

mm inch

FEATURES

- Low pick-up voltage for high ambient use
- Sealed construction
- Global standard terminal pitch
- Usable at high temperature: 85°C 185°F

TYPICAL APPLICATIONS

- Power-window
- Car antenna
- Door lock
- Intermittent wiper
- Interior lighting
- Power seat
- Power sunroof
- Car stereo
- Horn
- Lift gate, etc.

SPECIFICATIONS

Contact

| | | Standard type | High capacity type |
|---|------------------------------|--|--|
| Arrangement | | 1 Form A, 1 Form C | |
| Contact material | | Ag alloy (Cadmium free) | |
| Initial contact resistance (By voltage drop 6 V DC 1 A) | | *Max. 100 mΩ | *Max. 100 mΩ |
| Contact voltage drop | | Max. 0.2 V DC (at 10 A 12 V DC) | |
| Rating | Nominal switching capacity | 10 A 16 V DC (resistive) | 15 A 16 V DC (resistive) |
| | Max. carrying current | 25 A (at 20°C 68°F for 2 minutes) 15 A (at 20°C 68°F for 1 hour) 20 A (at 85°C 185°F for 2 minutes) 10 A (at 85°C 185°F for 1 hour) | |
| | Max. switching power | 160 W | |
| | Max. switching voltage | 16 V DC | |
| | Max. switching current | 10 A | 15 A (10 A max. at 85°C) |
| | Min. switching capacity#1 | 1 A 12 V DC | |
| Expected life (min. ope.) | Mechanical life (at 180 cpm) | 10 ⁷ | |
| | Electrical (at 15 cpm) | Resistive 10 ⁵ | N.O.: 10 ⁵ N.C.: 5×10 ⁴ |

* Measured after operating 5 times at the rated load

Coil

| | |
|-------------------------|--------|
| Nominal operating power | 640 mW |
|-------------------------|--------|

Contact rating

| Load | Standard type | | | High capacity type | | |
|--------------------|---------------|--------|------|--------------------|--------|------|
| | Form A | Form C | | Form A | Form C | |
| | | N.O. | N.C. | | N.O. | N.C. |
| Max. carry current | 15 A | 15 A | 15 A | 15 A | 15 A | 15 A |
| Max. make current | 25 A | 25 A | 10 A | 50 A | 50 A | 15 A |
| Max. break current | 10 A | 10 A | 10 A | 15 A | 15 A | 15 A |

Characteristics

| | | |
|--|---------------------------|--|
| Max. operating speed (at rated load) | | 15 cps. |
| Initial insulation resistance*1 | | Min. 100 MΩ (at 500 V DC) |
| Initial breakdown voltage*2 | Between open contacts | 750 Vrms for 1 min. |
| | Between contacts and coil | 1,500 Vrms for 1 min. |
| Operate time*3 (at nominal voltage) | | Max. 10 ms |
| Release time (without diode)*3 (at nominal voltage) | | Max. 10 ms |
| Shock resistance | Functional*4 | Min. 98 m/s ² {10 G} |
| | Destructive*5 | Min. 980 m/s ² {100 G} |
| Vibration resistance | Functional*6 | 10 Hz to 55 Hz at double amplitude of 1.6 mm |
| | Destructive | 10 Hz to 55 Hz at double amplitude of 2 mm |
| Conditions for operation, transport and storage*7 (Not freezing and condensing at low temperature) | Ambient temp. | -40°C to +85°C -40°F to +185°F |
| | Humidity | 5% R.H. to 85% R.H. |
| Mass | | Approx. 12 g .423 oz |

#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.

Remarks

*1 Measurement at same location as "Initial breakdown voltage" section

*2 Detection current: 10mA

*3 Excluding contact bounce time

*4 Half-wave pulse of sine wave: 11ms; detection time: 10μs

*5 Half-wave pulse of sine wave: 6ms

*6 Detection time: 10μs

*7 Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT](#) section in [Relay Technical Information](#).

ORDERING INFORMATION

Ex. JSM

12V

| Contact arrangement | Protective construction | Coil voltage (DC) | Contact material |
|-----------------------------|--|-------------------|---|
| 1a: 1 Form A 1: 1 Form C | Nil: Sealed construction F: Flux-resistant type | 12 V | 4: Standard type (10 A) 5: High capacity type (15 A) |

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

TYPES AND COIL DATA (at 20°C 68°F)

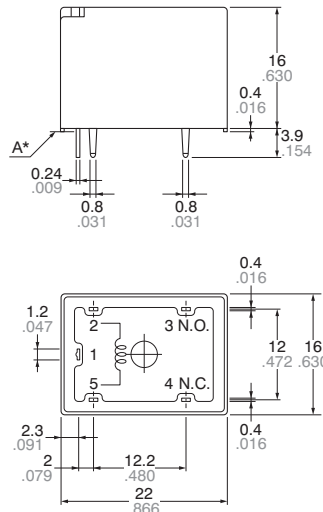
| Contact arrangement | Coil voltage, V DC | Standard type (10 A) | | High capacity type (15 A) | | Nominal voltage, V DC | Pick-up voltage, V DC | Drop-out voltage, V DC | Coil resistance Ω | Nominal operating current, mA | Nominal operating power, mW | Max. allowable voltage, V DC (at 80°C 176°F) |
|---------------------|--------------------|----------------------|---------------------|---------------------------|---------------------|-----------------------|-----------------------|------------------------|-------------------|-------------------------------|-----------------------------|--|
| | | Sealed type | Flux-resistant type | Sealed type | Flux-resistant type | | | | | | | |
| 1 Form A | 12 | JSM1a-12V-4 | JSM1aF-12V-4 | JSM1a-12V-5 | JSM1aF-12V-5 | 12 | Max. 6.3 | Min. 0.9 | 225±10% | 53.3±10% | 640 | 10 to 16 |
| 1 Form C | 12 | JSM1-12V-4 | JSM1F-12V-4 | JSM1-12V-5 | JSM1F-12V-5 | 12 | Max. 6.3 | Min. 0.9 | 225±10% | 53.3±10% | 640 | 10 to 16 |

* Other pick-up voltage types are also available. Please contact us for details.

DIMENSIONS (mm inch)

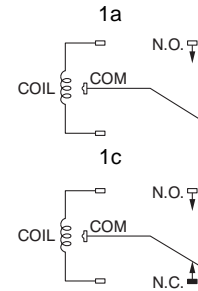
Download [CAD Data](#) from our Web site.

CAD Data

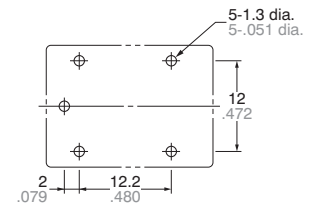
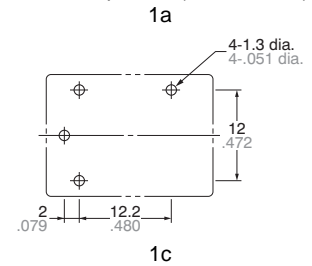


| | |
|-----------------------------|--------------------------|
| Dimension: | General tolerance |
| Max. 1mm .039 inch: | ±0.1 ±.004 |
| 1 to 3mm .039 to .118 inch: | ±0.2 ±.008 |
| Min. 3mm .118 inch: | ±0.3 ±.012 |

Schematic (Bottom view)



PC board pattern (Bottom view)

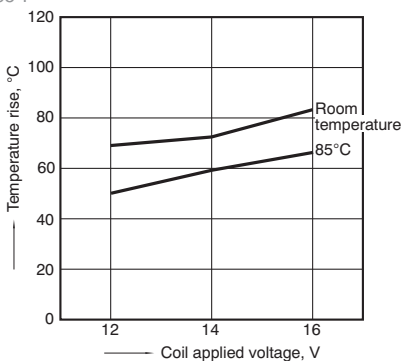


Tolerance: ±0.1 ±.004

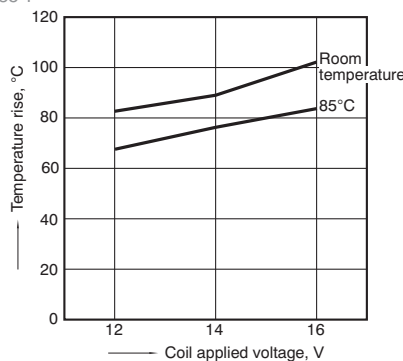
* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering. Intervals between terminals is measured at A surface level.

REFERENCE DATA

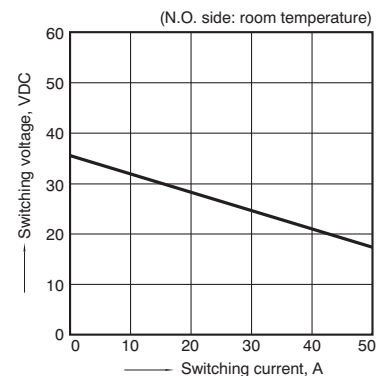
1-(1). Coil temperature rise (10A)
 Measured portion: Inside the coil
 Contact carrying current, 10A
 Ambient temperature: Room temperature, 85°C
 185°F



1-(2). Coil temperature rise (15A)
 Measured portion: Inside the coil
 Contact carrying current, 15A
 Ambient temperature: Room temperature, 85°C
 185°F

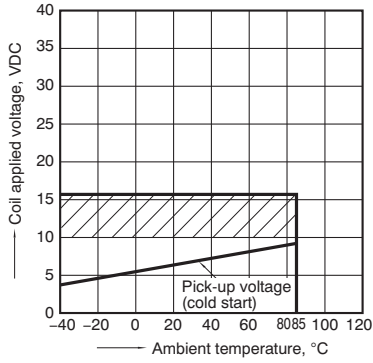


2. Max. switching capability (Resistive load, initial)

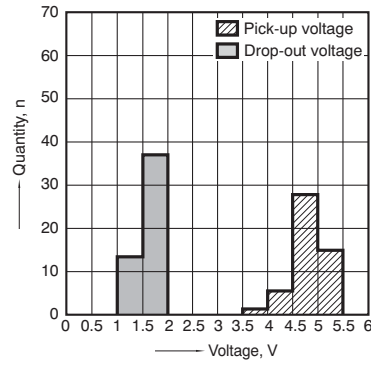


⚠ Not for new applications

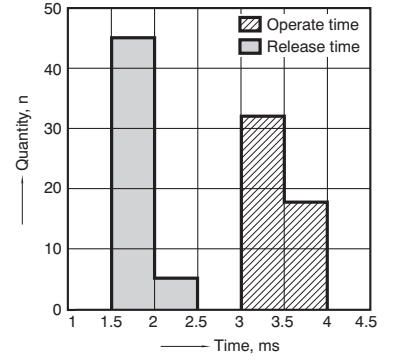
3. Ambient temperature and operating voltage range



4. Distribution of pick-up and drop-out voltage
Sample: JSM1-12V-5, 50pcs.



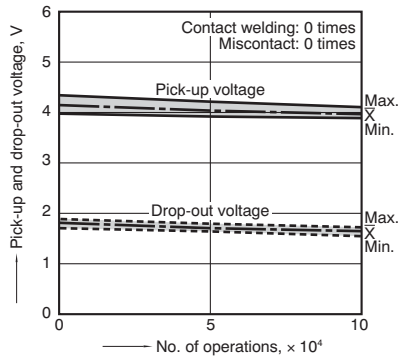
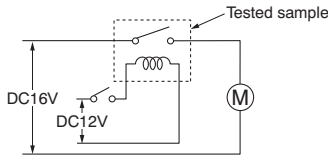
5. Distribution of operate and release time
Sample: JSM1-12V-5, 50pcs.
Coil both side without diode



6-(1). Electrical life test (Motor load)

Sample: JSM1-12V-5, 3pcs.
Load: 50A (Inrush), 10A 16V DC (Steady)
Switching frequency: (ON : OFF = 1s : 9s)

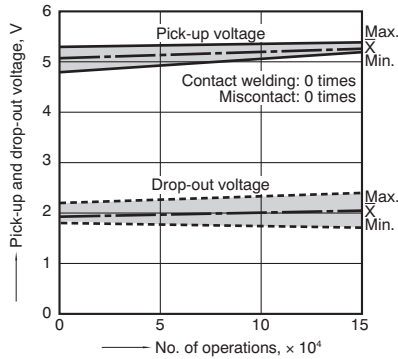
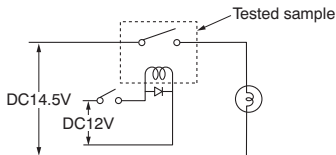
Circuit :



6-(2). Electrical life test (Lamp load)

Sample: JSM1-12V-5, 4pcs.
Load: 55.2A (Inrush), 9.6A 14.5V DC (Steady)
Switching frequency: (ON : OFF = 1s : 3s)

Circuit :



For Cautions for Use, see [Relay Technical Information](#).