



### 1 Form A/1 Form C 10A Small power relays

## LQ RELAYS (ALQ)



RoHS compliant

Protective construction: Sealed type

### FEATURES

- Miniature size and small:** 10(W) × 20(L) × 16(H) mm .394(W) × .787(L) × .630(H) inch
- Compact with high capacity:** 1 Form A and 1 Form C, 10 A
- Class "F" coil is available**
- Contact rating at 105°C 221°F is approved by UL/C-UL (Class "F" coil only)**  
Please refer to "SAFETY STANDARDS" about the detail of contact rating.
- Surge 8,000 V, High breakdown voltage 4,000 V (Between contact and coil)**

### TYPICAL APPLICATIONS

- Home appliances**
  - Refrigerators
  - Cooking ovens
  - Washing machine
  - Air conditioners
- Industrial equipment**
  - Motor control
  - Robot
  - Power supply

### ORDERING INFORMATION

ALQ

Contact arrangement

- 1: 1 Form C
- 3: 1 Form A

Coil insulation class

- Nil: Class B insulation
- F: Class F insulation

Nominal coil voltage (DC)

05: 5V, 06: 6V, 09: 9V, 12: 12V, 18: 18V, 24: 24V

Note: Certified by UL/C-UL, VDE and CQC

### TYPES

Nominal coil voltage	Part No.	
	1 Form A	1 Form C
5V DC	ALQ305	ALQ105
6V DC	ALQ306	ALQ106
9V DC	ALQ309	ALQ109
12V DC	ALQ312	ALQ112
18V DC	ALQ318	ALQ118
24V DC	ALQ324	ALQ124

Standard packing: Carton 100 pcs., Case 500 pcs.

# RATING

## 1. Coil data

Contact arrangement	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
1 Form A	5V DC	75%V or less of nominal voltage (Initial)	5%V or more of nominal voltage (Initial)	40.0mA	125 Ω	200mW	180% of nominal voltage (at 20°C 68°F) 130% of nominal voltage (at 85°C 185°F)*4
	6V DC			33.3mA	180 Ω		
	9V DC			22.2mA	405 Ω		
	12V DC			16.7mA	720 Ω		
	18V DC			11.1mA	1,620 Ω		
	24V DC			8.3mA	2,880 Ω		
1 Form C	5V DC	75%V or less of nominal voltage (Initial)	5%V or more of nominal voltage (Initial)	80.0mA	62.5Ω	400mW	150% of nominal voltage (at 20°C 68°F) 110% of nominal voltage (at 85°C 185°F)*4
	6V DC			66.7mA	90 Ω		
	9V DC			44.4mA	202.5Ω		
	12V DC			33.3mA	360 Ω		
	18V DC			22.2mA	810 Ω		
	24V DC			16.7mA	1,440 Ω		

## 2. Specifications

Characteristics	Item	Specifications		
Contact	Arrangement	1 Form A	1 Form C	
	Contact resistance (Initial)	Max. 100mΩ (By voltage drop 6 V DC 1 A)		
	Contact material	AgNi type		
Rating	Nominal switching capacity (resistive load)	5 A 30 V DC, 10 A 125 V AC, 5 A 250 V AC	N.O. side: 10 A 125 V AC, 5 A 250 V AC, 5 A 30 V DC N.C. side: 3 A 125 V AC, 2 A 250 V AC, 1 A 30 V DC	
	Max. switching power (resistive load)	150 W, 1,250 VA	N.O. side: 150 W, 1,250 VA N.C. side: 30 W, 500 VA	
	Max. switching voltage	250 V AC, 30 V DC		
	Max. switching current	N.O.: 10 A (125V AC), N.C.: 3 A (125V AC)		
	Nominal operating power	200 mW	400 mW	
	Min. switching capacity (reference value)*1	100 mA, 5 V DC		
Electrical characteristics	Insulation resistance (Initial)	Min. 1,000 MΩ (at 500 V DC) Measurement at same location as "Breakdown voltage" section.		
	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1 min. (Detection current: 10 mA)	750 Vrms for 1 min. (Detection current: 10 mA)
		Between contact and coil	4,000 Vrms for 1 min. (Detection current: 10 mA)	
	Surge breakdown voltage*2 (Between contact and coil)	8,000 V (Initial)		
	Operate time (at nominal voltage) (at 20°C 68°F)	Max. 20 ms (excluding contact bounce time.) (Initial)		
Release time (at nominal voltage) (at 20°C 68°F)	Max. 20 ms (excluding contact bounce time, with diode) (Initial)			
Mechanical characteristics	Shock resistance	Functional	1 Form A: 294 m/s <sup>2</sup> , 1 Form C: 196 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)	
		Destructive	980 m/s <sup>2</sup> (Half-wave pulse of sine wave: 6 ms.)	
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.6 mm (Detection time: 10μs.)	
		Destructive	10 to 55 Hz at double amplitude of 2.0 mm	
Expected life	Mechanical	Min. 10 <sup>7</sup> (at 180 times/min.)		
Conditions	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)		
	Max. operating speed	20 times/min. (at nominal switching capacity)		
Unit weight		Approx. 7 g .25 oz		

\* 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.