



RoHS compliant

FEATURES

- High electrical noise immunity
- High switching capacity in a compact package
- High sensitivity: 200 mW (1a), 400 mW (1c)
- High surge voltage: 8,000 V between contacts and coil
- UL, CSA, VDE, SEMKO approved and TÜV available
- Class B coil insulation type also available.

TYPICAL APPLICATIONS

- Air conditioners
- Refrigerators
- Microwave ovens
- Heaters

ORDERING INFORMATION

JQ - - - - F

Contact arrangement

- 1a: 1 Form A
- 1 : 1 Form C

Contact capacity

- Nil: Standard (5A)
- P: High capacity (10A)

Coil insulation class

- Nil: Class E coil insulation
- B: Class B coil insulation (UL)

Nominal coil voltage (DC)

- 5V, 6V, 9V, 12V, 18V, 24V, 48V*

Contact material

- F: AgSnO₂ type

Certified by UL, CSA, VDE and SEMKO

Note: *Available only for 1 Form C type

TYPES

1) Standard type

Nominal coil voltage	Standard type		High capacity type	
	1 Form A	1 Form C	1 Form A	1 Form C
	Part No.	Part No.	Part No.	Part No.
5V DC	JQ1a-5V-F	JQ1-5V-F	JQ1aP-5V-F	JQ1P-5V-F
6V DC	JQ1a-6V-F	JQ1-6V-F	JQ1aP-6V-F	JQ1P-6V-F
9V DC	JQ1a-9V-F	JQ1-9V-F	JQ1aP-9V-F	JQ1P-9V-F
12V DC	JQ1a-12V-F	JQ1-12V-F	JQ1aP-12V-F	JQ1P-12V-F
18V DC	JQ1a-18V-F	JQ1-18V-F	JQ1aP-18V-F	JQ1P-18V-F
24V DC	JQ1a-24V-F	JQ1-24V-F	JQ1aP-24V-F	JQ1P-24V-F
48V DC	-	JQ1-48V-F	-	JQ1P-48V-F

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	Standard type: 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)
	6V DC			33.3mA	180 Ω		
	9V DC			22.2mA	405 Ω		
	12V DC	16.7mA		720 Ω	130% of nominal voltage (at 70°C 158°F) [When using relays at 85°C 185°F, see Notes*4]		
	18V DC	11.1mA		1,620 Ω			
	24V DC	8.3mA		2,880 Ω			
1 Form C	5V DC	Standard type: 75%V or less of nominal voltage (Initial)	5%V or more of nominal voltage (Initial)	80 mA	62.5Ω	400mW	150% of nominal voltage (at 20°C 68°F)
	6V DC			66.7mA	90 Ω		
	9V DC			44.4mA	202.5Ω		
	12V DC	33.3mA		360 Ω	110% of nominal voltage (at 70°C 158°F) [When using relays at 85°C 185°F, see Notes*4]		
	18V DC	22.2mA		810 Ω			
	24V DC	16.7mA		1,440 Ω			
	High capacity type: 80%V or less of nominal voltage (Initial)	16.7mA		1,440 Ω			
		8.3mA		5,760 Ω			

2. Specifications

Characteristics	Item	Specifications				
		Standard type		High capacity type		
Contact	Arrangement	1 Form A	1 Form C	1 Form A	1 Form C	
	Contact resistance (Initial)	Max. 100mΩ (By voltage drop 6V DC 1 A)				
	Contact material	AgSnO ₂ type				
Rating	Nominal switching capacity (resistive load)	5 A 125 V AC, 2 A 250 V AC, 5 A 30 V DC	N.O. side: 5 A 125 V AC, 2 A 250 V AC, 3 A 30 V AC N.C. side: 2 A 125 V AC, 1 A 250 V AC, 1 A 30 V DC	10 A 125 V AC, 5 A 250 V AC, 5 A 30 V DC	N.O. side: 10 A 125 V AC, 5 A 250 V AC, 5 A 30 V AC N.C. side: 3 A 125 V AC, 2 A 250 V AC, 1 A 30 V DC	
	Max. switching power (resistive load)	625 VA, 150 W	N.O. side: 625 VA, 90 W N.C. side: 250 VA, 30 W	1,250 V AC, 150 W	N.O. side: 1,250 VA, 150 W N.C. side: 500 V AC, 30 W	
	Max. switching voltage	250 V AC, 110 V DC (0.3A)				
	Max. switching current	N.O.: 5 A, N.C.: 2 A		N.O.: 10 A, N.C.: 3 A		
	Nominal operating power	200 mW	400 mW	200 mW	400 mW	
	Min. switching capacity (reference value)*1	100 mA, 5 V DC				
	Insulation resistance (Initial)	Min. 1,000 MΩ (at 500 V DC) Measurement at same location as "Breakdown voltage" section.				
Electrical characteristics	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1 min.	750 Vrms for 1 min.	1,000 Vrms for 1 min.	750 Vrms for 1 min.
		Between contact and coil	4,000 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)		Max. 45°C 113°F (By resistive method, nominal coil voltage applied to the coil; contact carrying current: 10A, at 70°C 158°F)		
	Surge breakdown voltage*2 (Between contact and coil) (Initial)	8,000 V				
	Operate time (at nominal voltage) (at 20°C 68°F) (Initial)	Max. 20 ms (excluding contact bounce time.)				
	Release time (at nominal voltage) (at 20°C 68°F) (Initial)	Max. 10 ms (excluding contact bounce time) (Without diode)				
	Mechanical characteristics	Shock resistance	Functional	294 m/s ² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)		
Destructive			980 m/s ² (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 (at 180 times/min.)	Min. 10 ⁷				
Conditions	Conditions for operation, transport and storage*3	Ambient temperature: -40°C to +70°C -40°F to +158°F (class E insulation), -40°C to +85°C -40°F to +185°F*4 (class B insulation) 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.

*4. When using relays in a high ambient temperature, consider the pick-up voltage rise due to the high temperature (a rise of approx. 0.4% V for each 1°C 33.8°F within 20°C 68°F as a reference) and use a coil impressed voltage that is within the maximum applied voltage range.