Discontinued
Last time buy: August 31, 2012

Panasonic
ideas for life

1a 3A slim power relay class minimum

LJ RELAYS (ALJ)

RoHS compliant

FEATURES

1. Mounting space of the 3A class minimum
• 17.0(L)×7.0(W)×16.0(H) mm
.670(L)×.276(W)×.630(H) inch
• At 84% that of its predecessor (comparison made with our LD Relay), the low foot print saves space.

2. Low operating power
Compact size, nominal operating power as low as 200mW.

3. Perfect for small load switching of home appliances
• 10^5 switching operations possible with a 3A 250V AC resistive load.
• Mechanical life: 2×10^6 (at 180 times/min.)

4. High insulation resistance
Surge withstand voltage between contact and coil: 6,000 V

5. Conforms to the various safety standards
UL/C-UL, VDE approved.

TYPICAL APPLICATIONS

- **Air conditioner**
- **Refrigerator**
- **Hot water units**
- **Fan heaters**
- **Microwave ovens**

ORDERING INFORMATION

ALJ 1 □□ W

LJ relay

Contact arrangement
1: 1 Form A

Nominal coil voltage (DC)
05: 5V, 09: 9V, 12: 12V, 18: 18V, 24: 24V

Packing style
W: Carton packing

Note: Certified by UL/C-UL and VDE

TYPES

Contact arrangement	Nominal coil voltage	Part No.*
1 Form A	5V DC	ALJ105W
	9V DC	ALJ109W
	12V DC	ALJ112W
	18V DC	ALJ118W
	24V DC	ALJ124W

Packing quantity: Carton 200 pieces, Case 1,000 pieces
Notes: *1. The packing symbol "W" is not marked on the relay.
*2. Tube packing type is also available. Please consult with our sales office.

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)
5V DC	75%V or less of nominal voltage (Initial)	5%V or more of nominal voltage (Initial)	40.0mA	125Ω	200mW	6.5V DC
9V DC			22.2mA	405Ω		11.7V DC
12V DC			16.7mA	720Ω		15.6V DC
18V DC			11.1mA	1,620Ω		23.4V DC
24V DC			8.3mA	2,880Ω		31.2V DC

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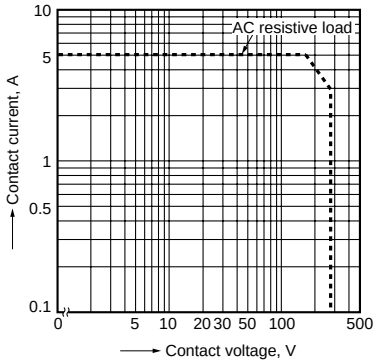
2. Specifications

Characteristics	Item		Specifications
Contact	Contact material		AgNi type
	Arrangement		1 Form A
	Contact resistance (Initial)		Max. 100 mΩ (By voltage drop 6 V DC 1A)
Rating	Nominal switching capacity (resistive load)		3A 250V AC
	Max. switching power (resistive load)		1,250VA (AC)
	Max. switching voltage		250V AC
	Max. switching current		5A
	Min. switching capacity (reference value)*1		100mA, 5V DC
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as “Breakdown voltage” section.
	Breakdown voltage (Initial)	Between open contacts	750 Vrms for 1 min. (Detection current: 10 mA)
		Between contact and coil	3,000 Vrms for 1 min. (Detection current: 10 mA)
	Temperature rise (coil)		Max. 45°C 113°F (By resistive method, nominal coil voltage applied to the coil; contact carrying current: 5A, at 70°C 158°F)
	Surge breakdown voltage*2 (Between contact and coil) (Initial)		6,000 V
	Operate time (at nominal voltage) (at 20°C 68°F)		Max. 15 ms (excluding contact bounce time.)
	Release time (at nominal voltage) (at 20°C 68°F)		Max. 15 ms (excluding contact bounce time) (With diode)
Mechanical characteristics	Shock resistance	Functional	100 m/s² (Half-wave pulse of sine wave: 11 ms; detection time: 10µs.)
		Destructive	1,000 m/s² (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
Expected life	Mechanical		Min. 2×10⁶ (at 180 times/min.)
	Electrical (at 20 times/min.)		Min. 5×10⁴ (5A 250V AC at rated load), Min. 10⁵ (3A 250V AC at rated load)
Conditions	Conditions for operation, transport and storage*3		Ambient temperature: –40°C to +70°C –40°F to +158°F, Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)
	Max. operating speed		20 times/min. (at nominal switching capacity)
Unit weight			Approx. 4 g .14 oz

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.

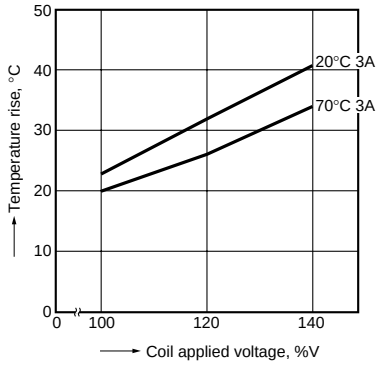
REFERENCE DATA

1. Maximum value for switching capacity

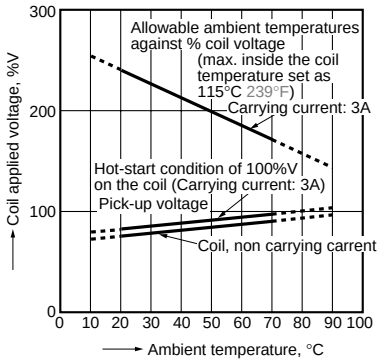


2. Coil temperature rise

Sample: ALJ112, 6pcs.
Point measured: Coil inside, contact carrying current: 3A

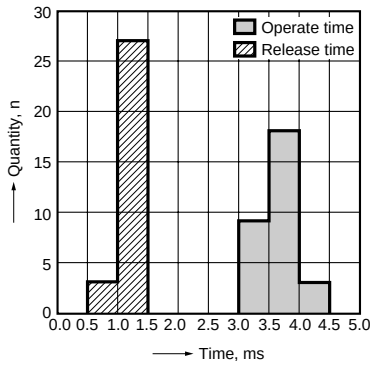


3. Ambient temperature characteristics and coil applied voltage



4. Distribution of operate and release time

Sample: ALJ112, 30pcs.

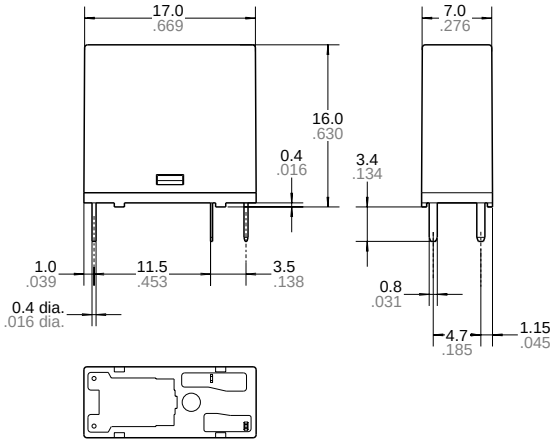


DIMENSIONS (mm inch)

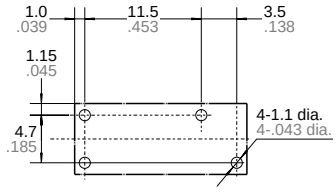
The CAD data of the products with a CAD Data mark can be downloaded from: http://industrial.panasonic.com/ac/e

CAD Data

External dimensions

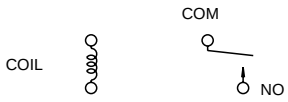


PC board pattern
(Bottom view)



Tolerance: ±0.1 ±.004

Schematic (Bottom view)



Dimension:	General tolerance
Less than 1mm .039inch:	±0.1 ±.004
Min. 1mm .039inch less than 3mm .118 inch:	±0.2 ±.008
Min. 3mm .118 inch:	±0.3 ±.012

SAFETY STANDARDS

UL/C-UL (Recognized)		VDE (Certified)	
File No.	Contact rating	File No.	Contact rating
E43149	3A 277V AC, 3A 30V DC, 5A 277V AC	40004718	3A 250V AC (cosϕ=1.0), 3A 30V DC (0ms)

* CSA standard: Certified by C-UL

For Cautions for Use.