

# POWER RELAY

## 1 POLE - 8A Medium Load Control

### JS Series

#### ■ FEATURES

- UL class B (130°C) coil wire insulation
- 1 form A (SPST-NO) or 1 form C (SPDT) contact
- Low profile and space saving
  - Height: 12.5 mm - Mounting space: 290 mm<sup>2</sup>
- High sensitivity in small package
  - Operating power 110 to 140 mW
  - Nominal power 220 to 290 mW
- High insulation in small package
  - Insulation distance : 8.0 mm (between coil and contacts)
  - Dielectric strength : 5,000 VAC - Surge strength : 10,000 V
- Plastic materials
  - UL 94 flame class V-0 - UL CTI level class 2
- Plastic sealed type
- Various contact material options
- RoHS compliant. Please see page 6 for more information



#### ■ PARTNUMBER INFORMATION

[Example]     JS   -   12   M   E   -   K   T   -   V3 \*

                  (a)   (b)   (c)   (d)   (e)   (f)   (g)

|     |                       |                         |   |
|-----|-----------------------|-------------------------|---|
| (a) | Relay type            | JS                      | : JS-Series   |
| (b) | Coil rated voltage    | 12                      | : 5.....60 VDC<br>Coil rating table at page 3   |
| (c) | Contact configuration | Nil<br>M                | : 1 form C (SPDT)<br>: 1 form A (SPST-NO)   |
| (d) | Contact material      | Nil<br>D<br>E<br>F<br>N | : Gold plate silver cadmium oxide<br>: Silver nickel<br>: Silver cadmium oxide<br>: Gold plate silver nickel<br>: Gold plate silver tin oxide                                       |
| (e) | Enclosure             | K                       | : Plastic sealed type   |
| (f) | Construction          | Nil<br>T                | : 3.2mm<br>: 5.0mm (only JS-MN)   |
| (g) | Gold plating          | Nil<br>V3               | : 0.3μ gold overlay (available with Nil, N and F contact)<br>: 3.0μ gold overlay for lower current applications (available with Nil and N contact, not available for T, 5.0mm type) |

Note: Actual marking omits the hyphen (-) or (\*)

\*: V3 is marked at different position on the relay

E.g.: Ordering code: JS-12E-K

Actual marking: JS12E-K

## ■ SPECIFICATION

| Item         |  |  | Non V3 type   | V3 type                        |
|--------------|--|--|---|--------------------------------|
|              |  |  | JS - ( ) - K<br>JS - ( ) D/E/F/N - K  | JS - ( ) - K<br>JS - ( ) N - K |
| Contact Data | Configuration                          |  | 1 form A (SPST-NO), 1 form C (SPDT)   |                                |
|              | Construction                           |  | Single  |                                |
|              | Material (see part number information) |  | 0.3μ Au plated  | 3μ Au plated                   |
|              | Resistance (initial)                   |  | Max. 100 mΩ at 6VDC, 1A   | Max. 30 mΩ at 6VDC, 1A         |
|              | Contact rating                         |  | 8A, 250VAC / 24VDC  |                                |
|              | Max. carrying current                  |  | 10A   |                                |
|              | Max. switching voltage                 |  | 400VAC / 300VDC   |                                |
|              | Max. switching power                   |  | 2,000VA / 192W  |                                |
|              | Min. switching load *                  |  | 100mA, 5VDC   | 10mA, 5VDC                     |
| Life         | Mechanical                             |  | Min. 20 x 10 <sup>6</sup> operations  |                                |
|              | Electrical                             | AC contact rating (resistive load)       | Min. 100 x 10 <sup>3</sup> operations (AgCd)<br>Min. 50 x 10 <sup>3</sup> operations (AgSnO <sub>2</sub> )<br>Min. 20 x 10 <sup>3</sup> operations (AgNi) |                                |
|              |  | DC contact rating (resistive load)       | Min. 100 x 10 <sup>3</sup> operations (AgCd)<br>Min. 50 x 10 <sup>3</sup> operations (AgSnO <sub>2</sub> )<br>Min. 20 x 10 <sup>3</sup> operations (AgNi) |                                |
| Coil Data    | Rated power (at 20 °C)                 |  | 220 - 290mW   |                                |
|              | Operate power (at 20 °C)               |  | 110 - 140mW   |                                |
|              | Operating temperature range            |  | -40 °C to +85 °C (no frost)   |                                |
| Timing Data  | Operate (at nominal voltage)           |  | Max. 10ms (no bounce)   |                                |
|              | Release (at nominal voltage)           |  | Max. 5ms (no diode, no bounce)  |                                |
| Insulation   | Resistance (initial)                   |  | Min. 1,000MΩ at 500VDC  |                                |
|              | Dielectric strength                    | Open contacts                            | 1,000VAC (50/60Hz) 1min   |                                |
|              |  | Contacts to coil                         | 5,000VAC (50/60Hz) 1min   |                                |
|              | Surge strength                         | Coil to contacts                         | 10,000V / 1.2 x 50μs standard wave  |                                |
|              | Clearance                              |  | 8 mm  |                                |
|              | Creepage                               |  | 8 mm  |                                |
|              | EN61810-1, VDE0435                     | Voltage                                  | 250V  |                                |
|              |  | Pollution degree                         | 3   |                                |
|              |  | Material group                           | III a   |                                |
|              | Category                               | C / 250V (reference voltage) (VDE 01106) |   |                                |
| Other        | Vibration resistance                   | Misoperation>1us                         | 10 - 55 - 10 Hz double amplitude 1.65mm   |                                |
|              |  | Endurance                                | 10 - 55 - 10 Hz double amplitude 3.3mm  |                                |
|              | Shock                                  | Misoperation>1us                         | Min. 100m/s <sup>2</sup> (11 ± 1ms) 3 directions; 36 shocks (18 with coil energizing, 18 no coil energizing)  |                                |
|              |  | Endurance                                | Min. 1,000m/s <sup>2</sup> (6 ± 1ms) 3 directions, no coil energizing 18 shocks   |                                |
|              | Weight                                 | Approximately 8.0 g                      |   |                                |

\* Minimum switching loads mentioned above are reference values. Please perform the confirmation test with actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

## ■ COIL RATING

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release Voltage (VDC) * | Max. Coil Voltage (VDC) | Rated Power (mW) |
|-----------|--------------------------|-------------------------------|------------------------------|------------------------------|-------------------------|------------------|
| 5         | 5                        | 112                           | 3.5                          | 0.5                          | 11.8                    | 225              |
| 6         | 6                        | 160                           | 4.2                          | 0.6                          | 14.1                    |                  |
| 9         | 9                        | 360                           | 6.3                          | 0.9                          | 21.2                    |                  |
| 12        | 12                       | 660                           | 8.5                          | 1.2                          | 28.3                    | 220              |
| 18        | 18                       | 1,455                         | 12.7                         | 1.8                          | 42.4                    | 225              |
| 24        | 24                       | 2,350                         | 16.8                         | 2.4                          | 56.6                    | 245              |
| 48        | 48                       | 8,000                         | 33.4                         | 4.8                          | 105.6                   | 290              |
| 60        | 60                       | 12,500                        | 41.7                         | 6.0                          | 132.0                   |                  |

Note: All values in the table are valid for 20°C and zero contact current.

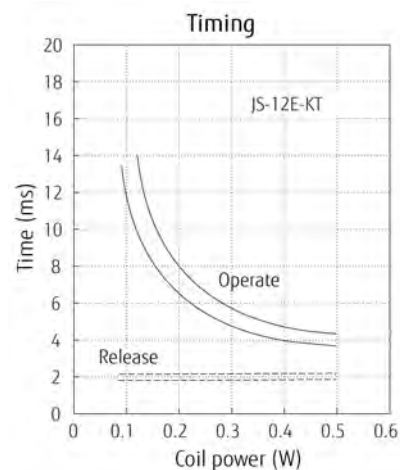
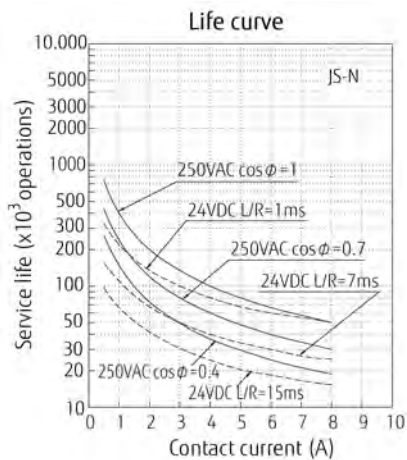
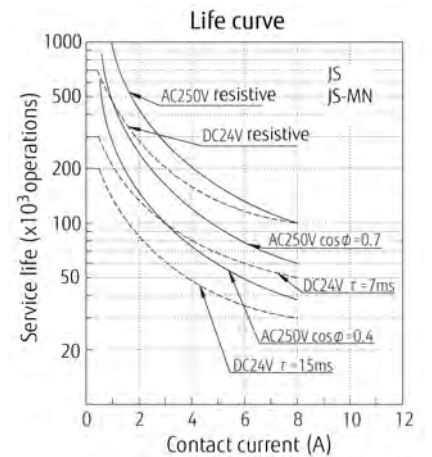
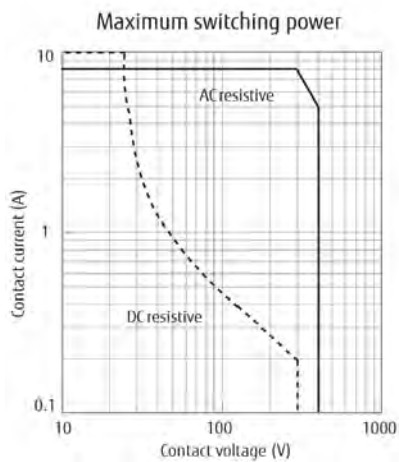
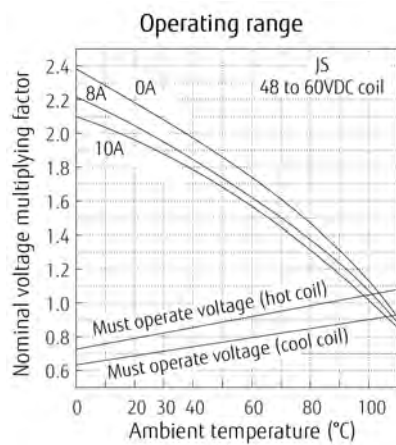
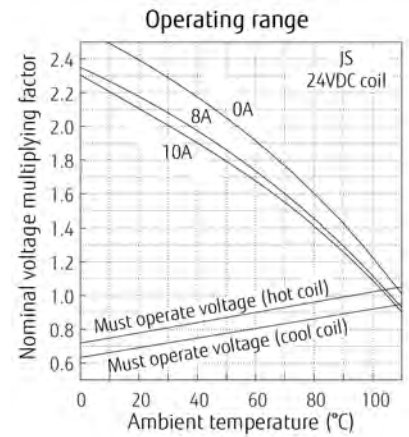
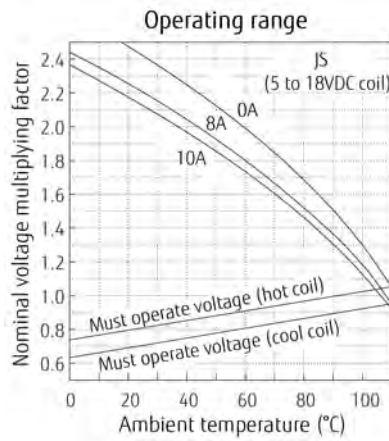
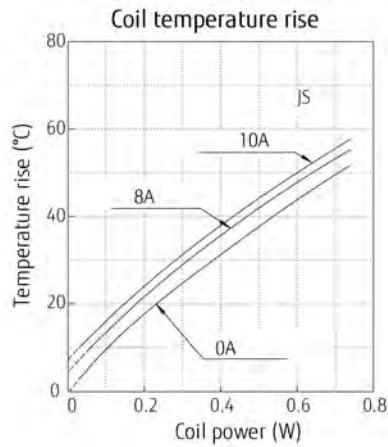
\* Specified operate values are valid for pulse wave voltage.

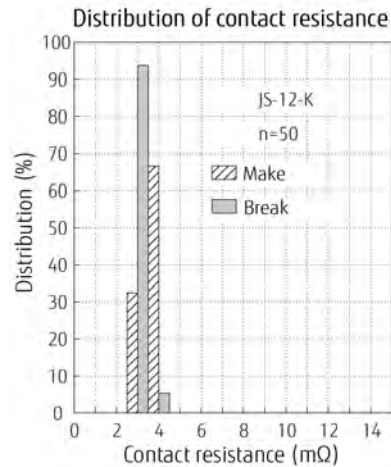
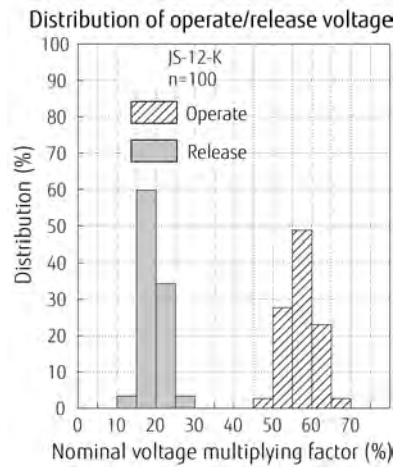
## ■ SAFETY STANDARDS

| Type  | Compliance                                   | Contact rating   |   |   |
|-------|--|--|---|---|
| UL    | UL 508                                       | Flammability: UL 94-V0 (plastics)  |   |   |
|       | E 56140                                      | Contact material: Nil, E   | N   | D, F  |
| CSA   | C22.2 No. 14<br>LR 35579                     | 8A 24VDC (resistive) 100k<br>8A, 250VAC (resistive) 100k<br>10A, 30VDC (resistive)<br>10A, 250VAC (resistive)<br>1/4HP, 125VAC / 250VAC<br>1/3HP, 125VAC<br>1/2HP, 250VAC<br>Pilot duty: C150, B300<br>Pilot duty: 0.27A, 250VDC | 8A 24VDC (resistive) 100k<br>8A, 250VAC (resistive) 100k<br>10A, 30VDC (resistive)<br>10A, 250VAC (resistive)<br>1/4HP, 125VAC / 250VAC<br>1/3HP, 125VAC<br>1/2HP, 250VAC<br>Pilot duty: A300, B300<br>C150, R300 | 8A, 24VDC<br>8A, 250VAC   |
| VDE   | 0435, 0631, 0700,<br>40013847                | 8A 250VAC (cos φ=1)<br>8A 24VDC (0 ms)   |   | JS-( )D-K, JS-( )F-K:<br>6A, 250VAC, (cos φ=1)<br>JS-( )MD-K, JS-( )MF-K:<br>8A, 250VAC |
| SEMKO | EN 61058-1 + A1: 1993<br>EN 61095:1993 + A11 | Rated voltage (V): 250<br>Rated current (A): 8 (2) or 8  | -   | -   |

Also complies with SEV, ÖVE, FIMKO, BSI, CQC, NEMKO, DEMKO

## CHARACTERISTIC DATA

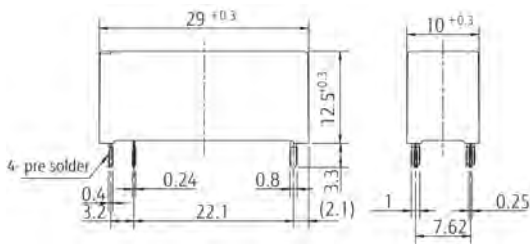




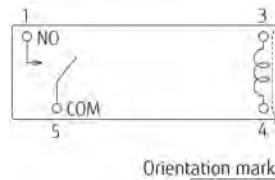
## ■ DIMENSIONS Unit: mm

### JS-MK

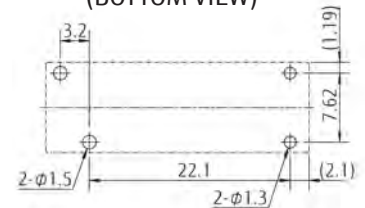
#### ● Dimensions



#### ● Schematics

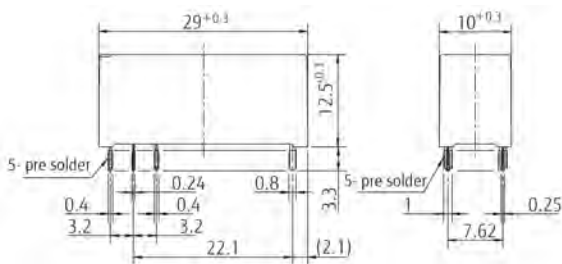


#### ● PC board mounting hole layout (BOTTOM VIEW)

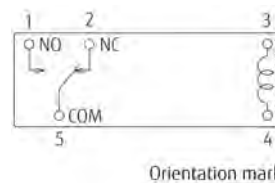


### JS-K

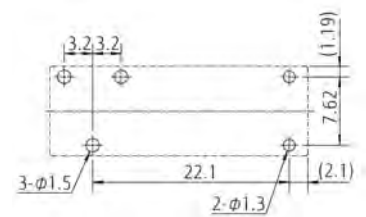
#### ● Dimensions



#### ● Schematics

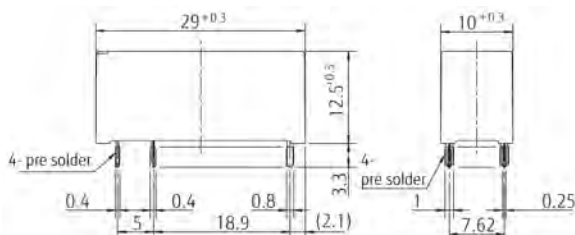


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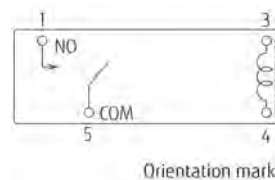


### JS-MN-KT

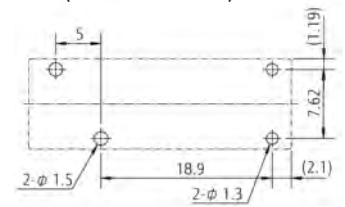
#### ● Dimensions



#### ● Schematics



#### ● PC board mounting hole layout (BOTTOM VIEW)



## RoHS Compliance and Lead Free Information

### 1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives. As per Annex III of directive 2011/65/EU.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: <http://www.fujitsu.com/downloads/MICRO/fcai/relays/lead-free-letter.pdf>
- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified. This material has been verified to be compatible with PbSn assembly process.

### 2. Recommended Lead Free Solder Condition

- **Recommended solder Sn-3.0Ag-0.5Cu.**

**Flow Solder condition:**

Pre-heating: maximum 120 °C  
Soldering: dip within 5 sec. at  
260 °C solder bath

**Solder by Soldering Iron:**

Soldering Iron  
Temperature: maximum 360 °C  
Duration: maximum 3 sec.

**We highly recommend that you confirm your actual solder conditions**

### 3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays, unless otherwise indicated.

### 4. Tin Whiskers

- Dipped SnAgCu solder is known as presenting a low risk to tin whisker development. No considerable length whisker was found by our in house test.

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