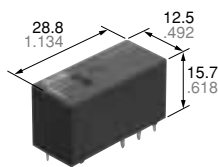


# NAIS

## 16A Low Profile Power Relay

# LZ RELAYS (ALZ)



### FEATURES

- Low profile size: Height 15.7 mm**  
28.8 (L)×12.5 (W)×15.7(H) mm  
1.134 (L)×.492 (W)×.618(H) inch
- High insulation resistance**  
Creepage distance and clearances between contact and coil: Min. 10 mm
- UL coil insulation class B (85°C 185°F) or class F (105°C 221°F).**

- Pb free and Cd free**
- Low operating power**  
• Nominal operating power: 400mW
- Conforms to the various safety standards:**  
• UL/CSA, VDE approved.

### SPECIFICATIONS

#### Contact

Arrangement	1 Form A, 1 Form C	
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)	100 mΩ	
Contact material	Silver alloy	
Rating (resistive load)	Nominal switching capacity	16 A 250 V AC
	Max. switching power	4,000 V A
	Max. switching voltage	440 V AC
	Max. switching current	16 A
Expected life (min. operations)	Mechanical (at 180 cpm)	1 × 10 <sup>7</sup>
	Electrical (at 20 cpm) (Rated load)	N.O.: 10 <sup>5</sup> N.C.: 5 × 10 <sup>4</sup>

#### Coil

Nominal operating power	400 mW
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#### Remarks

- \* Specifications will vary with foreign standards certification ratings.
- \*1 Measurement at same location as "Initial breakdown voltage" section.
- \*2 Detection current: 10mA
- \*3 Wave is standard shock voltage of  $\pm 1.2 \times 50\mu s$  according to JEC-212-1981
- \*4 Excluding contact bounce time.
- \*5 Half-wave pulse of sine wave: 11 ms; detection time: 10  $\mu s$
- \*6 Half-wave pulse of sine wave: 6 ms
- \*7 Detection time: 10  $\mu s$
- \*8 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.
- \*9 Class F type is ambient temperature 105°C 221°F.

#### Characteristics

Max. operating speed	20 cpm (at rated load)	
Initial insulation resistance*1	Min. 1,000 MΩ (at 500 V DC)	
Initial breakdown voltage*2	Between open contacts	1,000 Vrms for 1 min.
	Between contacts and coil	5,000 Vrms for 1 min.
Initial surge voltage between contact and coil*3	Min. 10,000 V	
Operate time*4 (at nominal voltage)	Max. 15ms (at 20°C 68°F)	
Release time (with diode)*4 (at nominal voltage)	Max. 5ms (at 20°C 68°F)	
Temperature rise (20°C 68°C)	Max. 55°C with nominal coil voltage and at 16 A contact carrying current (resistance method)	
Shock resistance	Functional*5	Min. 100 m/s <sup>2</sup> {approx. 10 G}
	Destructive*6	Min. 1,000 m/s <sup>2</sup> {approx. 100 G}
Vibration resistance	Functional*7	10 to 55Hz at double amplitude of 1.5mm (NO), 0.82mm (NC)
	Destructive	10 to 55Hz at double amplitude of 1.5mm
Conditions for operation, transport and storage*8 (Not freezing and condensing at low temperature)	Ambient temp.	-40°C to +85°C -40°F to +185°F (Class B)*9
	Humidity	5 to 85% R.H.
Unit weight	Approx. 12 g .42 oz	

### TYPICAL APPLICATIONS

• HVAC

• Oven ranges

• Refrigerators

### ORDERING INFORMATION

Ex. A LZ 1 1 B 12 W

Product name	Contact arrangement	Protective construction*	Coil insulation class	Coil voltage, V DC	Packing style
LZ	1: 1 Form C 2: 1 Form A	1: Flux-resistant type	B: Class B insulation F: Class F insulation	05: 5 18: 18 09: 9 24: 24 12: 12 48: 48	Nil: Tube packing W: Carton packing

UL/CSA, VDE approved type is standard.

\* Flux-resistant type is also available. Please consult us.

# LZ (ALZ)

## TYPES

Contact arrangement	Coil voltage, V DC	Tube packing		Carton packing	
		Class B	Class F	Class B	Class F
1 Form A	5	ALZ21B05	ALZ21F05	ALZ21B05W	ALZ21F05W
	9	ALZ21B09	ALZ21F09	ALZ21B09W	ALZ21F09W
	12	ALZ21B12	ALZ21F12	ALZ21B12W	ALZ21F12W
	18	ALZ21B18	ALZ21F18	ALZ21B18W	ALZ21F18W
	24	ALZ21B24	ALZ21F24	ALZ21B24W	ALZ21F24W
1 Form C	48	ALZ21B48	ALZ21F48	ALZ21B48W	ALZ21F48W
	5	ALZ11B05	ALZ11F05	ALZ11B05W	ALZ11F05W
	9	ALZ11B09	ALZ11F09	ALZ11B09W	ALZ11F09W
	12	ALZ11B12	ALZ11F12	ALZ11B12W	ALZ11F12W
	18	ALZ11B18	ALZ11F18	ALZ11B18W	ALZ11F18W
	24	ALZ11B24	ALZ11F24	ALZ11B24W	ALZ11F24W
	48	ALZ11B48	ALZ11F48	ALZ11B48W	ALZ11F48W

Notes: 1. Tube packing: Inner carton: 20pcs.; Case: 800pcs.  
 2. Carton packing: Inner carton: 100pcs.; Case: 500pcs.  
 3. Carton packing symbol "W" is not marked on the relay.

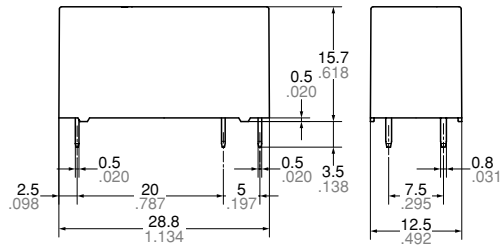
## COIL DATA

Nominal voltage, V DC	Pick-up voltage, V DC (max.)	Drop-out voltage, V DC (min.)	Coil resistance, $\Omega$ ( $\pm 10\%$ )	Nominal operating current, mA ( $\pm 10\%$ )	Nominal operating power, mW	Maximum allowable voltage, V DC
5	3.5	0.5	63	80	400	6.5
9	6.3	0.9	203	44.4	400	11.7
12	8.4	1.2	360	33.3	400	15.6
18	12.6	1.8	810	22.2	400	23.4
24	16.8	2.4	1,440	16.7	400	31.2
48	33.6	4.8	5,760	8.3	400	62.4

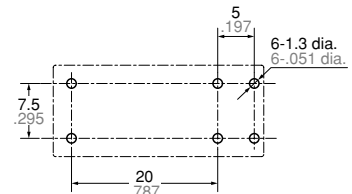
## DIMENSIONS

mm inch

### 1. 1 Form A type

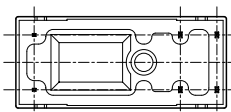


PC board pattern (Bottom view)



Tolerance :  $\pm 0.1 \pm 0.04$

Schematic (Bottom view)



Dimension :

Max. 1mm .039 inch:

1 to 3mm .039 to .118 inch:

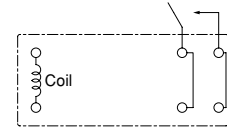
Min. 3mm .118 inch:

Tolerance

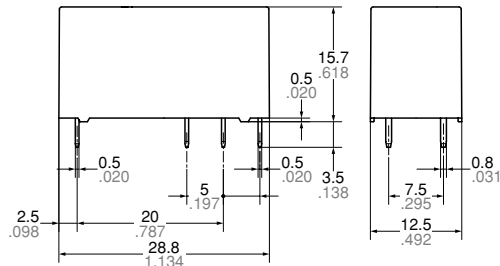
$\pm 0.1 \pm 0.04$

$\pm 0.2 \pm 0.08$

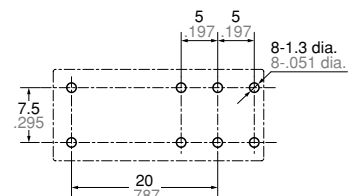
$\pm 0.3 \pm 0.12$



### 2. 1 Form C type

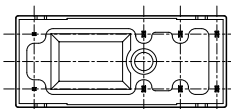


PC board pattern (Bottom view)



Tolerance :  $\pm 0.1 \pm 0.04$

Schematic (Bottom view)



Dimension :

Max. 1mm .039 inch:

1 to 3mm .039 to .118 inch:

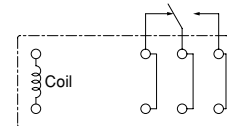
Min. 3mm .118 inch:

Tolerance

$\pm 0.1 \pm 0.04$

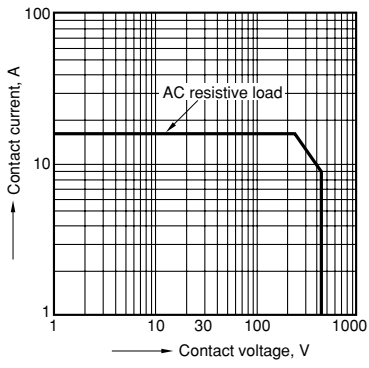
$\pm 0.2 \pm 0.08$

$\pm 0.3 \pm 0.12$

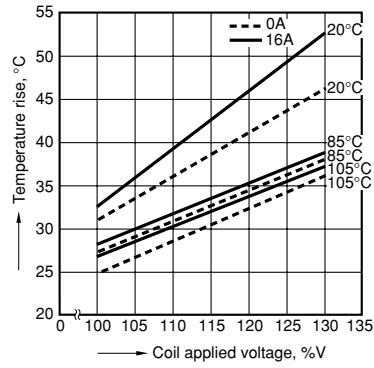


**REFERENCE DATA**

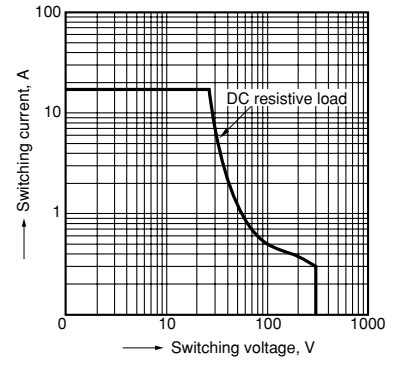
1. Max. switching power



2. Coil temperature rise



3. DC breaking capacity



**For Cautions for Use, see Relay Technical Information.**