

**2. Specifications**

Characteristics	Item	Specifications	
Contact rating	Arrangement	1 Form A	
	Contact resistance (Initial)	Max. 100 mΩ (By voltage drop 6 V DC 1A)	
	Contact material	AgSnO <sub>2</sub> type	
	Contact rating (resistive)	16A 277V AC	
	Max. switching power (resistive)	4,432VA	
	Max. switching voltage	277V AC	
	Max. switching current	16A	
	Min. switching load (reference value)*1	100mA, 5V DC	
Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as "Dielectric strength" section.	
Dielectric strength (Initial)	Between open contacts	1,000 Vrms for 1 min. (Detection current: 10 mA)	
	Between contact and coil	4,000 Vrms for 1 min. (Detection current: 10 mA)	
Surge withstand voltage (Initial)*2		Between contact and coil 10,000 V	
Time characteristics	Operate time	Max. 20 ms (at rated voltage), (at 20°C 68°F), (Initial) (excluding contact bounce time.)	
	Release time	Max. 20 ms, Max. 25 ms (200mW type) (at rated voltage), (at 20°C 68°F), (Initial) (excluding contact bounce time) (With diode)	
Mechanical characteristics	Shock resistance	Functional	200 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)
		Destructive	1,000 m/s <sup>2</sup> (Half-wave pulse of sine wave: 6 ms.)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.5 mm (Detection time: 10μs.)
		Destructive	10 to 55 Hz at double amplitude of 1.5 mm
Mechanical life (at 180 times/min.)		Min. 2×10 <sup>6</sup>	
Conditions for operation, transport and storage*3		Ambient temperature: -40°C to +85°C -40°F to +185°F; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature) Air pressure: 86 to 106 kPa	
Unit weight		Approx. 17 g .60 oz, Approx. 15 g .53 oz (PCB type)	

\* Specifications will vary with foreign standards certification ratings.

Notes: \*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 ±1.2×50μs according to JEC-212-1981

\*3. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.

**3. Electrical life**

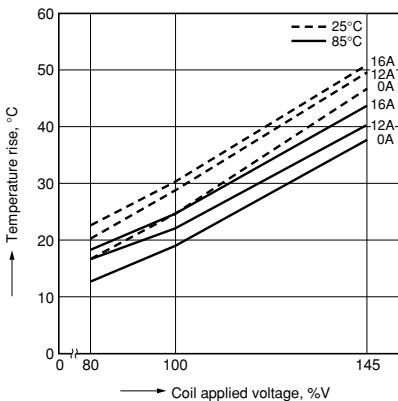
Condition: Resistive, at 20°C 68°F, at 20 times/min.

Type	Contact rating	Number of operation
1 Form A	16A 277V AC	10 <sup>5</sup>

**REFERENCE DATA**

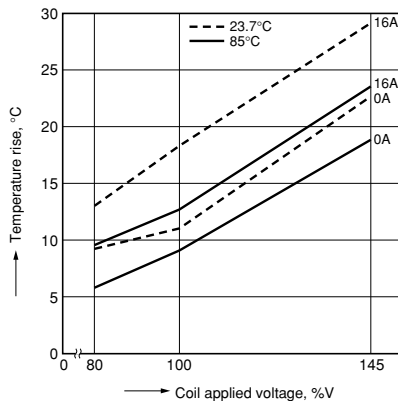
1.-(1) Coil temperature rise (400mW type)

Sample: ALE14B12, 6 pcs.  
Point measured: coil inside  
Ambient temperature: 25°C 77°F, 85°C 185°F

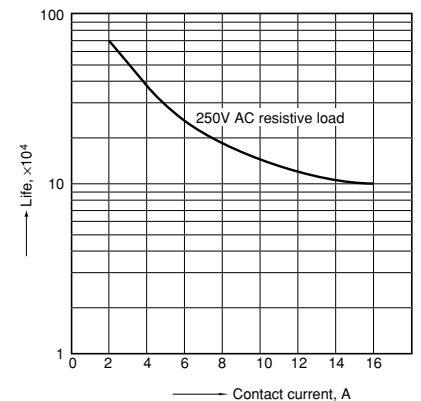


1.-(2) Coil temperature rise (200mW type)

Sample: ALE74B12, 6 pcs.  
Point measured: coil inside  
Ambient temperature: 23.7°C 74.66°F, 85°C 185°F



2. Life curve



# LE (ALE)

## 3. Electrical life test (16 A 277 V AC, resistive load)

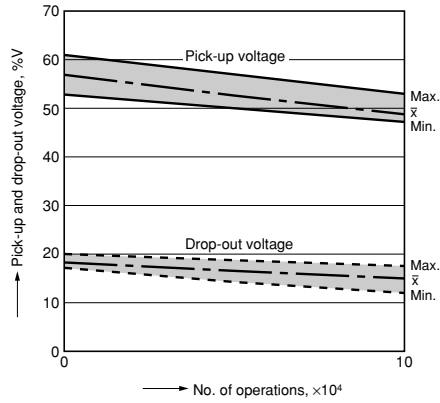
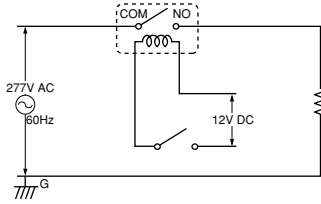
Sample: ALE14B12, 6 pcs.

Operation frequency: 20 times/min.

(ON/OFF = 1.5s: 1.5s)

Ambient temperature: Room temperature

Circuit:



## DIMENSIONS (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

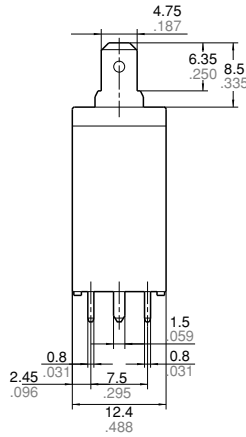
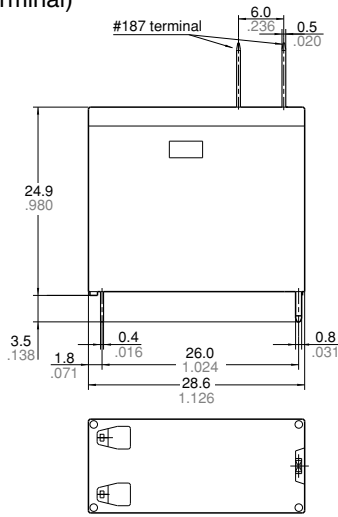
### 1. TMP type

1) PCB side three terminals (includes one dummy terminal)

**CAD Data**



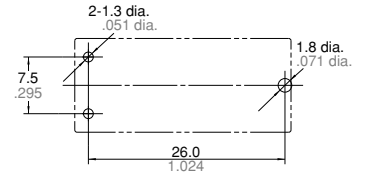
#### External dimensions



**Dimension:**  
 Less than 1mm .039inch:  $\pm 0.1 \pm 0.004$   
 Min. 1mm .039inch  
 less than 3mm .118 inch:  $\pm 0.2 \pm 0.008$   
 Min. 3mm .118 inch:  $\pm 0.3 \pm 0.012$

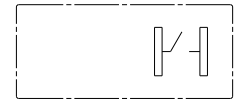
#### Tolerance

#### PC board pattern (Bottom view)



Tolerance:  $\pm 0.1 \pm 0.004$

#### Schematic (Bottom view)

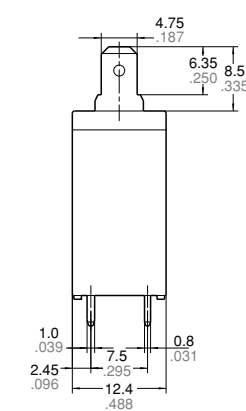
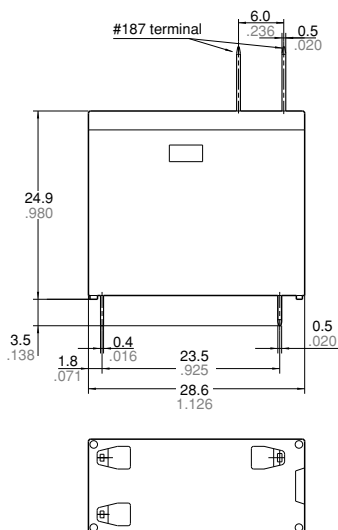


### 2) PCB side three terminals

**CAD Data**



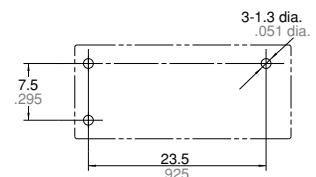
#### External dimensions



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 Less than 1mm .039inch:  $\pm 0.1 \pm 0.004$   
 Min. 1mm .039inch  
 less than 3mm .118 inch:  $\pm 0.2 \pm 0.008$   
 Min. 3mm .118 inch:  $\pm 0.3 \pm 0.012$

#### Tolerance

#### PC board pattern (Bottom view)



Tolerance:  $\pm 0.1 \pm 0.004$

#### Schematic (Bottom view)

