

# 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 [ $\pm 10\%$ ] (at 20°C 68°F) | Coil resistance [ $\pm 10\%$ ] (at 20°C 68°F) | Nominal operating power (at 20°C 68°F) | Max. applied voltage (at 70°C 158°F)                                     |
|----------------------|---|---|---|---|--|--|
| 5V DC                | 70%V or less of nominal voltage (Initial) | 10%V or more of nominal voltage (Initial) | 72 mA   | 69.4 $\Omega$                                 | 360mW                                  | 130%V of nominal voltage<br>[When using relays at 85°C 185°F, see Note*] |
| 6V DC                |   |   | 60 mA   | 100 $\Omega$                                  |  |  |
| 9V DC                |   |   | 40 mA   | 225 $\Omega$                                  |  |  |
| 12V DC               |   |   | 30 mA   | 400 $\Omega$                                  |  |  |
| 18V DC               |   |   | 20 mA   | 900 $\Omega$                                  |  |  |
| 24V DC               |   |   | 15 mA   | 1,600 $\Omega$                                |  |  |
| 48V DC               |   |   | 7.5mA   | 6,400 $\Omega$                                |  |  |

Note: \* 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 with 20°C 68°F as a reference) and use a coil impressed voltage that is within the maximum applied voltage range.

## 2. Specifications

| Characteristics                                  | Item   | Specifications   |   |
|--|--|--|---|
| Contact  | Contact material   | AgSnO <sub>2</sub> type  |   |
|  | Contact resistance (Initial)                               | Max. 100 m $\Omega$ (By voltage drop 6 V DC 1A)  |   |
|  | Arrangement  | 1 Form A, 1 Form C<br>1 Form A Long endurance type   |   |
| Rating   | Nominal switching capacity (resistive load)                | 10 A 250 V AC (NO), 10 A 125 V AC, 6 A 277 V AC, 5 A 30 V DC<br>10 A 250 V AC, 10 A 277 V AC, 5 A 30 V DC  |   |
|  | Max. switching power (resistive load)                      | 2,500VA 150W (NO), 1,662VA 150W (NC)<br>2,770VA 150W   |   |
|  | Max. switching voltage                                     | 250V AC, 100V DC (0.5A)  |   |
|  | Max. switching current                                     | 10A (AC), 5A (DC)  |   |
|  | Nominal operating power                                    | 360mW  |   |
|  | Min. switching capacity*1                                  | 100mA, 5V DC   |   |
| Electrical characteristics                       | Insulation resistance (Initial)                            | Min. 100M $\Omega$ (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   | 1,500 Vrms for 1 min. (Detection current: 10 mA)  |
|  | Temperature rise (coil)                                    | Max. 35°C 95°F (By resistive method, nominal coil voltage applied to the coil; contact carrying current: 10A, at 70°C 158°F)   |   |
|  | Operate time (at nominal voltage) (at 20°C 68°F)           | Max. 10 ms (excluding contact bounce time.)  |   |
| Release time (at nominal voltage) (at 20°C 68°F) | Max. 10 ms (excluding contact bounce time) (Without diode) |  |   |
| Mechanical characteristics                       | Shock resistance   | Functional   | 98 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10 $\mu$ s.)  |
|  |  | 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: 10 $\mu$ s.)   |
|  |  | Destructive  | 10 to 55 Hz at double amplitude of 2 mm   |
| Mechanical (at 180 times/min.)                   |  | Min. 10 <sup>7</sup>   |   |
| Expected life                                    | Electrical (resistive load)                                |  | 2 $\times$ 10 <sup>5</sup><br>[10A 277V AC]<br>1.5 $\times$ 10 <sup>5</sup><br>[10A 250V AC (at 20 times/min., 105°C 221°F)]<br>1 $\times$ 10 <sup>5</sup><br>[5A 30V DC] |
|  |  |  | 1 $\times$ 10 <sup>5</sup><br>[10A 125V AC, 6A 277V AC, 5A 30V DC]<br>5 $\times$ 10 <sup>4</sup> (NO contact only)<br>[10A 250V AC]                                       |
| Conditions                                       | Conditions for operation, transport and storage*2          | -40°C to +70°C -40°F to +158°F (Class E insulation)<br>-40°C to +85°C -40°F to +185°F (Class B insulation)*3<br>-40°C to +105°C -40°F to +221°F (Class F insulation)*3<br>Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature) | -40°C to +105°C -40°F to +221°F*3;<br>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. 12 g .423 oz  |

Notes:

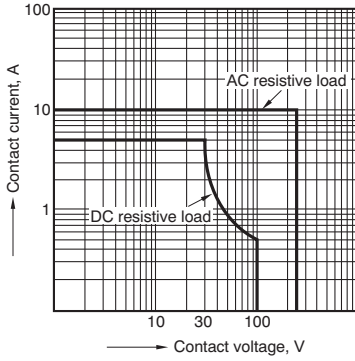
\*1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

\*2. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT section in Relay Technical Information](#).

\*3. 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 with 20°C 68°F as a reference) and use a coil impressed voltage that is within the maximum applied voltage range.

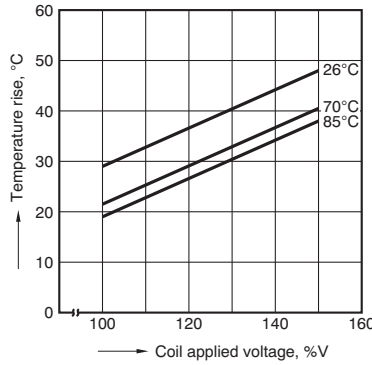
REFERENCE DATA

1. Maximum value for switching capacity



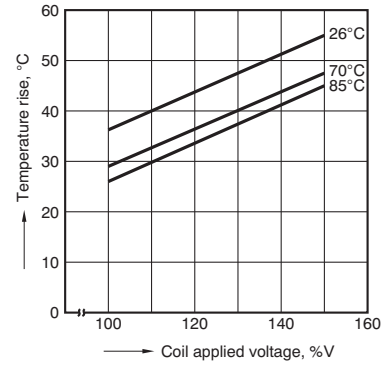
2.-(1) Coil temperature rise

Sample: 5 pcs., JS1a-24V-F  
Measured portion: Inside the coil  
Contact current: 5 A



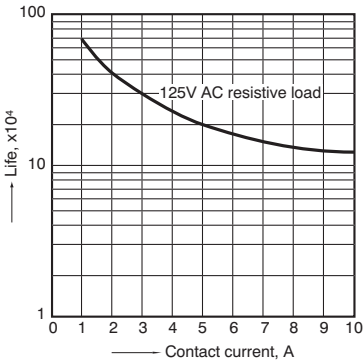
2.-(2) Coil temperature rise

Sample: 5 pcs., JS1a-24V-F  
Measured portion: Inside the coil  
Contact current: 10 A



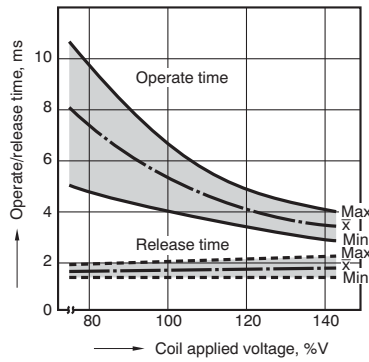
3. Life curve

Ambient temperature: Room temperature



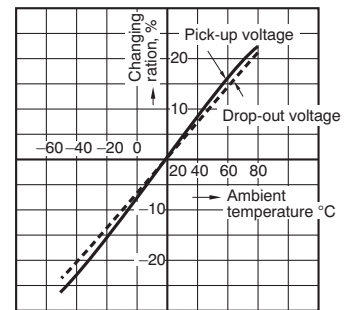
4. Operate/release time

Sample: 25 pcs., JS1-12V-F



5. Ambient temperature characteristics

Sample: 6 pcs., JS1-12V-F



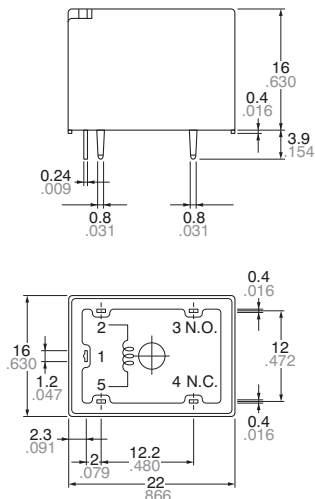
DIMENSIONS (mm inch)

Download [CAD Data](#) from our Web site.

[CAD Data](#)

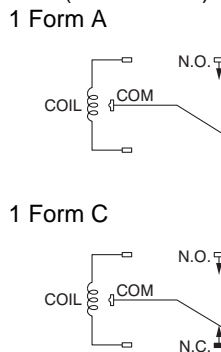


External dimensions

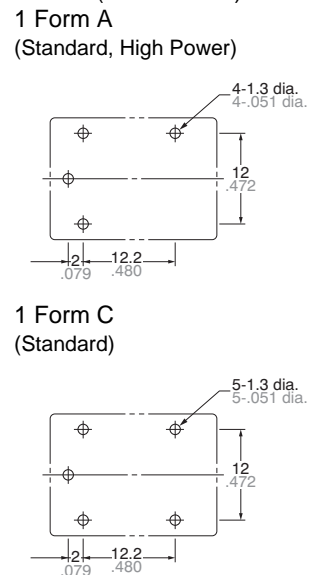


Note: Terminal No. 4 is only for Standard 1 Form C type

Schematic (Bottom view)



PC board pattern (Bottom view)



Dimension:

Less than 1mm .039inch:  
Min. 1mm .039inch less than 3mm .118 inch:  
Min. 3mm .118 inch:

General tolerance

±0.1 ±.004  
±0.2 ±.008  
±0.3 ±.012

Tolerance: ±0.1 ±.004