



#### **16A Low Profile Power Relay**

## LZ RELAYS



#### **FEATURES**

- **1. 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
- 2. High insulation resistance Creepage distance and clearances between contact and coil: Min. 10 mm
- 3. UL coil insulation class B (85°C 185°F) or class F (105°C 221°F).
- 4. Pb free and Cd free
- 5. 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)*10	N.O.: 10 <sup>5</sup>	
	(Resistive load)	N.C.: 5 × 10 <sup>4</sup>	
Coil			
Nominal operating power		400 mW	

#### Remarks

- Specifications will vary with foreign standards certification ratings.
- Measurement at same location as "Initial breakdown voltage" section.
- \*2 Detection current: 10mA
- 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: 0.8 ms; detection time: 10  $\mu s$
- \*6 Half-wave pulse of sine wave: 6 ms
- \*7 Detection time: 10 μs
- Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 24).
- \*9 Class F type is ambient temperature 105°C 221°F.
- \*10 Electrical life was evaluated with the breathing hole open.

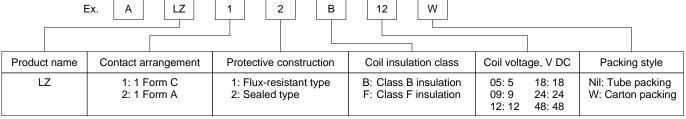
#### Characteristics

Max. operatir	ng speed	(at rated load)	20 cpm				
Initial insulation resistance*1			Min. 1,000 MΩ (at 500 V DC)				
Initial	Between open contacts		1,000 Vrms for 1 min.				
breakdown voltage*2	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 (at nominal voltage)			Max. 55°C (resistance method, contact current 16 A, 20°C 68°F)				
Shock resistance		Functional*5	Min. 100 m/s <sup>2</sup> {10 G}				
		Destructive*6	Min. 1,000 m/s <sup>2</sup> {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, tra	ansport	Ambient temp.	-40°C to +85°C -40°F to +185°F (Class B)*				
and storage* (Not freezing condensing a temperature)	and at low	Humidity	5 to 85% R.H.				
Unit weight			Approx. 12 g .42 oz				

#### TYPICAL APPLICATIONS

• HVAC • Oven ranges • Refrigerators

#### ORDERING INFORMATION



UL/CSA approved type is standard.

- 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.

#### **TYPES**

Contact arrangement	Coil voltage, V DC	Flux-resistant type		Sealed type	
		Class B	Class F	Class B	Class F
1 Form A	5	ALZ21B05	ALZ21F05	ALZ22B05	ALZ22F05
	9	ALZ21B09	ALZ21F09	ALZ22B09	ALZ22F09
	12	ALZ21B12	ALZ21F12	ALZ22B12	ALZ22F12
	18	ALZ21B18	ALZ21F18	ALZ22B18	ALZ22F18
	24	ALZ21B24	ALZ21F24	ALZ22B24	ALZ22F24
	48	ALZ21B48	ALZ21F48	ALZ22B48	ALZ22F48
1 Form C	5	ALZ11B05	ALZ11F05	ALZ12B05	ALZ12F05
	9	ALZ11B09	ALZ11F09	ALZ12B09	ALZ12F09
	12	ALZ11B12	ALZ11F12	ALZ12B12	ALZ12F12
	18	ALZ11B18	ALZ11F18	ALZ12B18	ALZ12F18
	24	ALZ11B24	ALZ11F24	ALZ12B24	ALZ12F24
	48	ALZ11B48	ALZ11F48	ALZ12B48	ALZ12F48

### **COIL DATA**

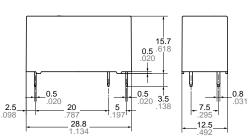
Nominal voltage, V DC	Pick-up voltage, V DC (max.)	Drop-out voltage, V DC (min.)	Coil resistance, Ω (±10%)	Nominal operating current, mA (±10%)	Nominal operating power, W	Maximum allowable voltage, V DC
5	3.5	0.5	63	80	0.4	6.5
9	6.3	0.9	203	44.4		11.7
12	8.4	1.2	360	33.3		15.6
18	12.6	1.8	810	22.2		23.4
24	16.8	2.4	1,440	16.7		31.2
48	33.6	4.8	5,760	8.3		62.4

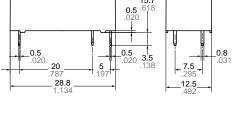
#### **DIMENSIONS**

mm inch

#### 1.1 Form A type



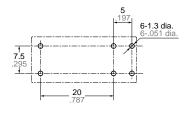




Dimension: **Tolerance** Max. 1mm .039 inch: ±0.1 ±.004 1 to 3mm .039 to .118 inch:  $\pm 0.2 \pm .008$ 

±0.3 ±.012

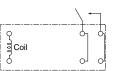
Min. 3mm .118 inch:



PC board pattern (Copper-side view)

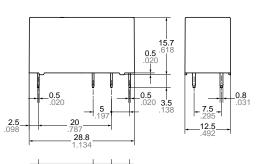
Tolerance: ±0.1 ±.004

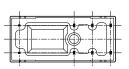
## Schematic (Bottom view)



#### 2. 1 Form C type







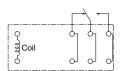
<u>Dimension:</u> **Tolerance** Max. 1mm .039 inch: ±0.1 ±.004 1 to 3mm .039 to .118 inch:  $\pm 0.2 \pm .008$ Min. 3mm .118 inch: ±0.3 ±.012

# 8-1.3 dia. . **20** .787

PC board pattern (Copper-side view)

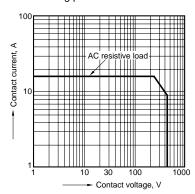
Tolerance :  $\pm 0.1 \pm .004$ 

#### Schematic (Bottom view)

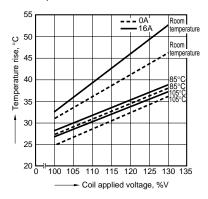


#### **REFERENCE DATA**

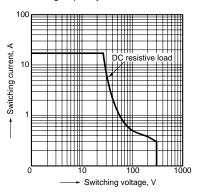
#### 1. Max. switching power



#### 2. Coil temperature rise



#### 3. DC breaking capacity



## For Cautions for Use, see Relay Technical Information