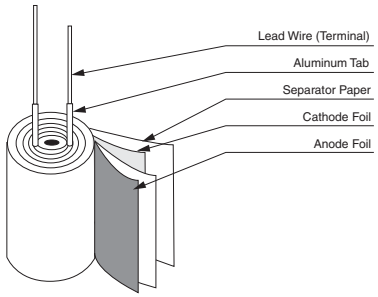
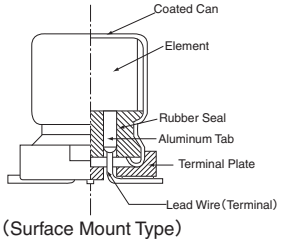
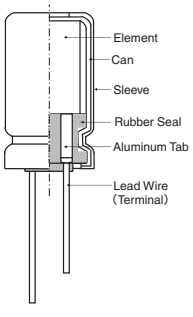


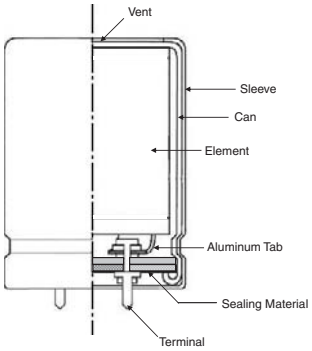

Fig-3 Basic model of element




(Surface Mount Type)




(Radial Lead Type)




(Snap-in Type)

Fig-4 Construction of Aluminum Electrolytic Capacitors

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NIPPON CHEMI-CON

# TECHNICAL NOTE

## 1-3 Features of Capacitor Materials

Aluminum, which is main material in an aluminum electrolytic capacitor, forms an oxide layer ($Al_2O_3$) on its surface when the aluminum is set as anode and charged with electricity in electrolyte.
The aluminum foil with an oxide layer formed thereon, as shown in Fig. 5, is capable of rectifying electriccurrent in electrolyte. Such a metal is called a valve metal.

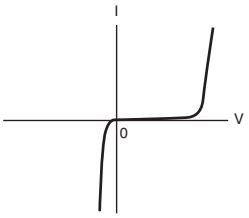



Fig-5 V-I characteristics of aluminum oxide

<Anode aluminum foil>
First, the foil material is electromechanically etched in a chloride solution to extend the surface area of the foil.
Secondly, for the foil to form an aluminum oxide layer ($Al_2O_3$) as a dielectric, more than the rated voltage is applied to the foil in a solution such as ammonium borate. This dielectric layer is as dense and thin as 1.1 - 1.5 nm/volt and showing a high insulation resistance ($10^8$ - $10^9$ Ω/m).
The thickness of the oxide layer determines the withstand voltage according to their direct proportional relationship. For the etching pits to be shaped to the intended thickness of the oxide layer, the pit patterns have been designed to have efficient surface area extension depending on the intended withstand voltage (see Fig. 6)

<Cathode aluminum foil>
An etching process is performed to the cathode aluminum foil as well as the anode foil. However, the formation process for oxide layer is generally not performed. Therefore, the surface of the cathode foil only has an oxide layer ($Al_2O_3$) that has spontaneously formed, which gives a withstand voltage of about 0.5 volt.

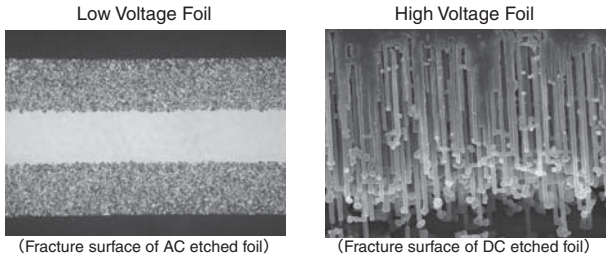



Fig-6 Cross section of aluminum etched foil (SEM)

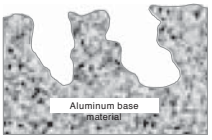
<Electrolyte>
The electrolyte, an ion-conductive liquid functions as a true cathode coming into contact with the dielectric layer on the surface of the anode foil. The cathode foil serves as a collector electrode to connect the true cathode with the external circuit. Electrolyte is an essential material that controls the performance of the capacitor (temperature characteristics, frequency characteristics, service life, etc.).

<Paper separator >
The separator maintains uniform distribution of the electrolyte and keeps the anode-to-cathode foil distance unchanged.

<Can case and sealing materials>
An aluminum can case and seal materials mainly consisting of rubber are used for the purpose of keeping airtightness.

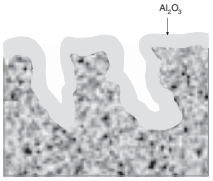
## 1-4 Manufacturing Process

① Etching (for extending the surface area)
This etching process serves to extend the surface area of the aluminum foil. This is an AC or DCcurrent-employed electrochemical process for etching the foil surface in a chloride solution.



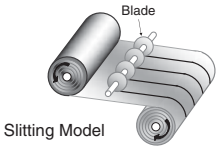
Etching Model

② Formation (for forming a dielectric)
This is a process for forming a dielectric layer ($Al_2O_3$), which is normally performed on the anode aluminum foil.



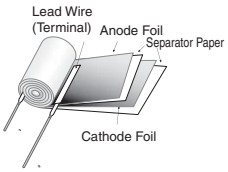
Forming Model

③ Slitting
This is a process for slitting aluminum foils (both the anode and cathode) and paper separators to the specified product size.

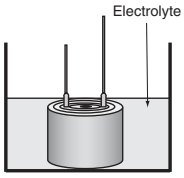


Slitting Model

④ Winding
This is a process for rolling a set of anode and cathode foils into a cylindrical form with a paper separator inserted between them. During this process, an inner terminal (called a tab) is attached to each of the aluminum foils. The roll made at this process is called a capacitor element.

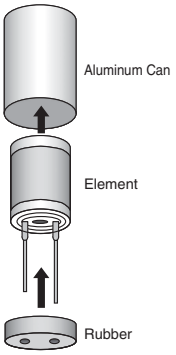



⑤ Impregnation
This is a process for impregnating the element with electrolyte as a true cathode. The electrolyte also functions to repair the dielectric layer.



Impregnation

⑥ Sealing
This process seals the element using the aluminum can case and sealing materials (rubber,rubber-lined cover, etc.) for keeping the case airtight.




⑦ Aging (reforming)
The process of applying voltage to a post-sealed capacitor at high temperature is called “aging”. This serves to repair defective dielectrics that have been made on the foil during the slitting or winding process.

⑧ 100% inspection and packaging
After the aging, all products shall undergo testing for checking their electrical characteristics with chip termination, lead reforming, taping etc. finished, and then be packaged.

⑨ Outgoing inspections
Outgoing inspections are performed as per standard inspection procedures.

⑩ Shipment

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# 2 . Basic Performance

## 2-1 Basic Electrical Characteristics

### 2-1-1 Capacitance

The larger the surface area of an electrode is, the higher the capacitance (capacity for storing electricity) is. For aluminum electrolytic capacitors, the capacitance is measured under the standard measuring conditions of 20°C and a 120Hz AC signal of about 0.5V. Generally, as the temperature rises, the capacitance increases; as the temperature decreases, the capacitance decreases (Fig. 7). With a higher frequency, the capacitance is smaller; with a lower frequency, the capacitance is larger (Fig. 8).

### 2-1-2 Tan $\delta$ ( also called tangent of loss angle or dissipation factor)

(Fig. 9) is a simplified model of the equivalent circuit shown in (Fig. 2). For an ideal capacitor with an equivalent series resistance of R = 0, the tan $\delta$ shown in (Fig. 10) is zero. For an aluminum electrolytic capacitor, the equivalent series resistance (R) is not zero due to the presence of resistance of the electrolyte and paper separator and other contact resistances. $1/\omega C$ and R are correlated as shown in (Fig. 10) and Equation (2).

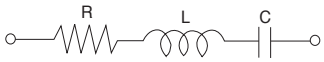


Fig-9 Simplified equivalent circuit

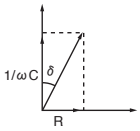


Fig-10 Dissipation Factor (tan $\delta$ )

$$\tan\delta = \frac{R}{1/\omega C} = \omega CR \quad \cdots\cdots (2)$$

$\omega : 2\pi f$

$\pi$ = Circular constant、f : Frequency (f = 120Hz)

### 2-1-3 Leakage Current (LC)

As a feature of an aluminum electrolytic capacitor, when DC voltage is applied to it, the oxide layer that acts as a dielectric in the electrolyte allows a small amount of electric current to flow in it. The small amount of current is called a leakage current (LC). An ideal capacitor does not allow the leakage current to flow (this is not the case for charging current).

The leakage current (LC) changes with time as shown in (Fig. 12). Note that LC, decreasing with time, will reach a steady-state value. Therefore, the specifications of LC are defined as a value measured several minutes after the beginning of the application of the rated voltage at 20°C. As the temperature rises, the LC increases; as the temperature decreases, the LC decreases (Fig.13). As the applied voltage decreases, the LC decreases.

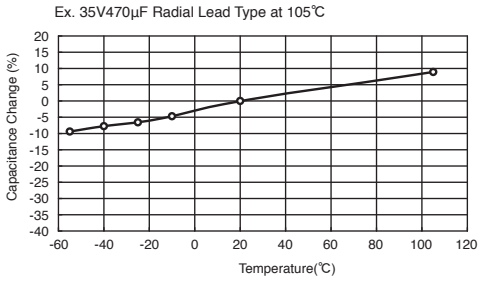


Fig-7 Temperature Characteristics of Capacitance

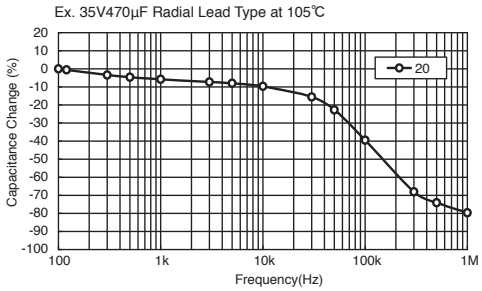


Fig-8 Frequency Characteristics of Capacitance

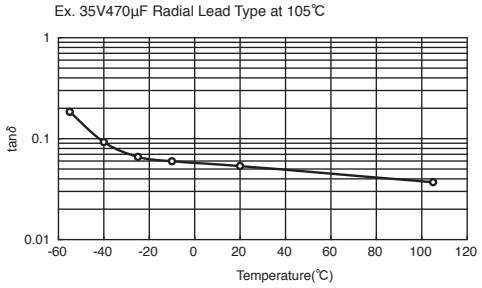


Fig-11 Temperature Characteristics of tan $\delta$

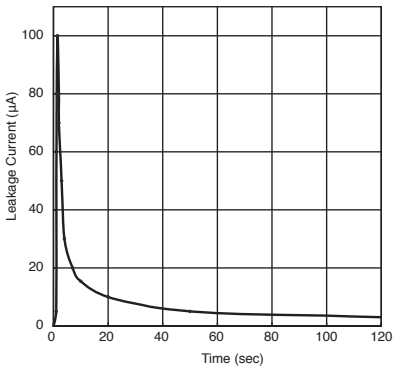


Fig-12 Leakage Current vs. Time

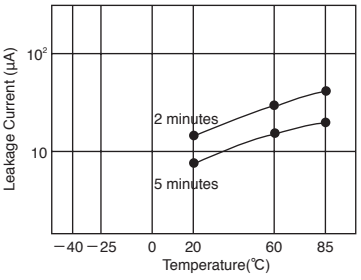


Fig-13 Temperature Characteristics of Leakage Current

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# TECHNICAL NOTE

## 2-2 Frequency Characteristics of Impedance (Z)

When a capacitor is applied with a voltage with the frequency changed, the impedance (Z), a factor of preventing the AC current changes as shown in (Fig. 14). This is the impedance-frequency characteristics of the capacitor.

(Fig. 9) is a simplified model of an equivalent circuit of an aluminum electrolyte capacitor. (Fig. 14) shows dotted lines representing a breakdown of the impedance-frequency characteristic curve into components (C, R and L). As can be seen in this figure, the impedance-frequency characteristics are a composition of C, R and L frequency characteristics.

The value $1/\omega C$ shows the pure capacitive reactance graphically presented by a straight line going downward at an angle of 45°, and $\omega L$ shows the pure inductive reactance graphically presented by a straight line going upward at 45°. R shows the equivalent series resistance (ESR). At a range of lower frequencies, the R curve goes downward due to the dielectric loss frequency-dependence. At a range of higher frequencies, the R curve tends to be almost flat since resistance of electrolyte and paper separator is dominant and independent on frequency. Equation (3) shows this tendency.

$$Z=\sqrt{R^2+\left(\omega L-\frac{1}{\omega C}\right)^2} \quad \cdots\cdots (3)$$

Because the impedance characteristics of an aluminum electrolyte capacitor depend on resistance of the electrolyte and paper separator, the Z value at the self-resonant frequency tends to be relatively higher, as shown by the solid line in (Fig. 15). The resistance of the electrolyte varies depending on temperature: as the temperature rises, the impedance decreases; and as the temperature decreases, the impedance increases, as shown in (Fig. 16).

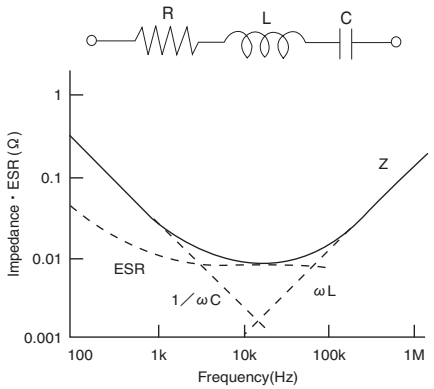


Fig-14 Factor of Impedance Frequency

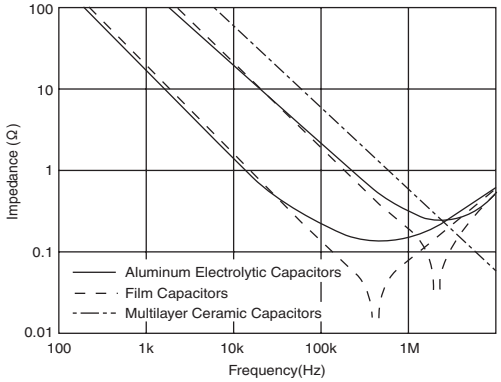


Fig-15 Frequency Characteristics of each Capacitors Impedance

Ex. 35V470μF Radial Lead Type

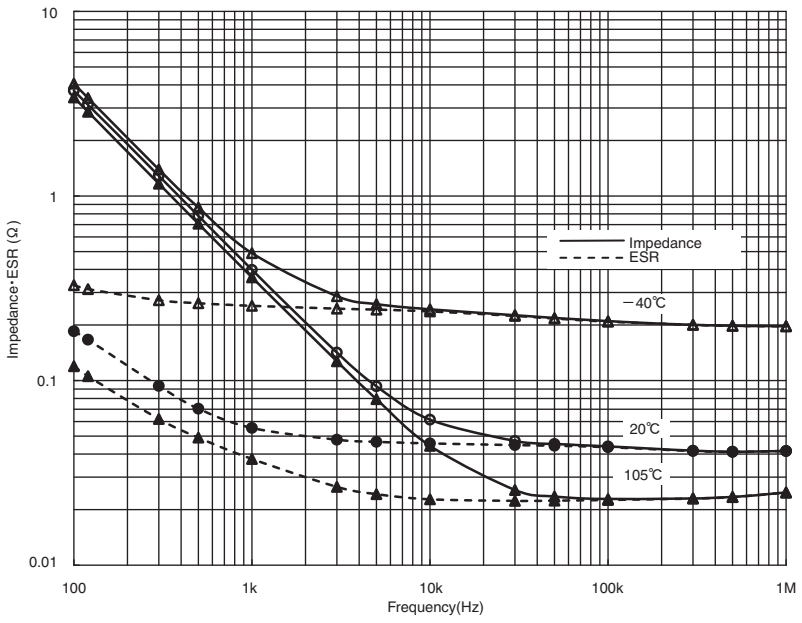


Fig-16 Temperature and Frequency Characteristics of Impedance・ESR

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# TECHNICAL NOTE

## 3 . Reliability

For designing the device with aluminum electrolytic capacitors, a failure rate and useful life are necessary to be considered for their reliability. The failure rate of aluminum electrolytic capacitors is approximated by the bathtub curve shown in (Fig.17).

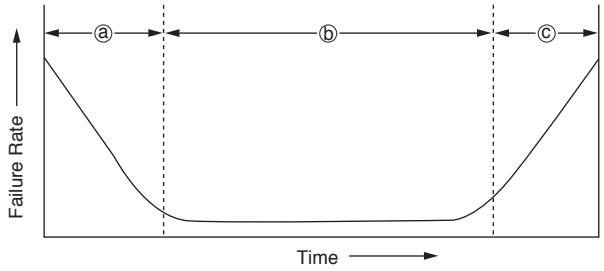


Fig-17 Bathtub curve

ⓐ Early failure period

At the comparatively early periods of use, devices/components fail by deficiencies in design or manufacturing process or incompatibility with operation conditions. For aluminum electrolytic capacitors, these defectives are removed by debugging at one of manufacturing processes before shipments.

ⓑ Random failure period

Failure is stable low in occurrence and appears unrelated to their served term. Aluminum electrolytic capacitors are low in catastrophic failures in this period compared with semi-conductors and solid tantalum capacitors.

ⓒ Wear-out failure period

In this period, the failure rate increases with the served time. For aluminum electrolytic capacitors, since they were completed in manufacturing, the electrolyte impregnated has gradually evaporated and diffused out of the capacitors through the rubber seal materials with time, which leads to decrease in the capacitance and/or increase tanδ. When any of these values changes beyond the allowable range of specifications, the capacitors are defined as “fell into the wear-out failure”. The served term until the capacitors fall into the wear-out failure period is called a useful life.

Aluminum electrolytic capacitors have two categories of failures: catastrophic failure and wear-out failure.

<Catastrophic failure>

This is a failure mode that completely destroys the function of the capacitor such as short circuit and open circuit failure.

<Wear-out failure>

This is a failure mode where the electrical parameters of the capacitor gradually deteriorate and fail. The criteria for determining if this failure has occurred depend on the purpose of a device. For each series of capacitors, the following electrical parameters have been defined as criteria in the specifications of Endurance in the catalogs or product specifications:

- Change in capacitance
- Tan $\delta$
- Leakage current

Failure rates are often measured in units of % per 1000 hours ($10^{-5}$/hour). For higher reliability devices designed with a smaller failure rate, units of Failure In Time (FIT) ($10^{-9}$/hour) is used.

Aluminum electrolytic capacitors are considered as components of wear-out failure mode, the electrical characteristics of which gradually deteriorate and their failure rate increases with time. In general, the failure rate in FIT is determined by total component-hours (product of the number of tested components and test hours).

Due to the definition of FIT, the same FIT rate can be calculated in both cases of testing on the large number of tested components and also testing for long test periods of time. However, these cases mean differently for aluminum electrolytic capacitors. Using the failure rate is not suited to express the reliability of aluminum electrolytic capacitors, but the electrical characteristics based lifetime in hour should be considered to express the reliability.

Also, there are MTBF (Mean Time Between Failures) and MTTF (Mean Time To Failure) to express reliability. The latter is applicable for aluminum electrolytic capacitors because they are categorized into a group of non-repairable systems, equipment and devices for which MTTF is applicable.

## 4 . Failure Modes

Failure modes depend on the application conditions that lead to fail. (Fig. 18).

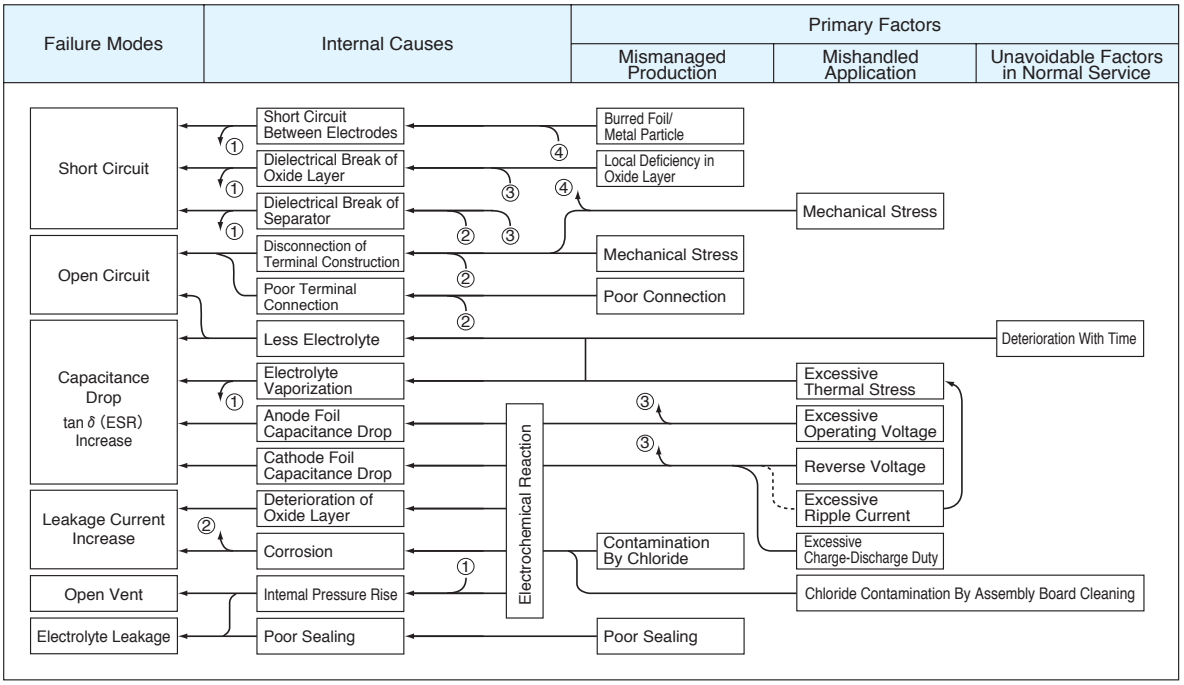


Fig-18 Failure Modes

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# 5 . Lifetime

The lifetime of aluminum electrolytic capacitors is largely dependent on the application conditions. Environmental factors include temperature, humidity, atmospheric pressure and vibrations. Electrical factors include operating voltage, ripple current and charge-discharge. Where the capacitors are used in a normal filtering circuit, ambient temperature and heating due to the ripple current are crucial factors for determining the lifetime of the capacitors. These factors are included to the lifetime specifications titled “Endurance” on the catalogs or product specifications.
For applications subject to high humidity and/or continuous vibrations, or subject to frequent charge and discharge operations, the endurance of individual conditions should be considered.

## 5-1 Ambient Temperature Effect on Lifetime

The lifetime of aluminum electrolytic capacitors is affected mainly by the loss of electrolyte as the result of diffusion through the rubber seal materials, which leads to a decrease in capacitance and increase in tan$\delta$.
The relationship of temperature to the diffusion of electrolyte follows the Arrhenius’ Law (Equations (4) and (5)):

$$k = Ae^{\frac{-E}{RT}} \quad \cdots\cdots\cdots\cdots\cdots\cdots (4)$$

$$\ln k = \left(\frac{-E}{RT}\right) + \ln A \quad \cdots\cdots\cdots (5)$$

k : Reaction rate constant
A : Frequency factor
E : Activation energy
R : Gas constant (8.31J/deg)
T : Absolute temperature (K)

Applying Equation (5) to the lifetime of the capacitors brings Equation (6), which is converted to Equation (7):

$$\log\left(\frac{Lx}{Lo}\right) = \frac{E}{2.303R}\left(\frac{1}{Tx} - \frac{1}{To}\right) \cdots\cdots\cdots\cdots\cdots (6)$$

$$\log Lx = \frac{E}{2.303R}\left(\frac{1}{Tx} - \frac{1}{To}\right) + \log Lo \quad \cdots\cdots (7)$$

Practical estimation of the lifetime has been using Equation (8) as an approximation:

$$Lx = Lo \cdot Bt^{(To-Tx)/10} \quad \cdots\cdots\cdots\cdots\cdots (8)$$

Lo : Specified lifetime (hour) with the rated voltage applied (or the rated ripple current superimposed to a DC voltage) at the upper limit of the category temperature. Refer to the lifetime specifications of individual products.
Lx : Estimated life on actual usage (hour)
To : Maximum Category Temperature (℃)
Tx : Actual Ambient Temperature (℃)
Bt : Temperature acceleration factor

Where, the temperature acceleration factor (BT) is approximately 2 over an ambient temperature range from 60°C to 95°C, which means that the lifetime is approximately halved for every 10°C rise in ambient temperature. However, according to the Arrhenius Equation (6), the reciprocal of T is directly proportional to the logarithm of lifetime, which means that, strictly speaking, there is the temperature range where the theory of lifetime reducing by half at every 10°C rise is not applied. (Fig. 19).

Especially for capacitors whose maximum operating temperature is a 105°C or higher, the temperature acceleration factor (BT) needs to be modified depending on temperature ranges of the lifetime estimation.
For details, please consult us.

For lifetime estimation at a lower-temperature range, evaluation test data have not been obtained, and for evaluating long term endurance, it is necessary to take into account some additional factors such as deterioration of the rubber seal materials as well as the diffusion of electrolyte. Accordingly, in Equation (8), Tx should be 40°C at the lowest for the lifetime calculation purpose, and also the estimated lifetime (Lx) should be 15 years at the longest.

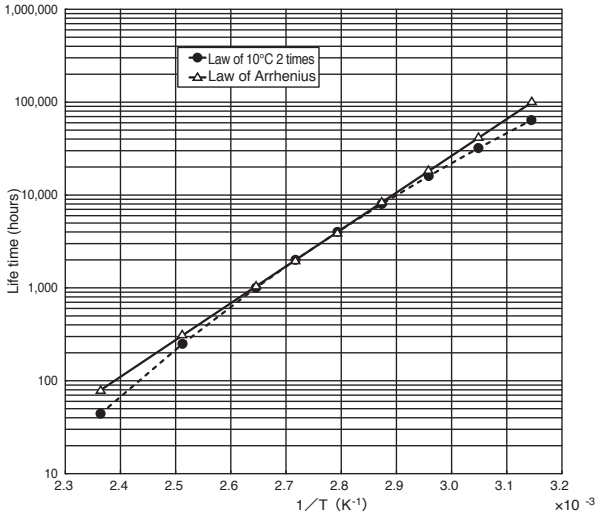


Fig-19 Estimated result by Law of 10℃ 2 times and Law of Arrhenius

## 5-2 Applying Voltage Effect on Lifetime

Where a capacitor is used at lower than the rated voltage, the lifetime may not be adversely affected, which means that the effect of the applying voltage is negligibly small, while the effect of the ambient temperature and heat generation due to ripple current is significant.

(Fig-20)

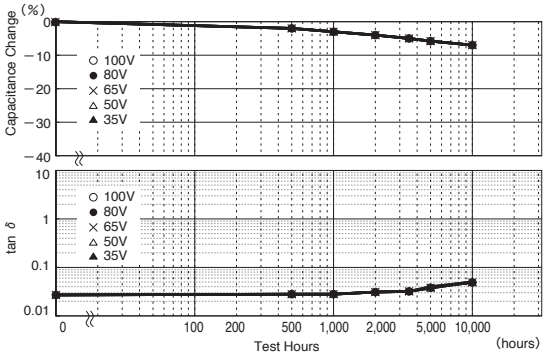


Fig-20 Endurance (measured by each apply voltage, result curves are overlapped)
Note: Due to the very small effect of the applying voltages, the plots cannot be distinguished from one another.

However, for capacitors of larger size and higher rated voltage contain a larger volume of electrolyte, difference in applying voltages can affect degradation of the oxide layer, other than the diffusion of electrolyte.
Therefore, for screw mount terminal type capacitors with the rated voltage of 350Vdc or higher, the lifetime estimation includes the effect of applying a lower voltage than the rated voltage (derating voltage).

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## 5-3 Ripple Current Effect on Lifetime

Since an aluminum electrolytic capacitor has a larger tanδ than other types of capacitors, the capacitor produces more internal heat when a ripple current flows through it. The temperature rise due to this heat may significantly affect the lifetime of the capacitor. This is the reason why ripple current ratings are specified for capacitors.

### 5-3-1 Heat Generation due to Ripple Current

Power consumption by the ripple current can be expressed as follows:

$$W = I_R^2 R + VI_L \quad \cdots\cdots (9)$$

W : Internal power dissipation
$I_R$ : Ripple Current
R : Internal Resistance (Equivalent Series Resistance)
V : Applied voltage
$I_L$ : Leakage Current

Leakage current $I_L$ at the maximum operating temperature can be 5 to 10 times higher than the values-measured at 20°C. However, considering $I_R >> I_L$, the above equation can be simplified as Equation (10).

$$W \fallingdotseq I_R^2 R \quad \cdots\cdots (10)$$

To obtain the temperature at which equilibrium is achieved between heat generation and dissipation, derive Equation (11).

$$I_R^2 R = \beta A \Delta T \quad \cdots\cdots (11)$$

$\beta$ : Radiation Constant
A : Surface area of can case ($m^2$)
ΔT : Temperature-rise due to the Ripple Current (℃)

$$A = \frac{\pi}{4} D (D + 4L)$$

D : Can Diameter (m)
L : Can Length (m)

From the above equation, the internal temperature rise (ΔT) is given by Equation (12):

$$\Delta T = \frac{I_R^2 R}{\beta A} \quad \cdots\cdots (12)$$

Also, for a ripple frequency of 120Hz, Equation (12) for calculating ΔT is rewritten as Equation (13):

$$\Delta T = \frac{I_R^2 R}{\beta A} = \frac{I_R^2 \tan\delta}{\beta A \omega C} \quad \cdots\cdots (13)$$

Where $R = \frac{\tan\delta}{\omega C}$

$\tan\delta$ : Dissipation Factor at 120Hz
$\omega$ : $2\pi f$ (f = 120Hz)
C : Capacitance at 120Hz (F)

An approximate value of ripple current-caused ΔT can be calculated using Equation (14):

$$\Delta T = (Ix/Io)^2 \times \Delta To \quad \cdots\cdots (14)$$

Io : Rated ripple current (Arms), frequency compensated, at the upper limit of the category temperature range
Ix : Operating ripple current (Arms) actually flowing in the capacitor
ΔTo : Rise in internal temperature due to the rated ripple current (℃): different for each product series. Please consult us.

There are some product families that can accept a higher ripple current than the rated value providing that ambient temperature Tx is lower than the upper limit of the category temperature range. However, in this case, remember that the lifetime decreases due to the higher ΔT due to the ripple current. Be sure that ΔT does not exceed the specified limit that has been determined as a function of ambient temperature. Note that the core temperature limit of the element is shown by [Tx + ΔT limit].

Examples of ΔT limits at some ambient temperatures are shown below.

| Ambient Temp Tx | 85℃ less or equal | 105℃ |
|---|---|---|
| Limit value of ΔT | 15℃ | 5℃ |

Each product family has a different ΔT limit. For details, consult us.

### 5-3-2 Ripple Current and Frequency

The ripple current rating is specified normally by the effective value (r.m.s value) of 120Hz or 100kHz sine wave. However, since the equivalent series resistance (ESR) of a capacitor is frequency-dependent, the allowable ripple current depends on the frequency. Where the operating ripple current consists of a mains power frequency element and switching frequency element(s) like switching mode power supplies do, the internal power loss is expressed by Equation (15):

$$W = I_{f1}^2 R_{f1} + I_{f2}^2 R_{f2} + \cdots\cdots I_{fn}^2 R_{fn} \quad \cdots\cdots (15)$$

W : Power consumption
$I_{f1}$、$I_{f2}$、…$I_{fn}$ : Ripple current (Arms) at frequency f1…fn
$R_{f1}$、$R_{f2}$、…$R_{fn}$ : ESR (Ω) at f1…fn

Given a frequency compensation factor (Frequency Multiplier) = $F_{fn}$ and reference frequency for the ripple current = fo, $R_{fn} = R_{fo}/F_{fn}$ is obtained. Therefore, the ripple current at any frequency can be converted into its r.m.s. value at the reference frequency ($I_{fo}$) using Equation (16):

$$I_{fo} = \sqrt{(I_{f1}/F_{f1})^2 + (I_{f2}/F_{f2})^2 + \cdots\cdots (I_{fn}/F_{fn})^2} \quad \cdots\cdots (16)$$

$I_{fo}$ : Reference ripple current (Arms), i.e., that at the reference frequency
$F_{f1}$、$F_{f2}$、…$F_{fn}$ : Frequency compensation factor (Frequency Multiplier) at frequency f1…fn (Refer to the catalogs)

Note that the ESR depends on the temperature and the value of $\beta$ depends on the installation conditions of the capacitor on the board. To determine more accurate values of ΔT, they can be actually measured using a thermocouple.

### 5-3-3 Lifetime Estimation

Equations (17) through (19) can be used for estimating the lifetime of a non-solid aluminum electrolytic capacitor based on the ambient temperature, the rise of internal temperature due to ripple current, and operating voltage applied.

For a capacitor whose Endurance specifications are defined by only "the DC rated voltage".

$$Lx = Lo \times 2^{\frac{To-Tx}{10}} \times 2^{\frac{-\Delta T}{5}} \quad \cdots\cdots (17)$$

For a capacitor whose Endurance specifications are defined by "the rated ripple current with a DC voltage superimposed".

$$Lx = Lr \times 2^{\frac{To-Tx}{10}} \times 2^{\frac{\Delta To-\Delta T}{5}} \quad \cdots\cdots (18)$$

For a screw terminal type capacitor with the rated voltage of 350Vdc or higher

$$Lx = Lr \times 2^{\frac{To+5-Tx-25}{10}} \times 2^{\frac{25-\Delta T}{A}} \times Kv \quad \cdots\cdots (19)$$

Lo : Specified lifetime (hour) at the upper limit of the category temperature range and at the rated voltage
Lr : Specified lifetime (hour) at the upper limit of the category temperature range and at the rated ripple current superimposed to a DC voltage
Lx : Estimation of actual lifetime (hour)
To : Upper limit of the category temperature range (℃)
Tx : Actual ambient temperature of the capacitor (℃) Use 40℃ if the actual ambient temperature is below it.
ΔT : Rise of internal temperature due to actual ripple current (℃)
*ΔTo : Rise of internal temperature due to the rated ripple current (℃)
*A : This factor depends on the ripple frequency and internal temperature rise.
Kv : Derating voltage factor

For the values marked with * , consult us.

Note that the calculation results above are not considered as a guaranteed value. When designing the lifetime of a device, please select a capacitor that has an extra margin against the device lifetime requirements. Also, where the estimation result calculated exceeds 15 years, please consider 15 years to be a maximum.

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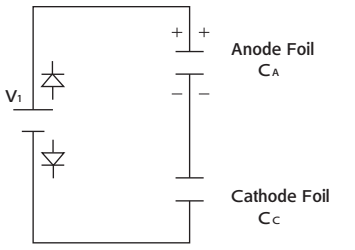
## 5-4 Charge and Discharge Operation Effect on Lifetime

Applying a voltage to an aluminum electrolytic capacitor makes the electric charges accumulate on the anode foil dielectric. Discharging the electricity through a discharging resistance makes the electric charges move to the cathode foil and cause chemical reactions between the cathode aluminum and electrolyte, thereby forming a dielectric oxide layer.

When this charge and discharge is repeatedly operated, the chemical reactions proceed to further form the oxide layer on the cathode foil, causing the capacitance of the cathode foil to reduce and thereby reducing the capacitance of the capacitor. Moreover, the chemical reactions bring heat and gases. Depending on the charge and discharge conditions, the internal pressure may increase, the pressure relief vent may open or the capacitor may have destructive failures. Consult us for using a capacitor with the following applications:

- Frequently repeating power on/off.
- Repeating rapid charge and discharge operations at a short interval cycle.
- Repeating charge and discharge operations with a large voltage drop.




$Q = C_A V_1$

$C_A$ : Capacitance of Anode Foil
$C_C$ : Capacitance of Cathode Foil
$V_1$ : Voltage of Power Supply
$V_2$ : Applied Voltage to Cathode Foil

Fig-21 Charge Condition at Charge

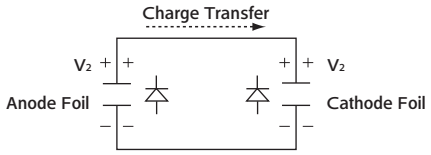



Fig-22 Charge Condition at Discharge
(Disconnect V1 and Discharged condition)

$Q = C_A V_2 + C_C V_2$

then $C_A V_1 = C_A V_2 + C_C V_2$

$$V_2 = \frac{C_A V_1}{C_A + C_C} \quad \cdots\cdots (20)$$

Figures 23 through 25 show some test data of special-design capacitors for charge and discharge application, compared with general-purpose capacitors.

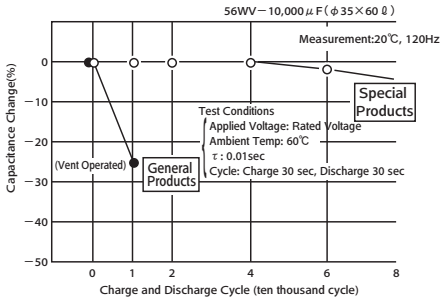



Fig-23 Rapid charge and discharge characteristics
(Effects of Frequency)

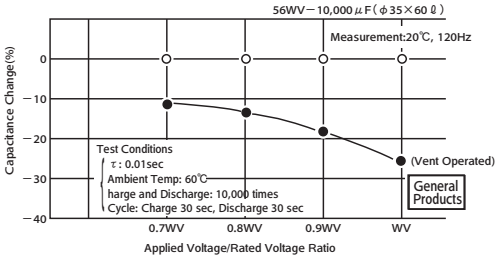



Fig-24 Rapid charge and discharge characteristics
(Effects of Applied Voltage)

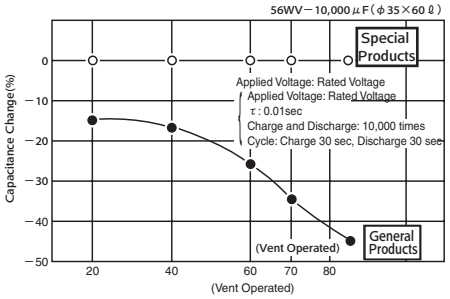



Fig-25 Rapid charge and discharge characteristics
(Effects of Ambient Temperature)

## 5-5 Inrush Current

For the power supply inrush current that can occur on the start-up of a power supply or on the charge of a welding machine lasts only milliseconds, but its magnitude may reach 10 to 100 times more than the normal current. Usually, a single, non-repeated inrush current produces a negligibly small amount of heat, so it does not matter.

However, frequently repeating inrush currents may heat up the element inside a capacitor more than the allowable limit and/or overheat the external terminal connections or the connections between the internal lead and foil electrode.

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# TECHNICAL NOTE

## 5-6 Abnormal Voltage Effect on Lifetime

Applying abnormal voltage can increase the internal pressure with heat and gases produced, causing the pressure relief vent to open or the capacitor to have destructive failures.

### 5-6-1 Overvoltage

Applying a voltage higher than the rated voltage will cause chemical reactions (formation of dielectric) to occur on the anode foil with the leakage current rapidly increasing, which produces heat and gases and thereby increases the internal pressure.
The reactions are accelerated by the voltage, current density and ambient temperature, causing the pressure relief vent to open or the capacitor to have destructive failures. It may also accompany a reduction in capacitance and an increase in tan $\delta$ as well as an increase in the leakage current, which can lead to internal short-circuiting failure. An example of capacitor overvoltage characteristics is shown in Fig. 26.

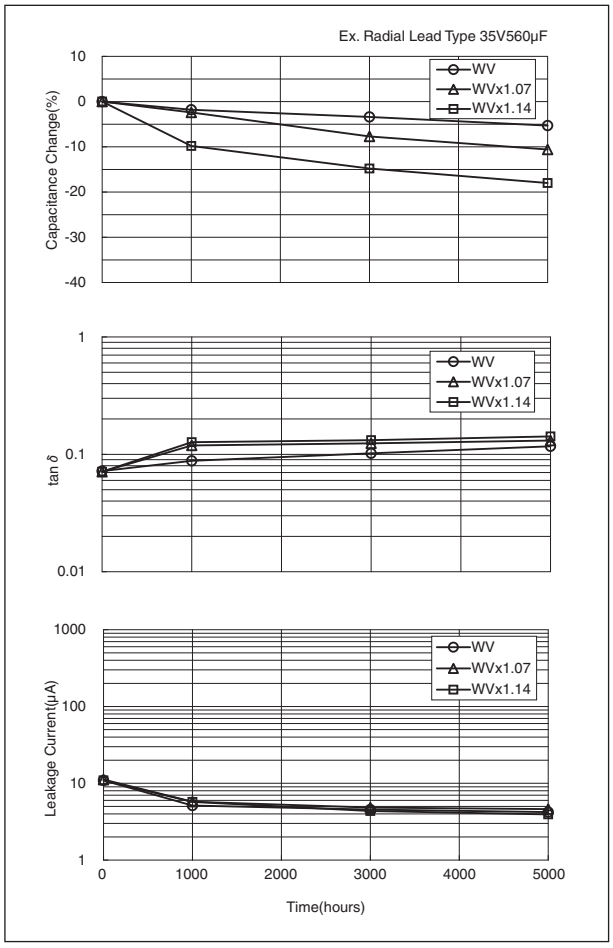


Fig-26 Applied overvoltage characteristic at 105℃

### 5-6-2 Reverse Voltage

Applying a reverse voltage will cause chemical reactions (formation of dielectric) to occur on the cathode foil, and, as is the case with overvoltage, the leakage current will rapidly increase with heat and gases generating and thus the internal pressure increases.
The reactions are accelerated by the voltage, current density and ambient temperature. It may also accompany a reduction in capacitance and an increase in tan $\delta$ as well as an increase in the leakage current. An example of capacitor reverse-voltage characteristics is shown in Fig. 27.
A reverse voltage of as small as 1V can cause the capacitance to decrease. A reverse voltage of 2 to 3V can shorten lifetime due to a reduction in capacitance, increase in tan $\delta$ , and/or increase in leakage current. A reverse voltage of even higher value can open the pressure relief vent or lead to destructive failures (Fig. 27).

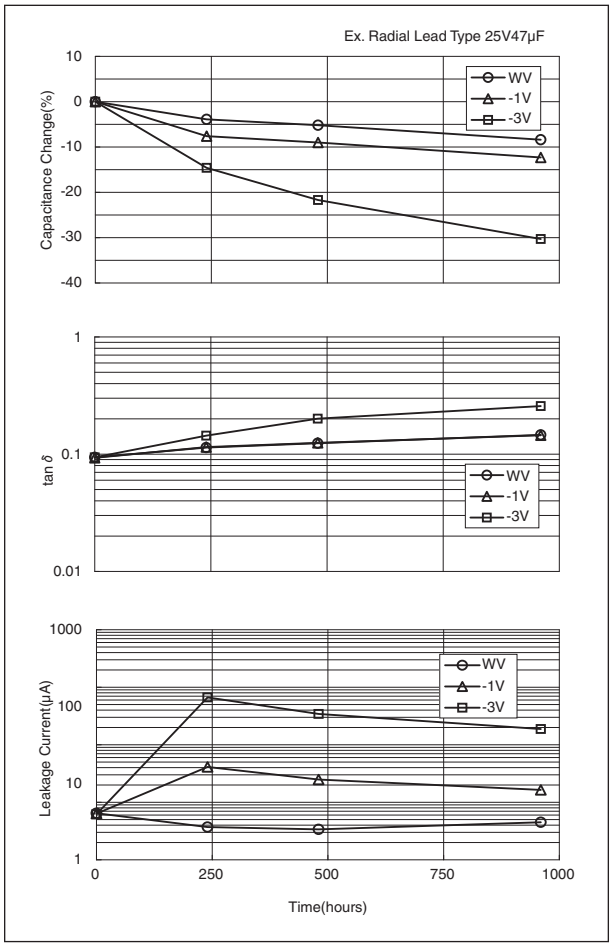


Fig-27 Applied Reverse voltage characteristic at 105℃

### 5-6-3 Do not Use Aluminum Electrolytic Capacitors in an AC Circuit

Using an aluminum electrolytic capacitor in an AC circuit will result in the same situation as that with a positive potential being applied to the cathode (like a reverse voltage) and with an excessively large ripple current flowing in the capacitor, which may increase the internal pressure due to the generation of heat and gases, open the pressure relief vent, leak the electrolyte with the rubber seal bung expelled or cause the capacitor to blow up or catch fire in the worst case. If the capacitor blows up, it may scatter flammable materials such as electrolyte and element-supporting wax materials, which can lead to short-circuiting of the device. Therefore, do not use aluminum electrolytic capacitors in any of the AC circuits.

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# 6. Effect of Halogens

Aluminum electrolytic capacitors are sensitive to contamination of halogen ions (especially to chlorine and bromine ions) though the degree of the effect depends on the properties of the electrolyte and/or sealing materials used in the capacitors.
For using a halide-containing flux, solvent (cleaning agent, adhesive or coating materials) or fumigant, the halide may penetrate into the capacitor through the rubber seal materials and cause the following corrosion reactions to occur. These reactions can lead to an increase in leakage current, opening of the pressure relief vent, and/or open-circuit failure in the capacitor. The reactions are accelerated as the voltage and/or temperature rises.
[Corrosion reactions]

a) Decomposition of halides

$$RX + H_2O \rightarrow ROH + H^+ + X^- \quad \cdots\cdots (21)$$

b) Corrosion reactions

$$Al_2O_3 + 6H^+ + 6X^- \rightarrow 2AlX_3 + 3H_2O \quad \cdots\cdots (22)$$

$$Al + 3X^- \rightarrow AlX_3 + 3e^- \quad \cdots\cdots (23)$$

$$\Downarrow$$

$$2AlX_3 + 6H_2O \rightarrow 2Al(OH)_3 + 6H^+ + 6X^- \quad \cdots\cdots (24)$$

RX : Halogenated compound
X- : Halogen ions ($Cl^-$, $F^-$, $Br^-$)

Halides that penetrated the element inside a capacitor make contact with the electrolyte, by which the halides are hydrolyzed and release halogen ions as shown on Reaction (21). The halogen ions then attack aluminum by anodic half-cell reaction, producing $AlX_3$ (Reaction 22 and 23).
$AlX_3$ is then hydrolyzed, which is decomposed to aluminum hydroxide and the halogen ions (Reaction (24). The halogen ions reproduced are repeatedly used and reproduced by the reactions of (22) ~ (24), and then the corrosion develops endlessly.
Shown below are precautions for use of flux, cleaning agents, adhesive, coating materials and fumigant.

## 6-1 Effect of Flux

Usually flux products contain an activator of ionic halide system, which has been associated with the corrosion issues of capacitors, and nowadays non-ionic halide system type flux products have been increasingly available on the market. Some of the latter flux type have been classified into the so called “non-halogen flux” or “halogen-free flux”, and parts of the “non-halogen” or “halogen-free” flux products may contain a large amount of non-ionic halides, which can also adversely affect the capacitors.
Flux types whose halogen ion concentrations are so low that the capacitor may not be adversely affected include:

- AHQ3100K (Asahi)
- POZ6 (Senjyu)

## 6-2 Cleaning Agents

### 6-2-1 Alcohol Cleaning Agents

①Fatty-alcohol cleaning agents (New type of solvent)
Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750H, 750K, 750L, and 710M (Kao)
Technocare FRW-14 through 17 (GE Toshiba Silicones)
② IPA (Isopropyl alcohol)

[Compatible capacitor products]

| Terminal Shape | Subject Series |
|---|---|
| Surface Mount Type | All Series |
| Radial Lead Type | All Series |
| Snap-in Type | All Series (Less and equal 100Vdc) |

[Cleaning conditions]
Either of Immersion or ultrasonic cleaning, for a maximum of 10 minutes at a maximum liquid temperature of 60°C.

[Precautions]

a. Make sure that the markings on a capacitor are not rubbed against any other component or the PC board during cleaning. Note that shower cleaning can cause the markings on the capacitor to be washed off.
b. Depending on the cleaning method, the markings may be erased or blur.
c. A drying process following a water cleaning or rinsing process may cause the outer sleeve materials of a capacitor to swell or shrink.
d. After using a weak-alkaline cleaning agent (e.g. Clean Through 750H), rinse with water to make sure that no alkaline residue is left on the capacitor.
e. Control a flux concentration in a cleaning agent within 2 wt%.
f. IPS (Isopropyl Alcohol), if containing xylene or other solvent to improve its cleanability, may swell the rubber seal materials.
g. Depending on the type of cleaning agent or conditions, note that the outer sleeve of a capacitor may lose a gloss or whiten in appearance.

### 6-2-2 HCFC (Freon-225), as Alternative CFCs

AK225AES (Asahi Glass)
[Cleaning conditions]
Solvent resistant type capacitors, which were originally developed to intend to resist Freon TE or Freon TES, are also capable of withstanding either of immersion or ultrasonic cleaning, for a maximum of 5 minutes (or 2 minutes for KRE and KRE-BP series capacitors or 3 minutes for SRM series). However, in view of global environmental issues, HCFCs has not been recommended.

[Compatible capacitor products]

| Terminal Shape | Subject Series |
|---|---|
| Surface Mount Type | PXG, PXK, PXS, PXF, PXE, PXA, PXD, PXH, MVA(~63Vdc), MVE(~63Vdc), MZJ, MZA, MVY(6.3 ~ 63Vdc), MZF, MZE, MZK, MLA, MLF, MLE, MLK, MVL, MVJ, MVH(~50Vdc), MHB, MHJ,MV-BP, MVK-BP |
| Radial Lead Type | PSG, PSK, PSF, PSE, PSC, PSA, PS, SRM, KRE, KMA, SRG, KRG, KRE-BP, KMA-BP, KMQ(~100Vdc),SMG(~250Vdc), KMG(~250Vdc), SME-BP, KME-BP, LZA, LXZ, LXY, LXV, LE, FL, GPA, GXE(~50Vdc), GXL, GXH, LBG, LLA |

When a capacitor is mounted closely flush on the PC board, a residual cleaning agent may be left in the gap between the body of the capacitor and PC board surface. Dry out the residue with a forced hot air of 50 to 85°C for 10 minutes or more.

### 6-2-3 Other Solvents

To avoid capacitor failures, do not use the following cleaning agents:

- Halogenated system: causes capacitor failures due to corrosion.
- Alkali system: corrodes (dissolves) the aluminum can case.
- Terpene and petroleum system: deteriorates the rubber seal materials.
- Xylene: deteriorates the rubber seal materials as well.
- Acetone: erases the markings printed on a capacitor.

## 6-3 Adhesive and Coating Material

To use adhesives and/or coating materials for aluminum electrolytic capacitors, make sure of the following conditions:

a. Do not use any of adhesive or coating materials containing halogenated solvents.
b. No flux residue nor stain is left between the rubber seal of a capacitor and PC board.
c. Dry the capacitor to remove residual cleaning agents before applying adhesive and coating materials. Do not cover up the entire surface of the rubber seal of the capacitor with adhesive and coating materials.
d. Improper heating and/or curing conditions for adhesives and coating materials may cause the sleeve to swell or shrink. Please consult us for proper conditions.

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e. For a non-solid aluminum electrolytic capacitor, covering up the entire surface of the rubber seal with resin mold materials will obstruct the normal diffusion of internal hydrogen gas from the capacitor and result in serious failures. Also, where the adhesive and coating materials contain a large amount of halogen ions, the halogen ions will contaminate the inside of the capacitor through the rubber seal materials, which cause the capacitor to become a failure.
f. The outer sleeve of a capacitor may lose a gloss or whiten in appearance depending on solvent materials that the adhesive or coating materials contains.
g. Some adhesives or coating materials contain organic solvent such as Xylene. Xylene can deteriorate the rubber seal materials, which cause the flux ingredients to penetrate into the capacitor.

## 6-4 Effect of Fumigation

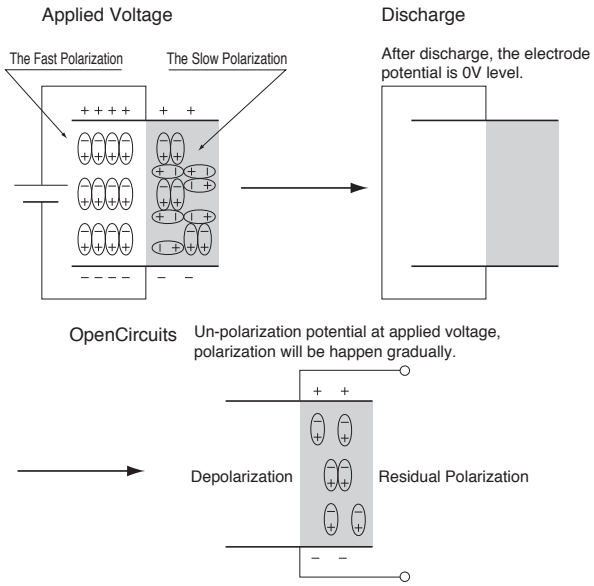
In exporting or importing electronic devices, they may be exposed to fumigation with halide such as methyl bromide. Where aluminum electrolytic capacitors exposed to halide such as methyl bromide, the capacitors will be damaged with the corrosion reaction with the halogen ions.
For the export and import, Nippon Chemi-Con considers using some packaging method and so forth that the fumigation is not required to. For customers to export or import electronic devices, semi-assembly products or capacitor components, confirm if they will be exposed to fumigation and also consider final condition of packaging. (Note that either cardboard or vinyl package has a risk of fumigation gas penetration.)

# 7. Recovery Voltage

Where a capacitor is once charged and discharged with both of the terminals short-circuiting and then left the terminals open for a while, a voltage across the capacitor spontaneously increases again. This is called “recovery voltage phenomenon”. The mechanism for this phenomenon can be interpreted as follows:
When charged with a voltage, the dielectric produces some electrical changes within, and then the inside of the dielectric is electrified with the opposite polarities (dielectric polarization).
The dielectric polarization occurs in both ways of proceeding rapidly and slowly. When a charged capacitor was discharged until the voltage across the capacitor disappears, and then being left the terminals open, the slow polarization will discharge within the capacitor and appear as recovery voltage. (Fig. 28).

The recovery voltage changes with time as sown in Fig. 29. Its peak will appear 10 to 20 days after the terminals are opened, with gradual weakening thereafter. Larger sized capacitors (screw terminal type and snap-in type) may produce larger recovery voltage.
With a recovery voltage residing in a capacitor, carelessly short-circuiting the terminals can cause sparks to occur, which may scare workers and/or damage low-voltage operating components such as CPU’s and memories in the device circuit. To avoid this trouble, discharge the capacitor through 100 - 1kΩ resistors before use. Also, Nippon Chemi-Con may provide some solutions with some packaging method for it. Please consult us.

Fig-28 Model of Recovery Voltage



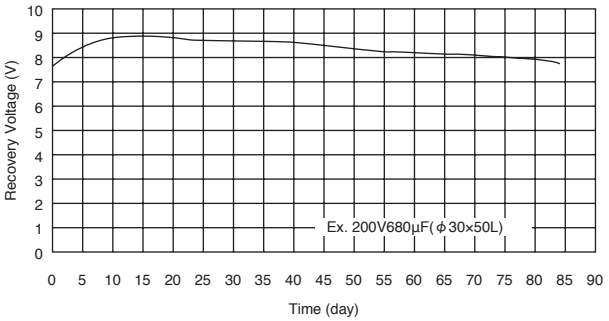




Fig-29 Change of Recovery Voltage

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# 8. Storage

Some characteristics of an aluminum electrolytic capacitor are temperature-dependent. The higher the temperature is, the more deteriorated the capacitor will be. An increase in temperature accelerates the increase in leakage current and tanδ and the decrease in capacitance. Leaving a capacitor exposed to high humidity for long hours may lead to discoloration of the lead wires and terminals, and poor solderability. To store aluminum electrolytic capacitors, keep them at normal temperature and humidity without exposure to direct sunlight.

Leaving them exposed to high temperatures (higher than the normal ambient temperature) may lead to chemical reactions between the anode oxide layer and electrolyte, which drop the withstanding voltage and increase leakage current. If this is the case, applying the rated voltage to the capacitor will lead to dielectric breakdown due to the heat produced with the large leakage current, which finally causes the pressure relief vent to open.

Capacitors that have been stored for long periods of time should be subjected to a voltage treatment process (see Note 1) which will reform the dielectric ($Al_2O_3$) by electrolyte and return the leakage current to the initial level. Leakage current increase during storage will vary with the withstanding voltage of a capacitor. In general, the higher the rated voltage, the larger increased the leakage current tends to be. Also, since storing for long period of time may shorten the lifetime of the capacitors, consider storage conditions according to the requirements of device life expectancy.

(Note 1) In the voltage treatment process, connecting resistor (around 1kΩ) in series with the capacitor, applied the rated voltage and then be kept the rated voltage for 30 to 60 minutes.

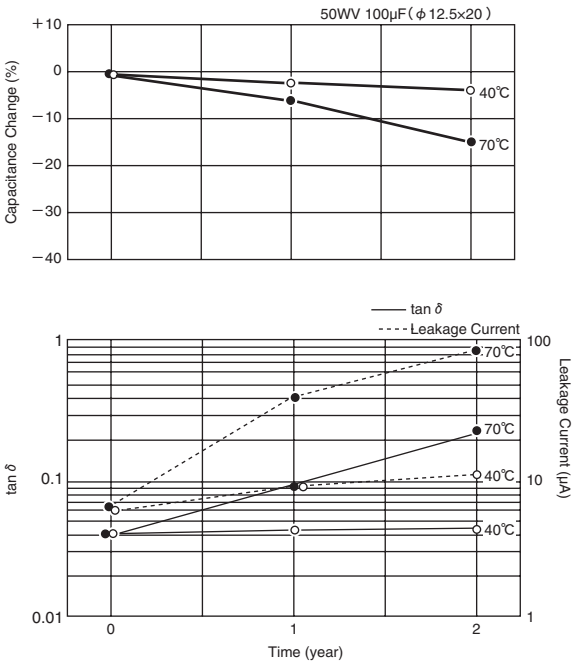


Fig-30 Temperature Characteristics of Storage

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# TECHNICAL NOTE

# 9. Tips for Selecting Capacitors Appropriate for Individual Applications

Aluminum electrolytic capacitors are used mainly for the filtering application of power supplies. Select appropriate capacitors for the specific requirements of each application, referring to the following examples for typical applications:

## 9-1 Input Filtering Capacitors for Switching Mode Power Supplies

An input filtering capacitor functions to smooth 50-120 Hz waveforms that come from a rectifying circuit, the waveforms of which are superimposed with the ripples with the switching frequency from the switching stage where the capacitor supplies the electric power. Therefore, the capacitor must be capable of managing both ripple currents with each frequency. The ESR of a capacitor is frequency-dependent, so that a ripple current of different frequency produces a different thermal energy in the capacitor.
For PFC power supplies or lighting ballasts, capacitors are subjected to ripple current whose frequency is several dozens of kHz to 100kHz. Therefore, to select capacitors, take their impedance characteristics into consideration.

●Recommended input filtering capacitors for SMPS

| Characteristics / Type | 85℃ | | 105℃ | | |
|---|---|---|---|---|---|
| | Standard | Longer Life | Standard | Compact | Longer Life |
| Radial Lead | — | — | KMG | PAG | KXJ |
| Snap-in | SMQ | SMM | KMQ | KMS,KMR | LXS,LXM |

## 9-2 Output Filtering Capacitors for Switching Mode Power Supplies

In the output filtering, a capacitor must be capable of managing a ripple current with the frequency as high as around 100 kHz. Therefore, Nippon Chemi-Con provides excellent product lineups with low impedance characteristic at high frequencies, including high temperature and long-life versions, which can be chosen according to the application purpose.
The 125˚C maximum temperature series capacitors have a shorter lifetime than the “Long Life” series of 105˚C max. temperature though the electrical characteristics are highly stable. The “wide temperature range” series has two subseries that differ by the applicable temperature range: -55 to 105˚C and -40 to 125˚C .
The “Long Life” series capacitors have been designed for specializing lower impedance and also longer lifetime. Compared to the “wide temperature range” series, the Long Life series can serve longer with the lower impedance, though the maximum operating temperature is limited to 105˚C and the electrical characteristics are large in change over the temperature range.

●Recommended output filtering capacitors for SMPS

| Characteristics / Type | 105℃ | | | 125℃ |
|---|---|---|---|---|
| | Standard | Low Z | Longer Life | High Temp |
| Wide Temp Range | LXY | LXZ | — | GXE |
| Longer Life | KY | KZH,KZE | KZM | — |

## 9-3 Filtering Capacitors for Inverter Main Circuits

These capacitors are used in a similar way to those for the input of the switching mode power supplies. Additionally, please understand the following precautions:

For the filtering circuit for 400Vac line, two capacitors of each a rated voltage 350 to 400Vdc can be used with being connected in series. In the series connection, voltages across the individual capacitors during charging depend on their individual capacitance values. After completion of the charging, the voltages come to depend on their leakage current values as the voltage distribution to the individual capacitors inversely corresponds to their leakage current values. For the voltage not to exceed the rated value after the charging is completed, balancing resistors should be connected in parallel with each capacitor. For guidance on choosing balancing resistors, please consult us.
Where capacitors connected in series are frequently charged and discharged, individual charging voltages depend on the variations in their capacitance values. Therefore, keeping the voltage balance will be difficult even if balancing resistors are employed. For servo amplifiers and other application where the voltage fluctuates frequently due to regeneration, use capacitor families that have been especially designed for intensive charge and discharge operations, or consult us for individual designs.

●Recommended capacitors for inverter main circuits

| Characteristics / Type | 85℃ | | 105℃ | |
|---|---|---|---|---|
| | Standard | Longer Life | Standard | Longer Life |
| Snap-in | SMQ | SMM | KMQ | LXS,LXM |
| Screw Mount | RWE | RWF,RWG | KMH | LXA,LXR |

●Recommended capacitors for servo amplifiers

| Characteristics / Type | 85℃ | 105℃ |
|---|---|---|
| | Standard | High Temp |
| Snap-in | — | KMV |
| Screw Mount | RWV | — |

## 9-4 Capacitors for Control Circuits

These capacitors are relatively small in capacitance, and therefore the case size is also small. However, the smaller the case size, the shorter the lifetime of a capacitor. Moreover, if a capacitor is located near a heat source, the capacitor’ s lifetime may be shortened. Consider selecting an adequate capacitor in lifetime balancing with other capacitors.

●Recommended capacitors for control circuits

| Characteristics / Type | 105℃ | |
|---|---|---|
| | 5L、7L | 11L |
| Radial Lead | FL | KY |

## 9-5 Photoflash Capacitors

These capacitors are specially designed so that much higher energy-volumetric efficiency can be obtained. Therefore, these capacitors are limited in application. Note that they cannot substitute filtering capacitors. Detailed specifications of these capacitors should be determined specifically for each photoflash application through discussions with a customer.

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# Reliability Test Data

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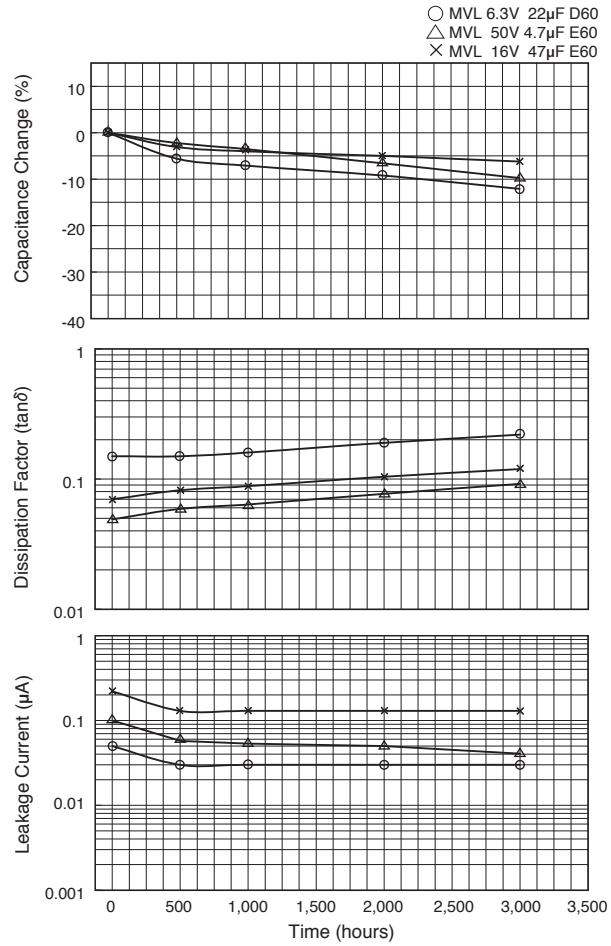
# RELIABILITY TEST DATA

Surface Mount

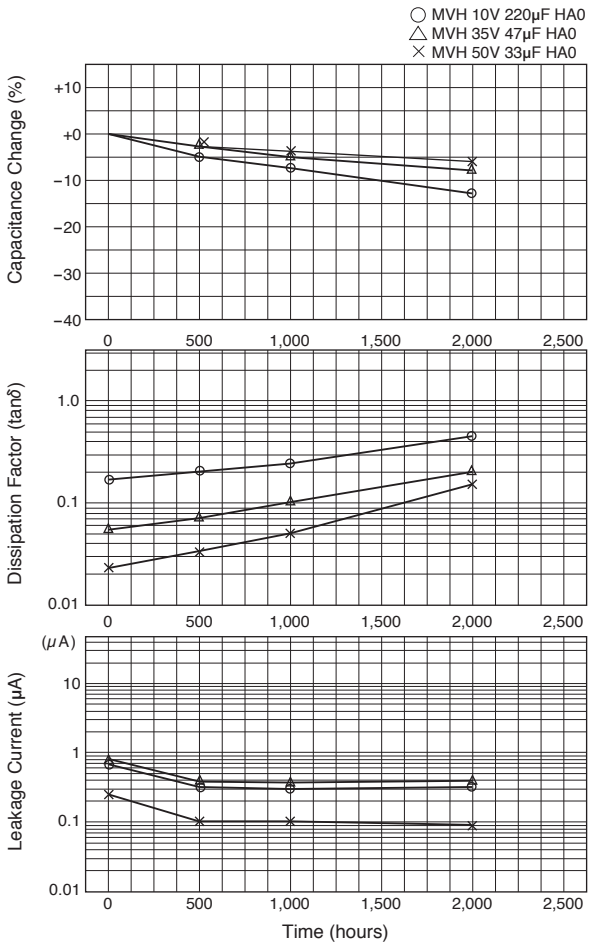
## MVL Series

### ●105℃ Endurance



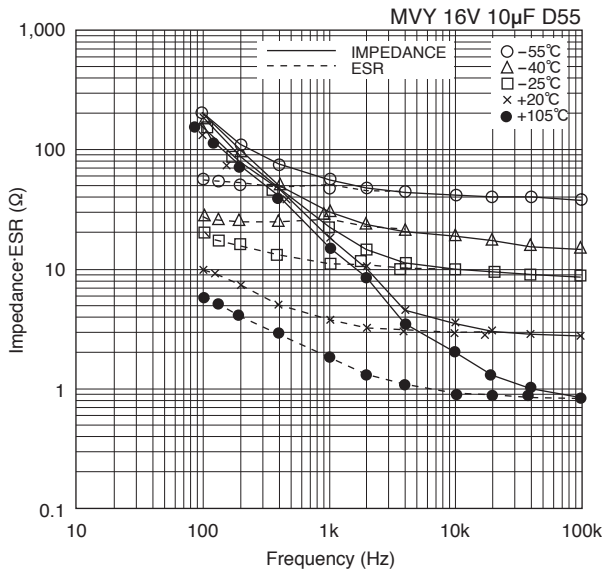

## MVH Series

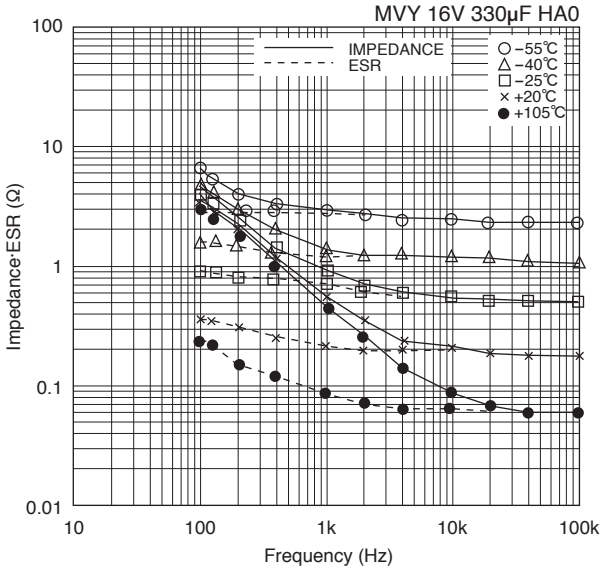
### ●125℃ Endurance




## MVY Series

### ●Impedance/ESR vs Frequency

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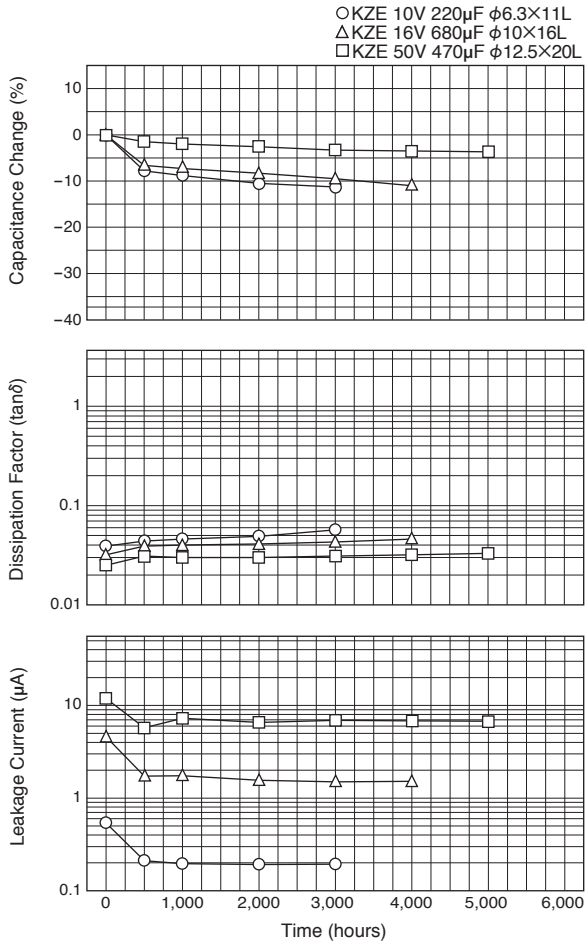
# RELIABILITY TEST DATA

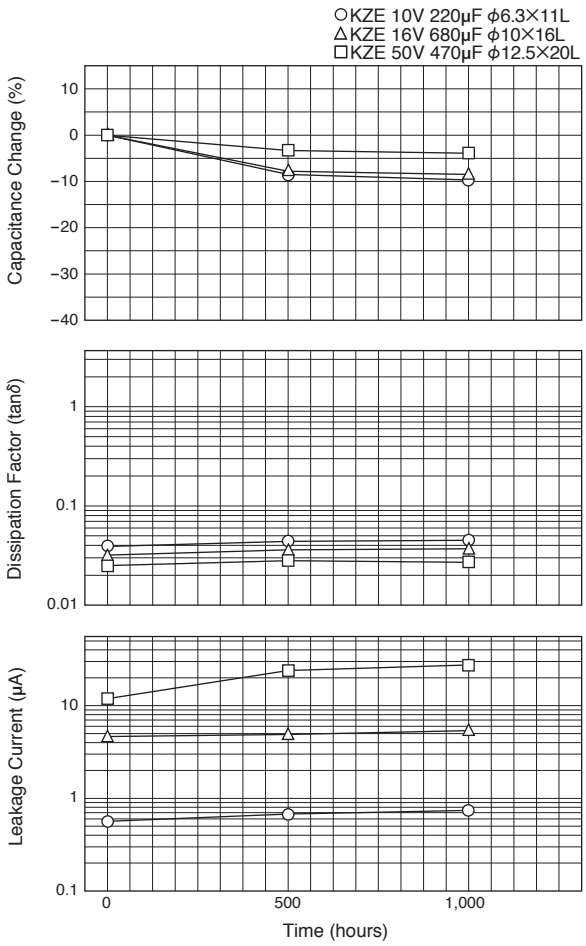
Radial

## KZE Series

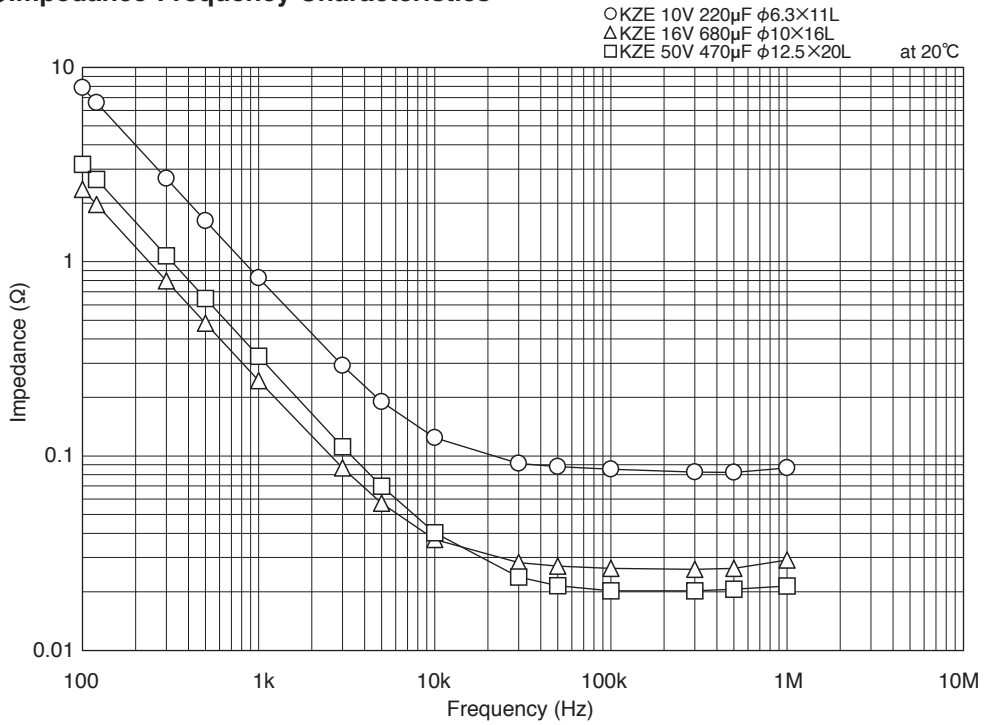
### ●105℃ Endurance with Rated Ripple Current




### ●105℃ Shelf Life




### ●Impedance-Frequency Characteristics

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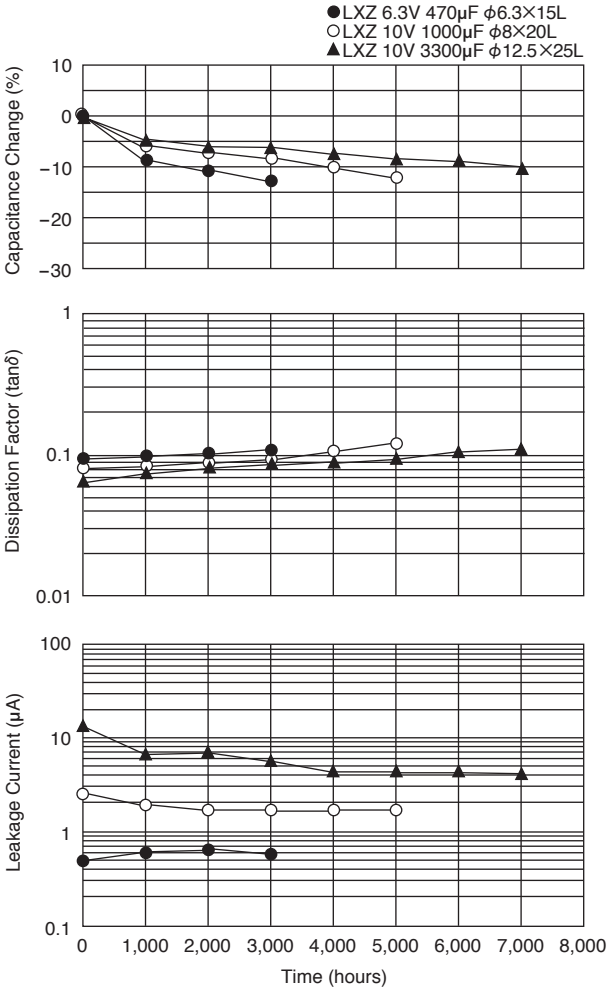
NIPPON CHEMI-CON

# RELIABILITY TEST DATA

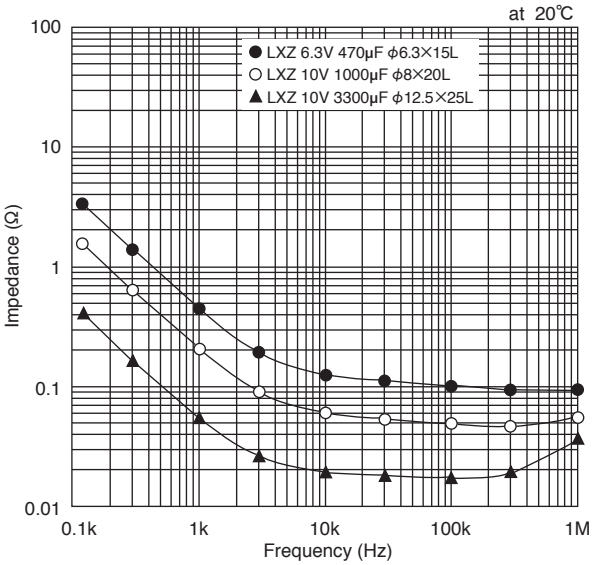


## LXZ Series

### ●105℃ Endurance with Rated Ripple Current

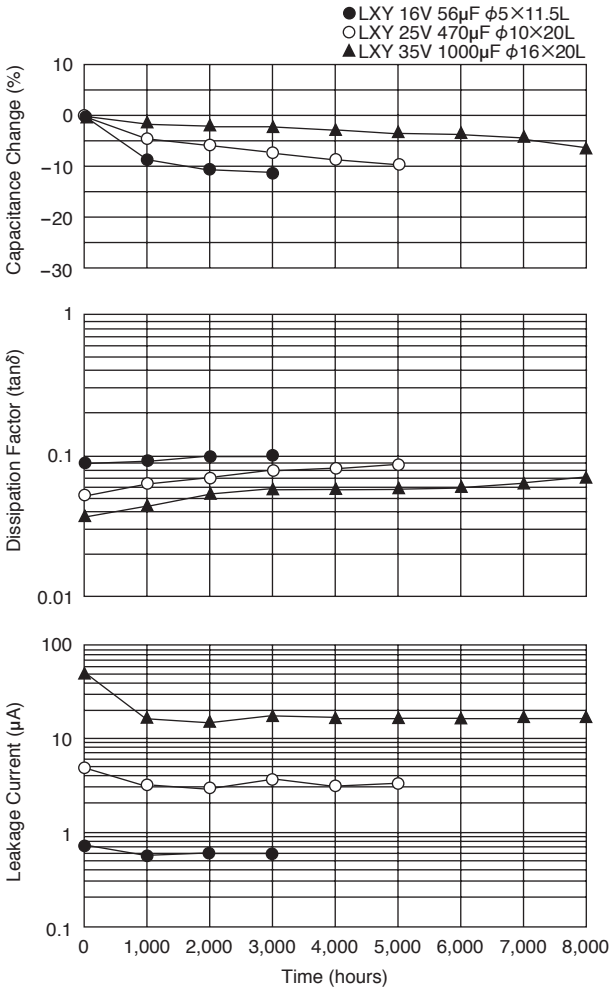



### ●Impedance-Frequency Characteristics

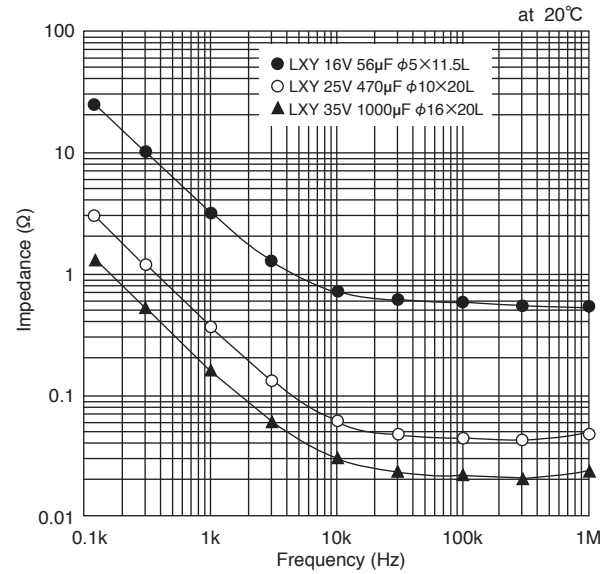



## LXY Series

### ●105℃ Endurance with Rated Ripple Current




### ●Impedance-Frequency Characteristics

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NIPPON CHEMI-CON

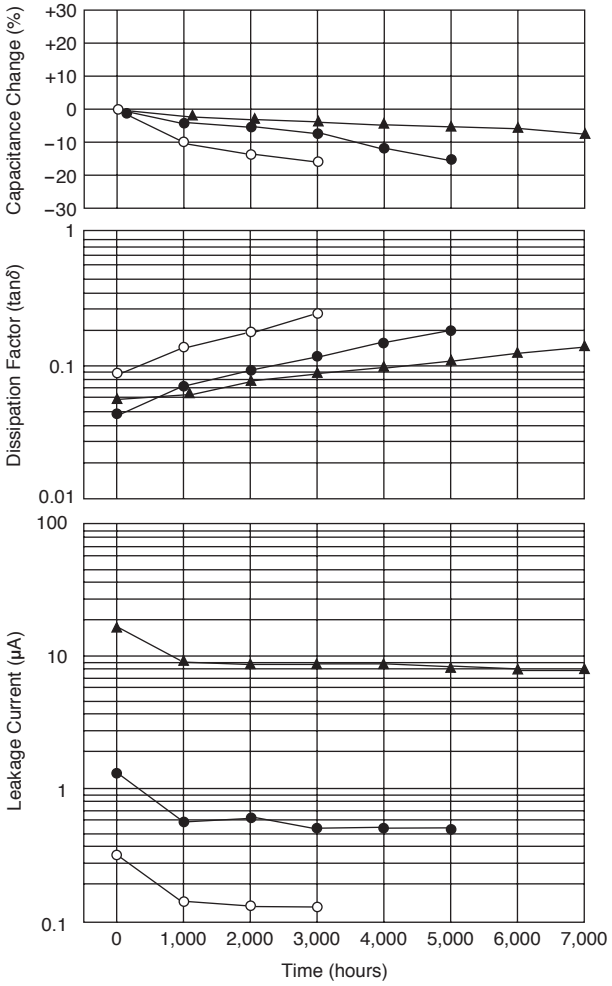
# RELIABILITY TEST DATA

Low Impedance Radial

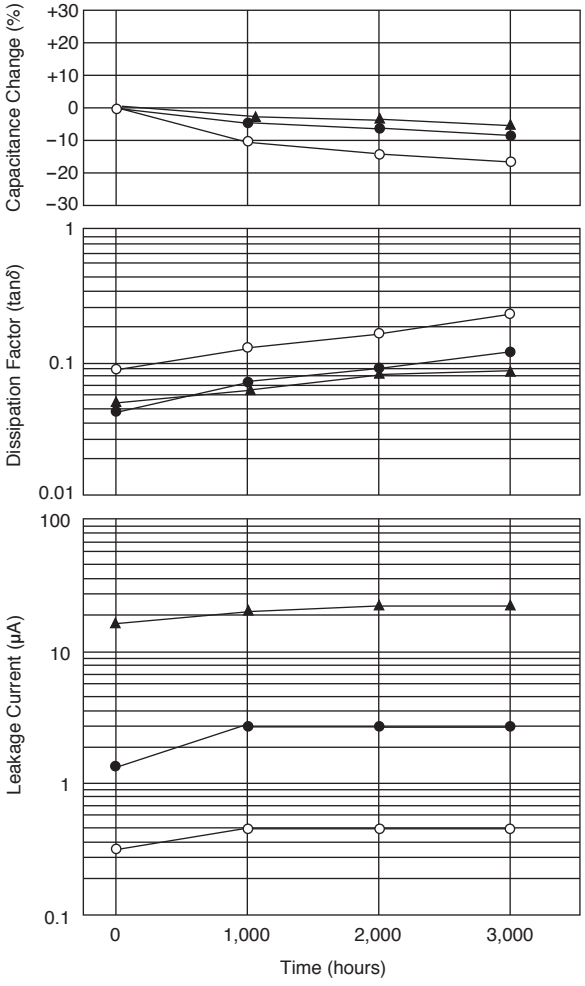
## LXV Series

○ LXV 10V 820μF φ5×11.5L
● LXV 25V 220μF φ8×15L
▲ LXV 35V 560μF φ12.5×20L

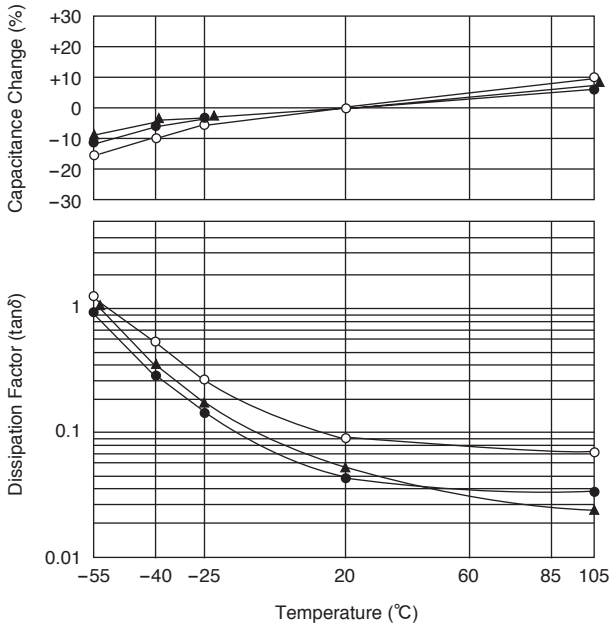
### ●105℃ Endurance with Rated Ripple Current



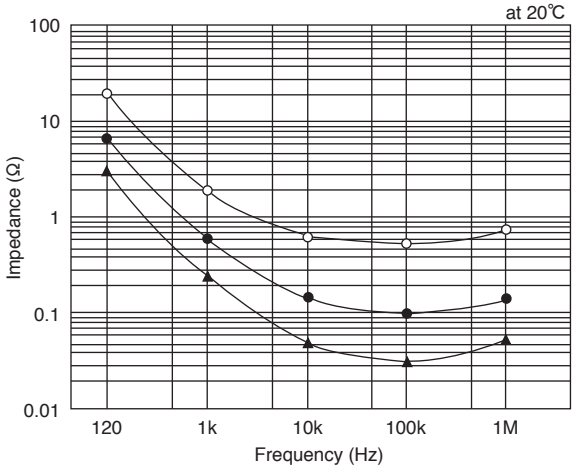

### ●105℃ Shelf Life test




### ●Temperature Characteristics




### ●Impedance-Frequency Characteristics

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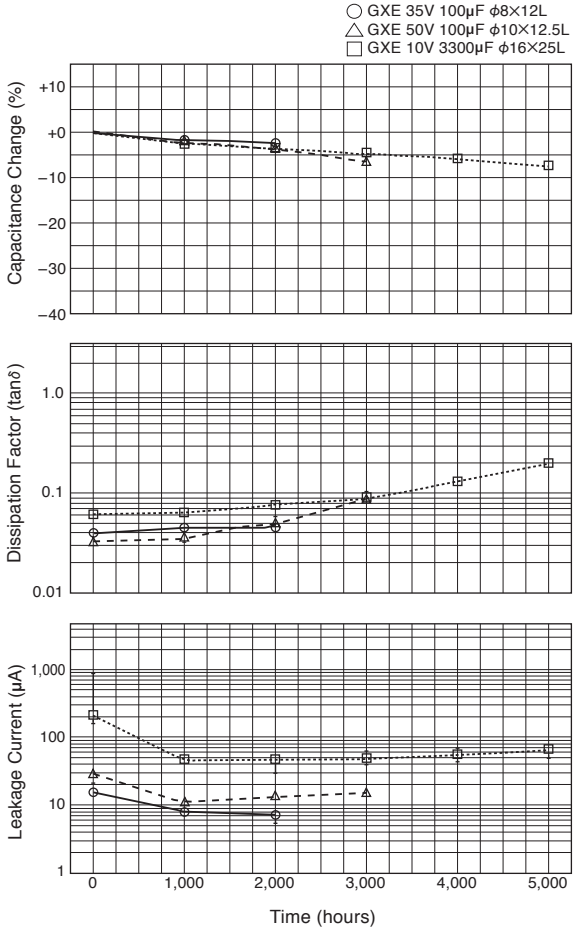
NIPPON CHEMI-CON

# RELIABILITY TEST DATA

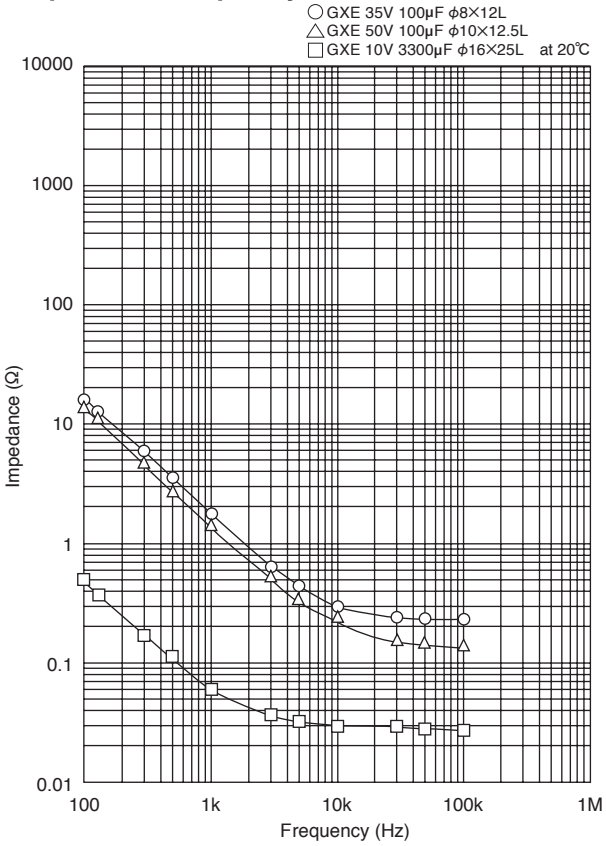
Radial

## GXE Series

### ●125℃ Endurance with Rated Ripple Current




### ●Impedance-Frequency Characteristics

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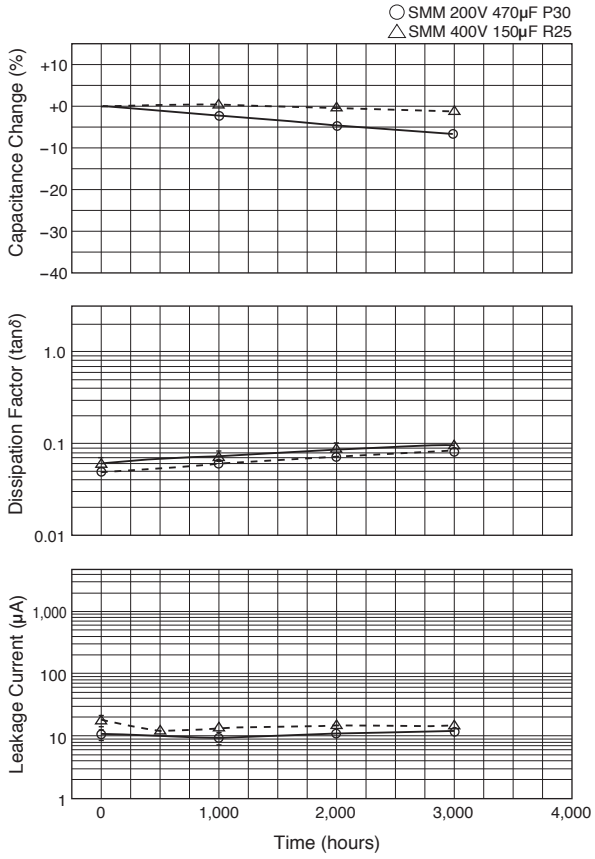
NIPPON CHEMI-CON

# RELIABILITY TEST DATA



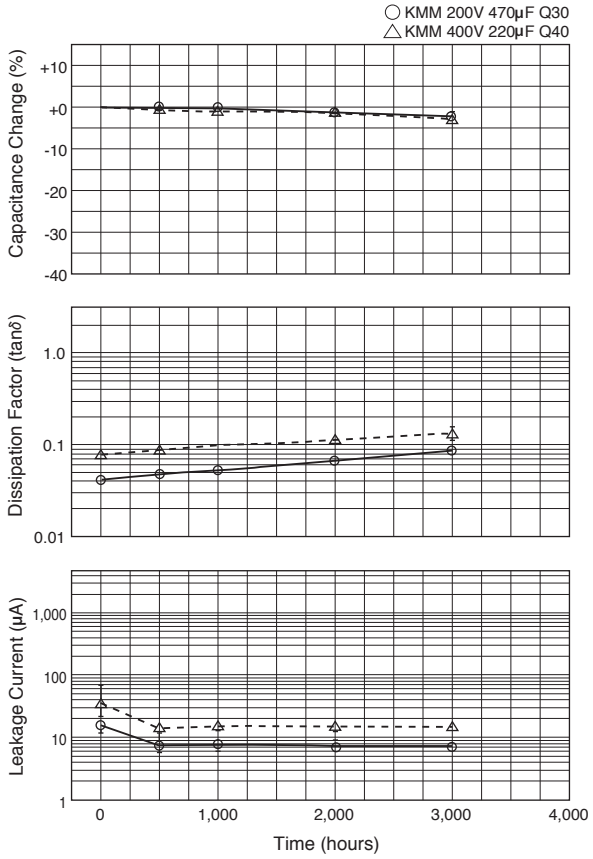
## SMM Series

### ●85℃ Endurance with Rated Ripple Current



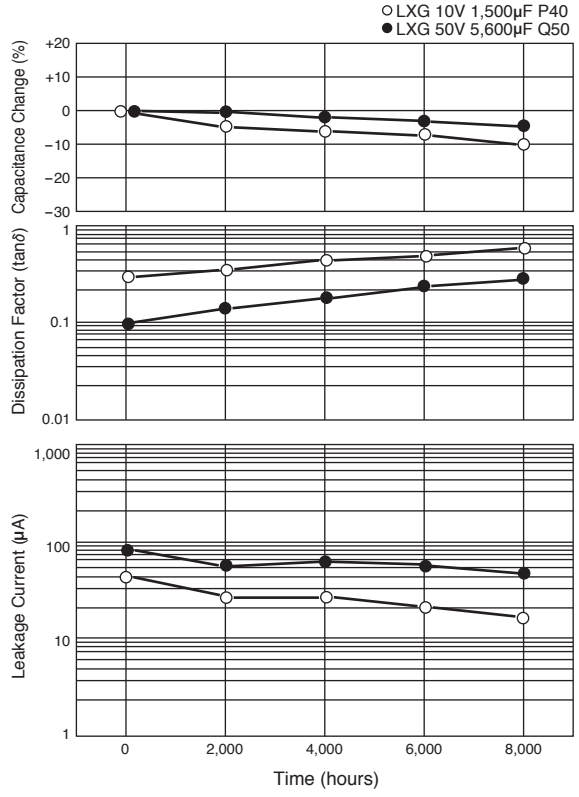

## KMM Series

### ●105℃ Endurance with Rated Ripple Current



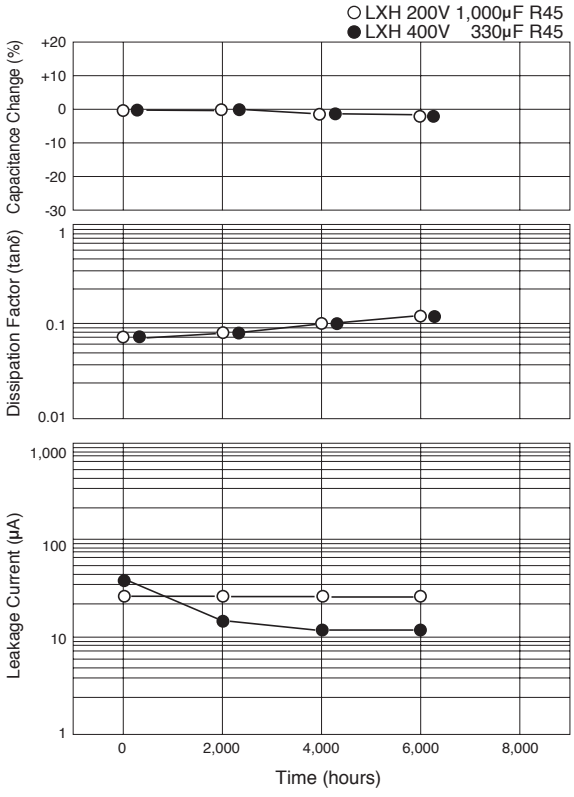

## LXG Series

### ●105℃ Endurance with Rated Ripple Current




## LXH Series

### ●105℃ Endurance with Rated Ripple Current

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NIPPON CHEMI-CON

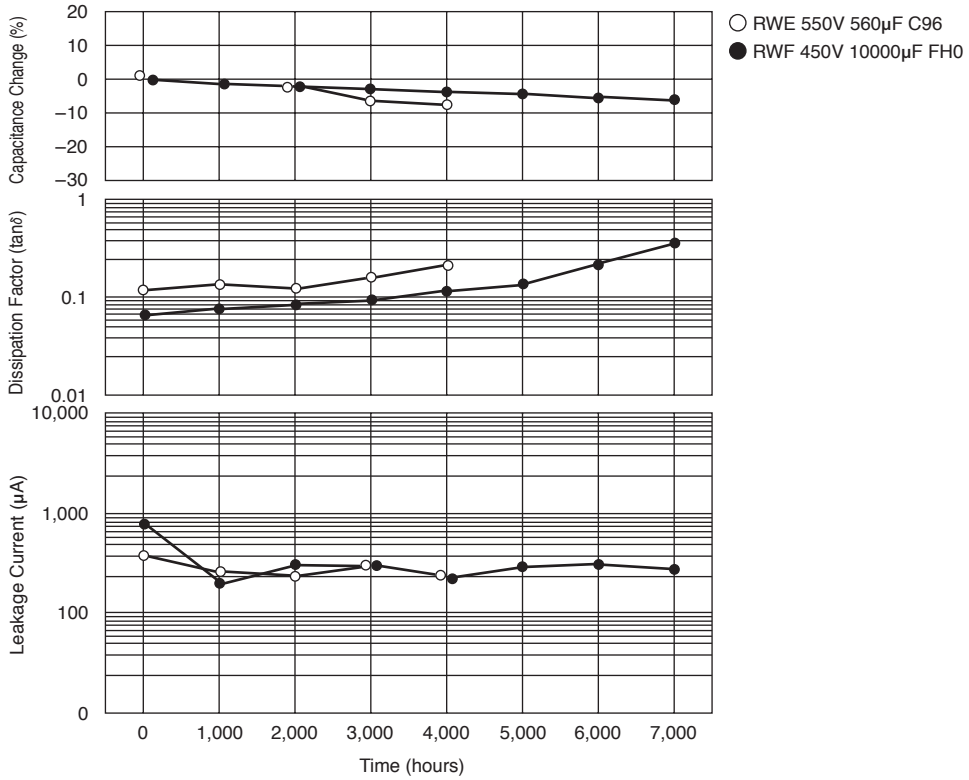
# RELIABILITY TEST DATA

Screw-Mount

# RWE/RWF/RWL Series

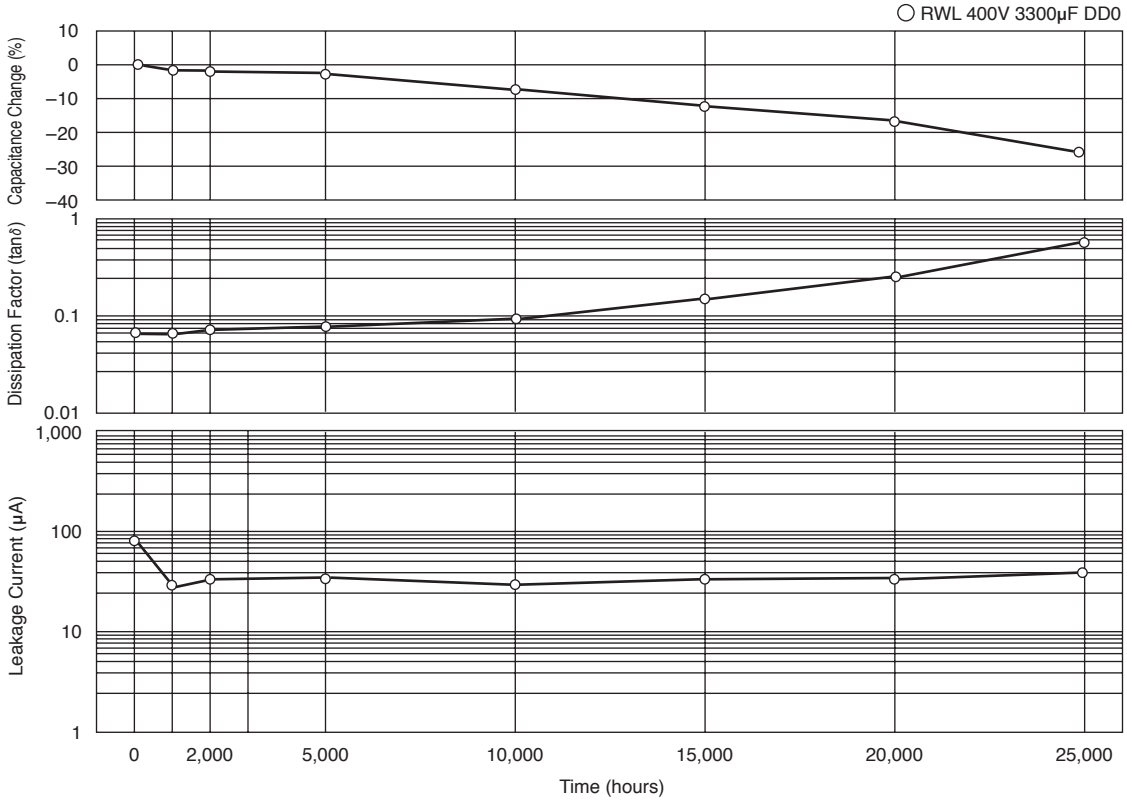
## RWE/RWF series

### ●85℃ Endurance with Rated Ripple Current




## RWL series

### ●85℃ Endurance with Rated Ripple Current

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# Appendix

NIPPON CHEMI-CON

# PART NUMBERING SYSTEM

## Appendix (Part number)

### ◆Capacitance code

* How to use the table

| | 1st |
|---|---|
| 2nd | Cap. Value |

Capacitance value part

| 2nd | 1st | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | 60.0 | 70.0 | 80.0 | 90.0 |
| A | 10.5 | 20.5 | 30.5 | 40.5 | 50.5 | 60.5 | 70.5 | 80.5 | 90.5 |
| 1 | 11.0 | 21.0 | 31.0 | 41.0 | 51.0 | 61.0 | 71.0 | 81.0 | 91.0 |
| B | 11.5 | 21.5 | 31.5 | 41.5 | 51.5 | 61.5 | 71.5 | 81.5 | 91.5 |
| 2 | 12.0 | 22.0 | 32.0 | 42.0 | 52.0 | 62.0 | 72.0 | 82.0 | 92.0 |
| C | 12.5 | 22.5 | 32.5 | 42.5 | 52.5 | 62.5 | 72.5 | 82.5 | 92.5 |
| 3 | 13.0 | 23.0 | 33.0 | 43.0 | 53.0 | 63.0 | 73.0 | 83.0 | 93.0 |
| D | 13.5 | 23.5 | 33.5 | 43.5 | 53.5 | 63.5 | 73.5 | 83.5 | 93.5 |
| 4 | 14.0 | 24.0 | 34.0 | 44.0 | 54.0 | 64.0 | 74.0 | 84.0 | 94.0 |
| E | 14.5 | 24.5 | 34.5 | 44.5 | 54.5 | 64.5 | 74.5 | 84.5 | 94.5 |
| 5 | 15.0 | 25.0 | 35.0 | 45.0 | 55.0 | 65.0 | 75.0 | 85.0 | 95.0 |
| F | 15.5 | 25.5 | 35.5 | 45.5 | 55.5 | 65.5 | 75.5 | 85.5 | 95.5 |
| 6 | 16.0 | 26.0 | 36.0 | 46.0 | 56.0 | 66.0 | 76.0 | 86.0 | 96.0 |
| G | 16.5 | 26.5 | 36.5 | 46.5 | 56.5 | 66.5 | 76.5 | 86.5 | 96.5 |
| 7 | 17.0 | 27.0 | 37.0 | 47.0 | 57.0 | 67.0 | 77.0 | 87.0 | 97.0 |
| H | 17.5 | 27.5 | 37.5 | 47.5 | 57.5 | 67.5 | 77.5 | 87.5 | 97.5 |
| 8 | 18.0 | 28.0 | 38.0 | 48.0 | 58.0 | 68.0 | 78.0 | 88.0 | 98.0 |
| J | 18.5 | 28.5 | 38.5 | 48.5 | 58.5 | 68.5 | 78.5 | 88.5 | 98.5 |
| 9 | 19.0 | 29.0 | 39.0 | 49.0 | 59.0 | 69.0 | 79.0 | 89.0 | 99.0 |
| K | 19.5 | 29.5 | 39.5 | 49.5 | 59.5 | 69.5 | 79.5 | 89.5 | 99.5 |

For less than 10μF, a decimal point position is displayed with R.
For 10μF or more, capacitance code is set to the first 2 digits and index (1digit).
Treatment of fraction (Refer to the table)

Example of conversion

| Real cap. | The first 2 digits | Treatment of fraction | Code 11th | 12th | 13th |
|---|---|---|---|---|---|
| 10.0μF → | 10.0 → | 10.0 → | 1 | 0 | 0 |
| 10.1μF → | 10.1 → | 10.0 → | 1 | 0 | 0 |
| 10.2μF → | 10.2 → | 10.0 → | 1 | 0 | 0 |
| 10.3μF → | 10.3 → | 10.5 → | 1 | A | 0 |
| 10.4μF → | 10.4 → | 10.5 → | 1 | A | 0 |
| 10.5μF → | 10.5 → | 10.5 → | 1 | A | 0 |
| 10.6μF → | 10.6 → | 10.5 → | 1 | A | 0 |
| 10.7μF → | 10.7 → | 10.5 → | 1 | A | 0 |
| 10.8μF → | 10.8 → | 11.0 → | 1 | 1 | 0 |
| 10.9μF → | 10.9 → | 11.0 → | 1 | 1 | 0 |
| 11.0μF → | 11.0 → | 11.0 → | 1 | 1 | 0 |
| 132μF → | 13.2 → | 13.0 → | 1 | 3 | 1 |
| 133μF → | 13.3 → | 13.5 → | 1 | D | 1 |
| 167μF → | 16.7 → | 16.5 → | 1 | G | 1 |
| 168μF → | 16.8 → | 17.0 → | 1 | 7 | 1 |
| 1110μF → | 11.1 → | 11.0 → | 1 | 1 | 2 |
| 1340μF → | 13.4 → | 13.5 → | 1 | D | 2 |
| 13200μF → | 13.2 → | 13.0 → | 1 | 3 | 3 |
| 13600μF → | 13.6 → | 13.5 → | 1 | D | 3 |
| 270000μF → | 27.0 → | 27.0 → | 2 | 7 | 4 |

### ◆Case length (Radial lead type)

| Case length [mm] | 16th | 17th |
|---|---|---|
| 0.0 | — | — |
| 0.1 | 0 | B |
| 0.2 | 0 | C |
| 0.3 | 0 | D |
| 0.4 | 0 | E |
| 0.5 | 0 | F |
| 0.6 | 0 | G |
| 0.7 | 0 | H |
| 0.8 | 0 | J |
| 0.9 | 0 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 1.0 | 0 | 1 |
| 1.1 | 1 | B |
| 1.2 | 1 | C |
| 1.3 | 1 | D |
| 1.4 | 1 | E |
| 1.5 | 1 | F |
| 1.6 | 1 | G |
| 1.7 | 1 | H |
| 1.8 | 1 | J |
| 1.9 | 1 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 2.0 | 0 | 2 |
| 2.1 | 2 | B |
| 2.2 | 2 | C |
| 2.3 | 2 | D |
| 2.4 | 2 | E |
| 2.5 | 2 | F |
| 2.6 | 2 | G |
| 2.7 | 2 | H |
| 2.8 | 2 | J |
| 2.9 | 2 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 3.0 | 0 | 3 |
| 3.1 | 3 | B |
| 3.2 | 3 | C |
| 3.3 | 3 | D |
| 3.4 | 3 | E |
| 3.5 | 3 | F |
| 3.6 | 3 | G |
| 3.7 | 3 | H |
| 3.8 | 3 | J |
| 3.9 | 3 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 4.0 | 0 | 4 |
| 4.1 | 4 | B |
| 4.2 | 4 | C |
| 4.3 | 4 | D |
| 4.4 | 4 | E |
| 4.5 | 4 | F |
| 4.6 | 4 | G |
| 4.7 | 4 | H |
| 4.8 | 4 | J |
| 4.9 | 4 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 5.0 | 0 | 5 |
| 5.1 | 5 | B |
| 5.2 | 5 | C |
| 5.3 | 5 | D |
| 5.4 | 5 | E |
| 5.5 | 5 | F |
| 5.6 | 5 | G |
| 5.7 | 5 | H |
| 5.8 | 5 | J |
| 5.9 | 5 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 6.0 | 0 | 6 |
| 6.1 | 6 | B |
| 6.2 | 6 | C |
| 6.3 | 6 | D |
| 6.4 | 6 | E |
| 6.5 | 6 | F |
| 6.6 | 6 | G |
| 6.7 | 6 | H |
| 6.8 | 6 | J |
| 6.9 | 6 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 7.0 | 0 | 7 |
| 7.1 | 7 | B |
| 7.2 | 7 | C |
| 7.3 | 7 | D |
| 7.4 | 7 | E |
| 7.5 | 7 | F |
| 7.6 | 7 | G |
| 7.7 | 7 | H |
| 7.8 | 7 | J |
| 7.9 | 7 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 8.0 | 0 | 8 |
| 8.1 | 8 | B |
| 8.2 | 8 | C |
| 8.3 | 8 | D |
| 8.4 | 8 | E |
| 8.5 | 8 | F |
| 8.6 | 8 | G |
| 8.7 | 8 | H |
| 8.8 | 8 | J |
| 8.9 | 8 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 9.0 | 0 | 9 |
| 9.1 | 9 | B |
| 9.2 | 9 | C |
| 9.3 | 9 | D |
| 9.4 | 9 | E |
| 9.5 | 9 | F |
| 9.6 | 9 | G |
| 9.7 | 9 | H |
| 9.8 | 9 | J |
| 9.9 | 9 | K |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 10.0 | 1 | 0 |
| 10.1 | A | 1 |
| 10.2 | A | 2 |
| 10.3 | A | 3 |
| 10.4 | A | 4 |
| 10.5 | A | 5 |
| 10.6 | A | 6 |
| 10.7 | A | 7 |
| 10.8 | A | 8 |
| 10.9 | A | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 11.0 | 1 | 1 |
| 11.1 | B | 1 |
| 11.2 | B | 2 |
| 11.3 | B | 3 |
| 11.4 | B | 4 |
| 11.5 | B | 5 |
| 11.6 | B | 6 |
| 11.7 | B | 7 |
| 11.8 | B | 8 |
| 11.9 | B | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 12.0 | 1 | 2 |
| 12.1 | C | 1 |
| 12.2 | C | 2 |
| 12.3 | C | 3 |
| 12.4 | C | 4 |
| 12.5 | C | 5 |
| 12.6 | C | 6 |
| 12.7 | C | 7 |
| 12.8 | C | 8 |
| 12.9 | C | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 13.0 | 1 | 3 |
| 13.1 | D | 1 |
| 13.2 | D | 2 |
| 13.3 | D | 3 |
| 13.4 | D | 4 |
| 13.5 | D | 5 |
| 13.6 | D | 6 |
| 13.7 | D | 7 |
| 13.8 | D | 8 |
| 13.9 | D | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 14.0 | 1 | 4 |
| 14.1 | E | 1 |
| 14.2 | E | 2 |
| 14.3 | E | 3 |
| 14.4 | E | 4 |
| 14.5 | E | 5 |
| 14.6 | E | 6 |
| 14.7 | E | 7 |
| 14.8 | E | 8 |
| 14.9 | E | 9 |

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# PART NUMBERING SYSTEM

| Case length [mm] | 16th | 17th |
|---|---|---|
| 15.0 | 1 | 5 |
| 15.1 | F | 1 |
| 15.2 | F | 2 |
| 15.3 | F | 3 |
| 15.4 | F | 4 |
| 15.5 | F | 5 |
| 15.6 | F | 6 |
| 15.7 | F | 7 |
| 15.8 | F | 8 |
| 15.9 | F | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 16.0 | 1 | 6 |
| 16.1 | G | 1 |
| 16.2 | G | 2 |
| 16.3 | G | 3 |
| 16.4 | G | 4 |
| 16.5 | G | 5 |
| 16.6 | G | 6 |
| 16.7 | G | 7 |
| 16.8 | G | 8 |
| 16.9 | G | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 17.0 | 1 | 7 |
| 17.1 | H | 1 |
| 17.2 | H | 2 |
| 17.3 | H | 3 |
| 17.4 | H | 4 |
| 17.5 | H | 5 |
| 17.6 | H | 6 |
| 17.7 | H | 7 |
| 17.8 | H | 8 |
| 17.9 | H | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 18.0 | 1 | 8 |
| 18.1 | J | 1 |
| 18.2 | J | 2 |
| 18.3 | J | 3 |
| 18.4 | J | 4 |
| 18.5 | J | 5 |
| 18.6 | J | 6 |
| 18.7 | J | 7 |
| 18.8 | J | 8 |
| 18.9 | J | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 19.0 | 1 | 9 |
| 19.1 | K | 1 |
| 19.2 | K | 2 |
| 19.3 | K | 3 |
| 19.4 | K | 4 |
| 19.5 | K | 5 |
| 19.6 | K | 6 |
| 19.7 | K | 7 |
| 19.8 | K | 8 |
| 19.9 | K | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 20.0 | 2 | 0 |
| 20.5 | L | 1 |
| 21.0 | 2 | 1 |
| 21.5 | L | 3 |
| 22.0 | 2 | 2 |
| 22.5 | L | 5 |
| 23.0 | 2 | 3 |
| 23.5 | L | 7 |
| 24.0 | 2 | 4 |
| 24.5 | L | 9 |
| 25.0 | 2 | 5 |
| 25.5 | M | 1 |
| 26.0 | 2 | 6 |
| 26.5 | M | 3 |
| 27.0 | 2 | 7 |
| 27.5 | M | 5 |
| 28.0 | 2 | 8 |
| 28.5 | M | 7 |
| 29.0 | 2 | 9 |
| 29.5 | M | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 30.0 | 3 | 0 |
| 30.5 | N | 1 |
| 31.0 | 3 | 1 |
| 31.5 | N | 3 |
| 32.0 | 3 | 2 |
| 32.5 | N | 5 |
| 33.0 | 3 | 3 |
| 33.5 | N | 7 |
| 34.0 | 3 | 4 |
| 34.5 | N | 9 |
| 35.0 | 3 | 5 |
| 35.5 | P | 1 |
| 36.0 | 3 | 6 |
| 36.5 | P | 3 |
| 37.0 | 3 | 7 |
| 37.5 | P | 5 |
| 38.0 | 3 | 8 |
| 38.5 | P | 7 |
| 39.0 | 3 | 9 |
| 39.5 | P | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 40.0 | 4 | 0 |
| 40.5 | Q | 1 |
| 41.0 | 4 | 1 |
| 41.5 | Q | 3 |
| 42.0 | 4 | 2 |
| 42.5 | Q | 5 |
| 43.0 | 4 | 3 |
| 43.5 | Q | 7 |
| 44.0 | 4 | 4 |
| 44.5 | Q | 9 |
| 45.0 | 4 | 5 |
| 45.5 | R | 1 |
| 46.0 | 4 | 6 |
| 46.5 | R | 3 |
| 47.0 | 4 | 7 |
| 47.5 | R | 5 |
| 48.0 | 4 | 8 |
| 48.5 | R | 7 |
| 49.0 | 4 | 9 |
| 49.5 | R | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 50.0 | 5 | 0 |
| 50.5 | S | 1 |
| 51.0 | 5 | 1 |
| 51.5 | S | 3 |
| 52.0 | 5 | 2 |
| 52.5 | S | 5 |
| 53.0 | 5 | 3 |
| 53.5 | S | 7 |
| 54.0 | 5 | 4 |
| 54.5 | S | 9 |
| 55.0 | 5 | 5 |
| 55.5 | T | 1 |
| 56.0 | 5 | 6 |
| 56.5 | T | 3 |
| 57.0 | 5 | 7 |
| 57.5 | T | 5 |
| 58.0 | 5 | 8 |
| 58.5 | T | 7 |
| 59.0 | 5 | 9 |
| 59.5 | T | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 60.0 | 6 | 0 |
| 60.5 | U | 1 |
| 61.0 | 6 | 1 |
| 61.5 | U | 3 |
| 62.0 | 6 | 2 |
| 62.5 | U | 5 |
| 63.0 | 6 | 3 |
| 63.5 | U | 7 |
| 64.0 | 6 | 4 |
| 64.5 | U | 9 |
| 65.0 | 6 | 5 |
| 65.5 | V | 1 |
| 66.0 | 6 | 6 |
| 66.5 | V | 3 |
| 67.0 | 6 | 7 |
| 67.5 | V | 5 |
| 68.0 | 6 | 8 |
| 68.5 | V | 7 |
| 69.0 | 6 | 9 |
| 69.5 | V | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 70.0 | 7 | 0 |
| 70.5 | W | 1 |
| 71.0 | 7 | 1 |
| 71.5 | W | 3 |
| 72.0 | 7 | 2 |
| 72.5 | W | 5 |
| 73.0 | 7 | 3 |
| 73.5 | W | 7 |
| 74.0 | 7 | 4 |
| 74.5 | W | 9 |
| 75.0 | 7 | 5 |
| 75.5 | X | 1 |
| 76.0 | 7 | 6 |
| 76.5 | X | 3 |
| 77.0 | 7 | 7 |
| 77.5 | X | 5 |
| 78.0 | 7 | 8 |
| 78.5 | X | 7 |
| 79.0 | 7 | 9 |
| 79.5 | X | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 80.0 | 8 | 0 |
| 80.5 | Y | 1 |
| 81.0 | 8 | 1 |
| 81.5 | Y | 3 |
| 82.0 | 8 | 2 |
| 82.5 | Y | 5 |
| 83.0 | 8 | 3 |
| 83.5 | Y | 7 |
| 84.0 | 8 | 4 |
| 84.5 | Y | 9 |
| 85.0 | 8 | 5 |
| 85.5 | Z | 1 |
| 86.0 | 8 | 6 |
| 86.5 | Z | 3 |
| 87.0 | 8 | 7 |
| 87.5 | Z | 5 |
| 88.0 | 8 | 8 |
| 88.5 | Z | 7 |
| 89.0 | 8 | 9 |
| 89.5 | Z | 9 |

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# PART NUMBERING SYSTEM

## ◆Case length (Snap-in type / Screw mount terminal type)

| Case length [mm] | 16th | 17th |
|---|---|---|
| 20 | 2 | 0 |
| 21 | 2 | 1 |
| 22 | 2 | 2 |
| 23 | 2 | 3 |
| 24 | 2 | 4 |
| 25 | 2 | 5 |
| 26 | 2 | 6 |
| 27 | 2 | 7 |
| 28 | 2 | 8 |
| 29 | 2 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 30 | 3 | 0 |
| 31 | 3 | 1 |
| 32 | 3 | 2 |
| 33 | 3 | 3 |
| 34 | 3 | 4 |
| 35 | 3 | 5 |
| 36 | 3 | 6 |
| 37 | 3 | 7 |
| 38 | 3 | 8 |
| 39 | 3 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 40 | 4 | 0 |
| 41 | 4 | 1 |
| 42 | 4 | 2 |
| 43 | 4 | 3 |
| 44 | 4 | 4 |
| 45 | 4 | 5 |
| 46 | 4 | 6 |
| 47 | 4 | 7 |
| 48 | 4 | 8 |
| 49 | 4 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 50 | 5 | 0 |
| 51 | 5 | 1 |
| 52 | 5 | 2 |
| 53 | 5 | 3 |
| 54 | 5 | 4 |
| 55 | 5 | 5 |
| 56 | 5 | 6 |
| 57 | 5 | 7 |
| 58 | 5 | 8 |
| 59 | 5 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 60 | 6 | 0 |
| 61 | 6 | 1 |
| 62 | 6 | 2 |
| 63 | 6 | 3 |
| 64 | 6 | 4 |
| 65 | 6 | 5 |
| 66 | 6 | 6 |
| 67 | 6 | 7 |
| 68 | 6 | 8 |
| 69 | 6 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 70 | 7 | 0 |
| 71 | 7 | 1 |
| 72 | 7 | 2 |
| 73 | 7 | 3 |
| 74 | 7 | 4 |
| 75 | 7 | 5 |
| 76 | 7 | 6 |
| 77 | 7 | 7 |
| 78 | 7 | 8 |
| 79 | 7 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 80 | 8 | 0 |
| 81 | 8 | 1 |
| 82 | 8 | 2 |
| 83 | 8 | 3 |
| 84 | 8 | 4 |
| 85 | 8 | 5 |
| 86 | 8 | 6 |
| 87 | 8 | 7 |
| 88 | 8 | 8 |
| 89 | 8 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 90 | 9 | 0 |
| 91 | 9 | 1 |
| 92 | 9 | 2 |
| 93 | 9 | 3 |
| 94 | 9 | 4 |
| 95 | 9 | 5 |
| 96 | 9 | 6 |
| 97 | 9 | 7 |
| 98 | 9 | 8 |
| 99 | 9 | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 100 | A | 0 |
| 101 | A | 1 |
| 102 | A | 2 |
| 103 | A | 3 |
| 104 | A | 4 |
| 105 | A | 5 |
| 106 | A | 6 |
| 107 | A | 7 |
| 108 | A | 8 |
| 109 | A | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 110 | B | 0 |
| 111 | B | 1 |
| 112 | B | 2 |
| 113 | B | 3 |
| 114 | B | 4 |
| 115 | B | 5 |
| 116 | B | 6 |
| 117 | B | 7 |
| 118 | B | 8 |
| 119 | B | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 120 | C | 0 |
| 121 | C | 1 |
| 122 | C | 2 |
| 123 | C | 3 |
| 124 | C | 4 |
| 125 | C | 5 |
| 126 | C | 6 |
| 127 | C | 7 |
| 128 | C | 8 |
| 129 | C | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 130 | D | 0 |
| 131 | D | 1 |
| 132 | D | 2 |
| 133 | D | 3 |
| 134 | D | 4 |
| 135 | D | 5 |
| 136 | D | 6 |
| 137 | D | 7 |
| 138 | D | 8 |
| 139 | D | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 140 | E | 0 |
| 141 | E | 1 |
| 142 | E | 2 |
| 143 | E | 3 |
| 144 | E | 4 |
| 145 | E | 5 |
| 146 | E | 6 |
| 147 | E | 7 |
| 148 | E | 8 |
| 149 | E | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 150 | F | 0 |
| 151 | F | 1 |
| 152 | F | 2 |
| 153 | F | 3 |
| 154 | F | 4 |
| 155 | F | 5 |
| 156 | F | 6 |
| 157 | F | 7 |
| 158 | F | 8 |
| 159 | F | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 160 | G | 0 |
| 161 | G | 1 |
| 162 | G | 2 |
| 163 | G | 3 |
| 164 | G | 4 |
| 165 | G | 5 |
| 166 | G | 6 |
| 167 | G | 7 |
| 168 | G | 8 |
| 169 | G | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 170 | H | 0 |
| 171 | H | 1 |
| 172 | H | 2 |
| 173 | H | 3 |
| 174 | H | 4 |
| 175 | H | 5 |
| 176 | H | 6 |
| 177 | H | 7 |
| 178 | H | 8 |
| 179 | H | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 180 | J | 0 |
| 181 | J | 1 |
| 182 | J | 2 |
| 183 | J | 3 |
| 184 | J | 4 |
| 185 | J | 5 |
| 186 | J | 6 |
| 187 | J | 7 |
| 188 | J | 8 |
| 189 | J | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 190 | K | 0 |
| 191 | K | 1 |
| 192 | K | 2 |
| 193 | K | 3 |
| 194 | K | 4 |
| 195 | K | 5 |
| 196 | K | 6 |
| 197 | K | 7 |
| 198 | K | 8 |
| 199 | K | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 200 | L | 0 |
| 201 | L | 1 |
| 202 | L | 2 |
| 203 | L | 3 |
| 204 | L | 4 |
| 205 | L | 5 |
| 206 | L | 6 |
| 207 | L | 7 |
| 208 | L | 8 |
| 209 | L | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 210 | M | 0 |
| 211 | M | 1 |
| 212 | M | 2 |
| 213 | M | 3 |
| 214 | M | 4 |
| 215 | M | 5 |
| 216 | M | 6 |
| 217 | M | 7 |
| 218 | M | 8 |
| 219 | M | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 220 | N | 0 |
| 221 | N | 1 |
| 222 | N | 2 |
| 223 | N | 3 |
| 224 | N | 4 |
| 225 | N | 5 |
| 226 | N | 6 |
| 227 | N | 7 |
| 228 | N | 8 |
| 229 | N | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 230 | P | 0 |
| 231 | P | 1 |
| 232 | P | 2 |
| 233 | P | 3 |
| 234 | P | 4 |
| 235 | P | 5 |
| 236 | P | 6 |
| 237 | P | 7 |
| 238 | P | 8 |
| 239 | P | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 240 | Q | 0 |
| 241 | Q | 1 |
| 242 | Q | 2 |
| 243 | Q | 3 |
| 244 | Q | 4 |
| 245 | Q | 5 |
| 246 | Q | 6 |
| 247 | Q | 7 |
| 248 | Q | 8 |
| 249 | Q | 9 |

| Case length [mm] | 16th | 17th |
|---|---|---|
| 250 | R | 0 |
| 251 | R | 1 |
| 252 | R | 2 |
| 253 | R | 3 |
| 254 | R | 4 |
| 255 | R | 5 |
| 256 | R | 6 |
| 257 | R | 7 |
| 258 | R | 8 |
| 259 | R | 9 |

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# PART NUMBERING SYSTEM

## ◆Supplement code

### Conductive polymer Chip and Radial lead type / Electrolytec Chip type

| | Terminal plating material | |
|---|---|---|
| | Sn | Sn-Bi |
| Coating case | S | G |

### Radial lead type / Snap-in type

| | | Terminal plating material | |
|---|---|---|---|
| | | Sn | Sn-Bi |
| Outer sleeve | PET | S | D |
| | Coating case | H | G |
| | Polyolefin | L | — |
| | Pb-free PVC | M | — |

* Pb-free snap-in type does not have a plastic disk.
We also produce Pb-free snap-in type with "Plastic disk, Pb-free PVC sleeve and Sn terminal plating".
In this case, supplement code (the 18th digit) is "T".

### Screw mount terminal type

| | Screw terminal |
|---|---|
| Pb-free PVC | M |
| Polyolefin | S |
| PET | C |

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