

**16A LOW PROFILE
POWER RELAY**

LZ RELAYS (ALZ)



FEATURES

1. Low profile type with height of 15.7 mm

Slim, low profile type with dimensions of 28.8 (L) × 12.5 (W) × 15.7 (H) mm
1.134 (L) × .492 (W) × .618 (H) inch.

2. High insulation resistance

Superior insulation characteristics have been achieved by maintaining an insulation distance between coil and contacts of at least 10 mm for both creepage distance and clearances. Furthermore, anti-surge voltage is 10 kV and higher. (Supports European reinforced insulation requirement.)

3. Superior heat resistance

Can be used in ambient temperatures up to 85°C 185°F for the class B and 105°C 221°F for the class F.

4. Low operating power

Power saved with a nominal operating power of only 400 mW.

5. Conforms to the various safety standards:

UL, C-UL, VDE approved.

6. Superior heat resistance and tracking resistance

EN60335-1 GWT compliant (Tested by VDE) type available.

TYPICAL APPLICATIONS

1) Household electrical appliances

TV, CATV, Audio equipment, Microwave ovens, and Heaters, etc.

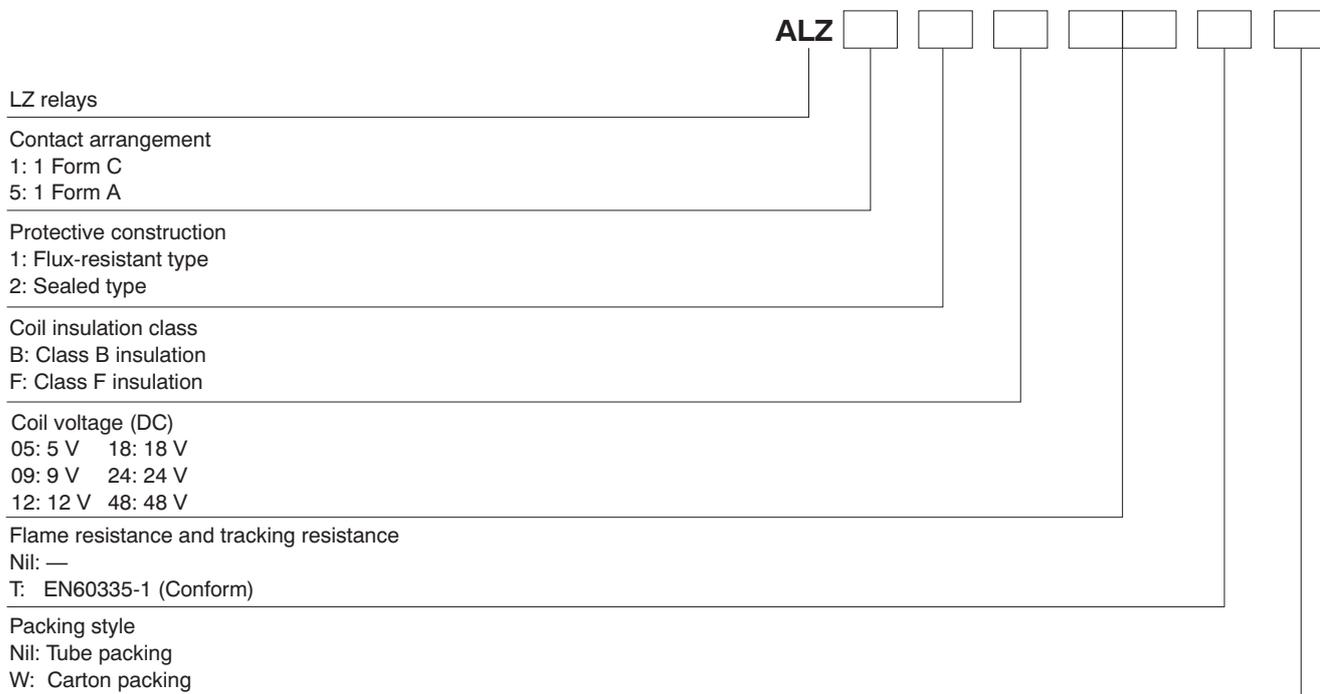
2) Office equipment

Copy machines, Packaged air conditioners, and Vending machines

3) Industrial equipment

Machine tools, Robots, and Temperature controllers

ORDERING INFORMATION



Note: UL, C-UL, VDE approved type is standard.

TYPES

1. Flux-resistant type

| Contact arrangement | Coil voltage | Flux-resistant type | | Packing style | | | |
|-------------------------------------|--------------|---------------------|--------------------|---------------|----------|----------------|----------|
| | | Class B insulation | Class F insulation | Tube packing | | Carton packing | |
| | | Part No. | Part No. | Inner carton | Case | Inner carton | Case |
| 1 Form C | 5 V DC | ALZ11B05W | ALZ11F05W | 20 pcs. | 800 pcs. | 100 pcs. | 500 pcs. |
| | 9 V DC | ALZ11B09W | ALZ11F09W | | | | |
| | 12 V DC | ALZ11B12W | ALZ11F12W | | | | |
| | 18 V DC | ALZ11B18W | ALZ11F18W | | | | |
| | 24 V DC | ALZ11B24W | ALZ11F24W | | | | |
| | 48 V DC | ALZ11B48W | ALZ11F48W | | | | |
| 1 Form A (New PC board terminal) | 5 V DC | ALZ51B05W | ALZ51F05W | 20 pcs. | 800 pcs. | 100 pcs. | 500 pcs. |
| | 9 V DC | ALZ51B09W | ALZ51F09W | | | | |
| | 12 V DC | ALZ51B12W | ALZ51F12W | | | | |
| | 18 V DC | ALZ51B18W | ALZ51F18W | | | | |
| | 24 V DC | ALZ51B24W | ALZ51F24W | | | | |
| | 48 V DC | ALZ51B48W | ALZ51F48W | | | | |

2. Sealed type

| Contact arrangement | Coil voltage | Sealed type | | Packing style | | | |
|-------------------------------------|--------------|--------------------|--------------------|---------------|----------|----------------|----------|
| | | Class B insulation | Class F insulation | Tube packing | | Carton packing | |
| | | Part No. | Part No. | Inner carton | Case | Inner carton | Case |
| 1 Form C | 5 V DC | ALZ12B05W | ALZ12F05W | 20 pcs. | 800 pcs. | 100 pcs. | 500 pcs. |
| | 9 V DC | ALZ12B09W | ALZ12F09W | | | | |
| | 12 V DC | ALZ12B12W | ALZ12F12W | | | | |
| | 18 V DC | ALZ12B18W | ALZ12F18W | | | | |
| | 24 V DC | ALZ12B24W | ALZ12F24W | | | | |
| | 48 V DC | ALZ12B48W | ALZ12F48W | | | | |
| 1 Form A (New PC board terminal) | 5 V DC | ALZ52B05W | ALZ52F05W | 20 pcs. | 800 pcs. | 100 pcs. | 500 pcs. |
| | 9 V DC | ALZ52B09W | ALZ52F09W | | | | |
| | 12 V DC | ALZ52B12W | ALZ52F12W | | | | |
| | 18 V DC | ALZ52B18W | ALZ52F18W | | | | |
| | 24 V DC | ALZ52B24W | ALZ52F24W | | | | |
| | 48 V DC | ALZ52B48W | ALZ52F48W | | | | |

- Notes: 1. If you desire tube packaging, please order without adding the packaging symbol "W" to the end of the part number.
 2. Carton packing symbol "W" is not marked on the relay.
 3. EN60335-1 GWT compliant types available. When ordering, please add suffix "T".
 Ex. ALZ51B12I, ALZ51F12IW

RATING

1. Coil data

| Nominal coil voltage | Pick-up voltage (at 20°C 68°F) | Drop-out voltage (at 20°C 68°F) | Nominal operating current [±10%] (at 20°C 68°F) | Coil resistance [±10%] (at 20°C 68°F) | Nominal operating power (at 20°C 68°F) | Max. applied voltage (at 20°C 68°F) |
|----------------------|---|---|--|--|---|--|
| 5 V DC | Max. 70%V nominal voltage (Initial) | Min. 10%V nominal voltage (Initial) | 80 mA | 63Ω | 400 mW | 130%V of nominal voltage |
| 9 V DC | | | 44.4 mA | 203Ω | | |
| 12 V DC | | | 33.3 mA | 360Ω | | |
| 18 V DC | | | 22.2 mA | 810Ω | | |
| 24 V DC | | | 16.7 mA | 1,440Ω | | |
| 48 V DC | | | 8.3 mA | 5,760Ω | | |

LZ (ALZ)

2. Specifications

| Characteristics | Item | Specifications | |
|----------------------------|--|---|---|
| Contact | Arrangement | 1 Form C, 1 Form A | |
| | Contact resistance (Initial) | Max. 100 mΩ (By voltage drop 6V DC 1A) | |
| | Contact material | AgSnO ₂ type | |
| Rating | Nominal switching capacity (resistive load) | 16A 250V AC | |
| | Max. switching power (resistive load) | 4,000V A | |
| | Max. switching voltage | 440V AC | |
| | Max. switching current | 16A | |
| | Nominal operating power | 400mW | |
| | Min. switching capacity ¹ | 100mA 5V DC | |
| Electrical characteristics | Insulation resistance (Initial) | Min. 1,000MΩ (at 500V DC) | |
| | Breakdown voltage (Initial) | Between open contacts | 1,000 Vrms for 1min. (Detection current: 10mA) |
| | | Between contact and coil | 5,000 Vrms for 1min. (Detection current: 10mA) |
| | Temperature rise (at 20°C 68°F) | Max. 55°C 131°F [with nominal coil voltage and at 16A contact carrying current (resistance method) at 20°C 68°F] | |
| | Surge breakdown voltage ² (Between contacts and coil) | 10,000 V (Initial) | |
| | Operate time (at nominal voltage) (at 20°C 68°F) | Max. 15ms (excluding contact bounce time) | |
| | Release time (at nominal voltage) (at 20°C 68°F) | Max. 5ms (excluding contact bounce time, without diode) | |
| Mechanical characteristics | Shock resistance | Functional | Min. 100 m/s ² {10G} (Half-wave pulse of sine wave: 11ms; detection time: 10μs.) |
| | | Destructive | Min. 1,000 m/s ² {100G} (Half-wave pulse of sine wave: 6ms.) |
| | Vibration resistance | Functional | 10 to 55 Hz at double amplitude of 1.5mm (Detection time: 10μs.) (Only the N.C. side of 1 Form C is 0.8mm) |
| | | Destructive | 10 to 55 Hz at double amplitude of 1.5mm |
| Expected life | Mechanical (at 180 cpm) | Min. 10 ⁷ | |
| | Electrical (at 20 cpm) | N.O.: Min. 10 ⁵ , N.C.: Min. 5×10 ⁴ | |
| Conditions | Conditions for operation, transport and storage ^{3, 4} | Ambient temperature: -40°C to +85°C -40°F to +185°F (Class B) Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature) | |
| | Max. operating speed | 20 cpm (at nominal switching capacity) | |
| Unit weight | | Approx. 12 g .42 oz | |

*1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

*2 Wave is standard shock voltage of $\pm 1.2 \times 50\mu s$ according to JEC-212-1981

*3 Class F type is ambient temperature 105°C +221°F.

*4 The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT section in Relay Technical Information](#).

*Please note that some of the specifications listed above may not comply with overseas standards.

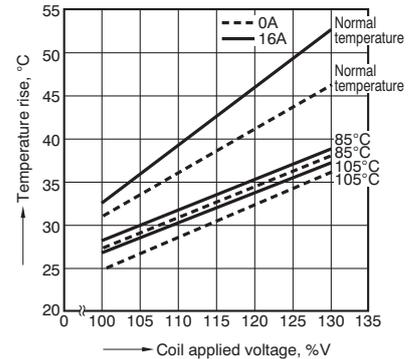
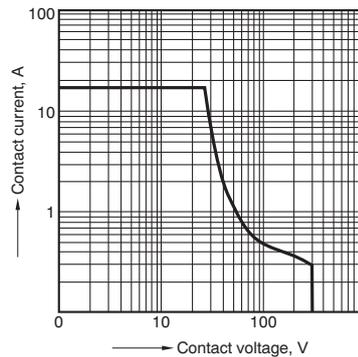
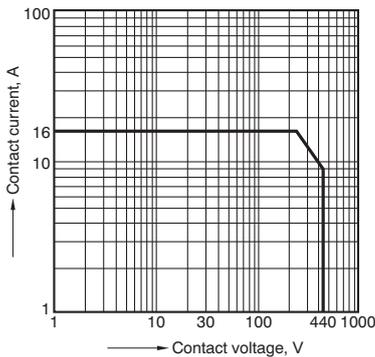
REFERENCE DATA

1. Max. switching power (AC resistive load)

2. Max. switching power (DC resistive load)

3. Coil temperature rise

Sample: ALZ11F12, 5pcs.
Measured portion: coil inside
Contact current: 0 A, 16 A

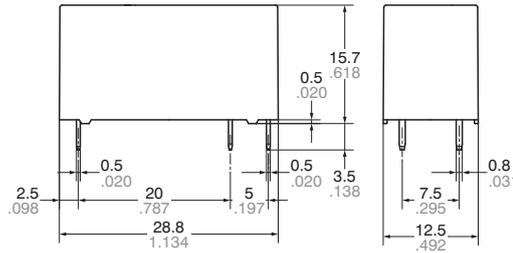


DIMENSIONS (mm inch)

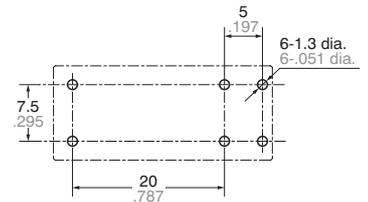
Download [CAD Data](#) from our Web site.

1. 1 Form A type

[CAD Data](#)

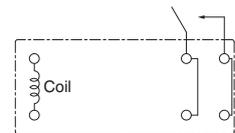


PC board pattern



Tolerance: $\pm 0.1 \pm .004$

Schematic (Bottom view)



Dimension:

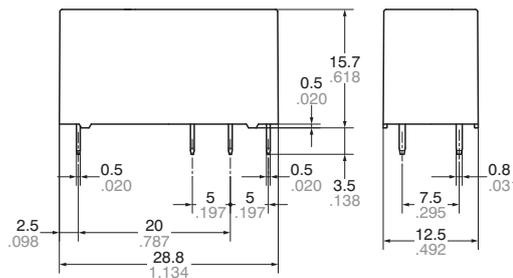
Less than 1 mm .039inch:
 Min. 1 mm .039inch less than 3 mm .118inch:
 Min. 3 mm .118inch:

Tolerance

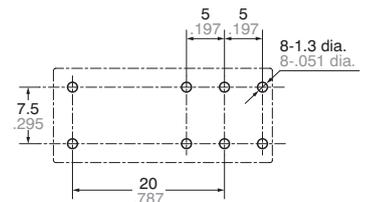
$\pm 0.1 \pm .004$
 $\pm 0.2 \pm .008$
 $\pm 0.3 \pm .012$

2. 1 Form C type

[CAD Data](#)

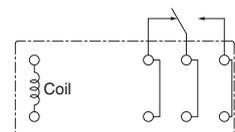


PC board pattern



Tolerance: $\pm 0.1 \pm .004$

Schematic (Bottom view)



Dimension:

Less than 1 mm .039inch:
 Min. 1 mm .039inch less than 3 mm .118inch:
 Min. 3 mm .118inch:

Tolerance

$\pm 0.1 \pm .004$
 $\pm 0.2 \pm .008$
 $\pm 0.3 \pm .012$

SAFETY STANDARDS

| UL/C-UL (Recognized) | | VDE (Certified) | | TV rating (UL/CSA) | |
|----------------------|---|-----------------|------------------------|--------------------|--------|
| File No. | Contact rating | File No. | Contact rating | File No. | Rating |
| E43149 | 16A 277V AC, 34.8LRA/7.2FLA/120V AC, 15LRA/3FLA/120V AC 10LRA/3FLA 240V AC, 20A 240V AC (N.O. only) 16A 30V DC, 25A 240V AC, 15A 240V AC Resistive load 105°C (N.O. only) | 40000380 | 16A 250V AC (cosφ=1.0) | C-UL E43149 | TV-5 |

* CSA standard: Certified by C-UL

For Cautions for Use, see [Relay Technical Information](#).