

# NPCAP™-PSA Series

- Super low ESR, high temperature resistance and high ripple current capability
- Rated voltage range : 2.5 to 16V<sub>dc</sub>
- Endurance : 2,000 hours at 105°C
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- RoHS Compliant



## ◆SPECIFICATIONS

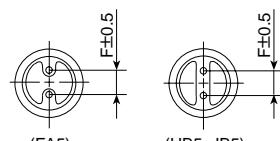
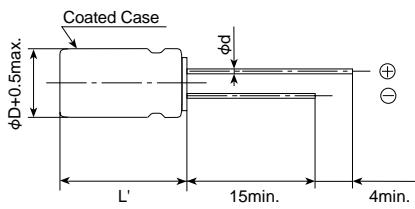
Items	Characteristics											
<b>Category</b> <b>Temperature Range</b>	-55 to +105°C											
<b>Rated Voltage Range</b>	2.5 to 16V <sub>dc</sub>											
<b>Capacitance Tolerance</b>	$\pm 20\%$ (M) (at 20°C, 120Hz)											
<b>Surge Voltage</b>	Rated voltage×1.15 (at 105°C)											
<b>Leakage Current</b> *Note	$I=0.2CV$ Where, I : Max. leakage current ( $\mu$ A), C : Nominal capacitance ( $\mu$ F), V : Rated voltage (V <sub>dc</sub> ) (at 20°C after 2 minutes)											
<b>Dissipation Factor</b> ( $\tan\delta$ )	0.08 max. (FA5 size : 0.12max.) (at 20°C, 120Hz)											
<b>Low Temperature Characteristics</b> (Max. Impedance Ratio)	$Z(-25^\circ\text{C})/Z(+20^\circ\text{C}) \leq 1.15$ $Z(-55^\circ\text{C})/Z(+20^\circ\text{C}) \leq 1.25$ (at 100kHz)											
<b>Endurance</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C. <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td><math>\leq \pm 20\%</math> of the initial value</td> </tr> <tr> <td>D.F. (<math>\tan\delta</math>)</td> <td><math>\leq 150\%</math> of the initial specified value</td> </tr> <tr> <td>ESR</td> <td><math>\leq 150\%</math> of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td><math>\leq</math>The initial specified value</td> </tr> </table>		Appearance	No significant damage	Capacitance change	$\leq \pm 20\%$ of the initial value	D.F. ( $\tan\delta$ )	$\leq 150\%$ of the initial specified value	ESR	$\leq 150\%$ of the initial specified value	Leakage current	$\leq$ The initial specified value
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<b>Bias Humidity Test</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to DC voltage at 60°C, 90 to 95% RH for 1,000 hours. <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td><math>\leq \pm 20\%</math> of the initial value</td> </tr> <tr> <td>D.F. (<math>\tan\delta</math>)</td> <td><math>\leq 150\%</math> of the initial specified value</td> </tr> <tr> <td>ESR</td> <td><math>\leq 150\%</math> of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td><math>\leq</math>The initial specified value</td> </tr> </table>		Appearance	No significant damage	Capacitance change	$\leq \pm 20\%$ of the initial value	D.F. ( $\tan\delta$ )	$\leq 150\%$ of the initial specified value	ESR	$\leq 150\%$ of the initial specified value	Leakage current	$\leq$ The initial specified value
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<b>Surge Voltage Test</b>	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105°C for 30 seconds through a protective resistor ( $R=1\text{k}\Omega$ ) and discharge for 5 minutes 30 seconds. <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td><math>\leq \pm 20\%</math> of the initial value</td> </tr> <tr> <td>D.F. (<math>\tan\delta</math>)</td> <td><math>\leq 150\%</math> of the initial specified value</td> </tr> <tr> <td>ESR</td> <td><math>\leq 150\%</math> of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td><math>\leq</math>The initial specified value</td> </tr> </table>		Appearance	No significant damage	Capacitance change	$\leq \pm 20\%$ of the initial value	D.F. ( $\tan\delta$ )	$\leq 150\%$ of the initial specified value	ESR	$\leq 150\%$ of the initial specified value	Leakage current	$\leq$ The initial specified value
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<b>Failure Rate</b>	0.5% per 1,000 hours maximum (Confidence level 60% at 105°C)											

\*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°C.

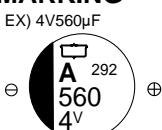
## ◆DIMENSIONS [mm]

- Terminal Code : E



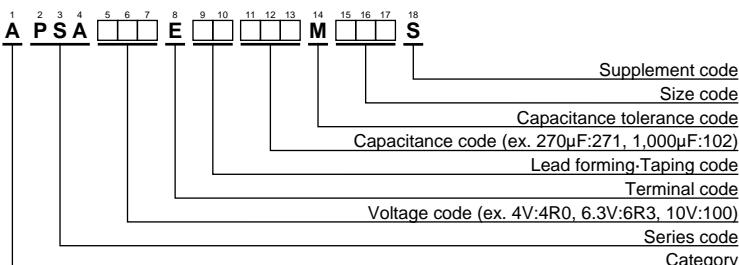
Size code	FA5	HB5	JB5
φD	6.3	8.0	10.0
φd	0.5		0.8
F	2.5	3.5	5.0
φD'	$\phi D+0.5\text{max}$		
L'	L+0.3max	L+1.5max	

## ◆MARKING



## NPCAP™-PSA Series

## ◆PART NUMBERING SYSTEM



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

## ◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φDXL(mm)	ESR (mΩmax/20°C, 100k to 300kHz)	Rated ripple current (mAmps/105°C, 100kHz)	Part No.
2.5	390	6.3X10.5	20	3,160	APSA2R5E□□391MFA5S
	680	8X11.5	7	5,580	APSA2R5E□□681MHB5S
	820	8X11.5	7	5,580	APSA2R5E□□821MHB5S
	1,000	10X11.5	6	5,860	APSA2R5E□□102MJB5S
	1,500	10X11.5	7	5,860	APSA2R5E□□152MJB5S
4	270	6.3X10.5	20	3,160	APSA4R0E□□271MFA5S
	390	6.3X10.5	24	3,300	APSA4R0E□□391MFA5S
	560	8X11.5	7	5,580	APSA4R0E□□561MHB5S
	820	10X11.5	6	5,860	APSA4R0E□□821MJB5S
6.3	220	6.3X10.5	20	3,160	APSA6R3E□□221MFA5S
	330	6.3X10.5	28	3,190	APSA6R3E□□331MFA5S
	390	8X11.5	8	5,080	APSA6R3E□□391MHB5S
	470	8X11.5	7	5,700	APSA6R3E□□471MHB5S
	680	10X11.5	7	5,860	APSA6R3E□□681MJB5S
10	47	6.3X10.5	25	2,820	APSA100E□□470MFA5S
	68	6.3X10.5	25	2,820	APSA100E□□680MFA5S
	100	6.3X10.5	25	2,820	APSA100E□□101MFA5S
	150	6.3X10.5	25	2,820	APSA100E□□151MFA5S
	270	8X11.5	9	4,710	APSA100E□□271MHB5S
16	470	10X11.5	8	5,650	APSA100E□□471MJB5S
	100	6.3X10.5	25	2,820	APSA160E□□101MFA5S

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