

POWER RELAY

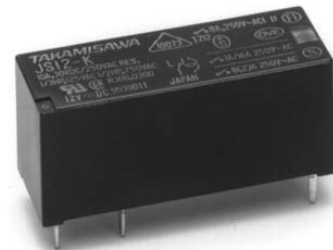
1 POLE—8 A (MEDIUM LOAD CONTROL)

JS SERIES

RoHS compliant

■ FEATURES

- UL, CSA, VDE, SEV, SEMKO, FIMKO, NEMKO, DEMKO, ÖVE, CQC, BSI compliance
- UL class B (130°C) insulation
- 1 form A (SPST-NO) or 1 form C (SPDT) contact
- Low profile and space saving—Height: 12.5 mm
—Mounting space: 290 mm²
- High sensitivity in small package
—Operating power 110 to 140 mW
—Nominal power 220 to 290m W
- High isolation in small package
—Insulation distance : 8 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 since date code: 0438B9, 0434R - Please see page 7 for more information



■ ORDERING INFORMATION

[Example] JS - 12 M E - K T -(V3)*
 (a) (*) (b) (c) (d) (e) (f) (j)

| | | |
|-----|-----------------------------|---|
| (a) | Series Name | JS : JS Series |
| (b) | Nominal Voltage | Refer to the COIL DATA CHART |
| (c) | Contact Arrangement | Nil : 1 form C (SPDT) M : 1 form A (SPST-NO) |
| (d) | Contact Material | Nil : Gold plate silver cadmium oxide D : Silver nickel E : Silver cadmium oxide F : Gold plate silver nickel N : Gold plate silver tin oxide |
| (e) | Enclosure | K : Plastic sealed type |
| (f) | Construction | Nil: 3.2 mm T : 5.0 mm (only JS-MN, MD, MF) |
| (j) | For low current application | Nil: 0.3μ gold overlay (available with Nil, N and F contact) V3: 3μ gold overlay for lower current applications (available with Nil, N) and not available for T (5.0mm type) |

Note: Actual marking omits the hyphen (-) of (*)
 *: V3 is marked at different place from P/N.

JS SERIES

■ PART NUMBERS

1. Terminal Pitch: 3.2mm

| Order P/N | Series | Voltage | Contact Arrangement | Contact material | Enclosure | Terminal Pitch | Special |
|-------------------|--------|---------------|---------------------|--|-----------------|----------------|---|
| JS-5M ()-K(-V3) | JS | 5 | M: 1 form A | Nil: Gold plate + silver cadmium oxide | K: Plastic Seal | 3.2 mm | Gold plate Nil: 0.3 μ m V3: 3 μ m |
| JS-6M ()-K(-V3) | | 6 | | | | | |
| JS-9M ()-K(-V3) | | 9 | | | | | |
| JS-12M ()-K(-V3) | | 12 | | | | | |
| JS-18M ()-K(-V3) | | 18 | | | | | |
| JS-24M ()-K(-V3) | | 24 | | | | | |
| JS-48M ()-K(-V3) | | 48 | | | | | |
| JS-60M ()-K(-V3) | | 60 | | | | | |
| JS-5 ()-K(-V3) | | Nil: 1 form C | 5 | N: Gold plate silver tin oxide | | | |
| JS-6 ()-K(-V3) | | | 6 | | | | |
| JS-9 ()-K(-V3) | | | 9 | | | | |
| JS-12 ()-K(-V3) | | | 12 | | | | |
| JS-18 ()-K(-V3) | | | 18 | | | | |
| JS-24 ()-K(-V3) | | | 24 | | | | |
| JS-48 ()-K(-V3) | | | 48 | | | | |
| JS-60 ()-K(-V3) | | | 60 | | | | |

2. Terminal Pitch: 5.0mm

| Order P/N | Series | Voltage | Contact Arrangement | Contact material | Enclosure | Terminal Pitch |
|-----------|--------|---------|---------------------|----------------------------------|-----------|----------------|
| JS-5MN-K | JS | 5 | M: 1 form A | N: Gold plate silver + tin oxide | K | T: 5.0 mm |
| JS-6MN-K | | 6 | | | | |
| JS-9MN-K | | 9 | | | | |
| JS-12MN-K | | 12 | | | | |
| JS-18MN-K | | 18 | | | | |
| JS-24MN-K | | 24 | | | | |
| JS-48MN-K | | 48 | | | | |
| JS-60MN-K | | 60 | | | | |

■ COIL DATA CHART

| Coil voltage | Nominal voltage | Maximum voltage* ¹ | Coil resistance ($\pm 10\%$) | Must operate voltage* ² | Must release voltage* ² | Nominal Power |
|--------------|-----------------|-------------------------------|--------------------------------|------------------------------------|------------------------------------|---------------|
| 5 | 5 VDC | 11.8 VDC | 112 Ω | 3.5 VDC | 0.5 VDC | 225 mW |
| 6 | 6 VDC | 14.1 VDC | 160 Ω | 4.2 VDC | 0.6 VDC | 225 mW |
| 9 | 9 VDC | 21.2 VDC | 360 Ω | 6.3 VDC | 0.9 VDC | 225 mW |
| 12 | 12 VDC | 28.3 VDC | 660 Ω | 8.5 VDC | 1.2 VDC | 220 mW |
| 18 | 18 VDC | 42.4 VDC | 1,455 Ω | 12.7 VDC | 1.8 VDC | 225 mW |
| 24 | 24 VDC | 56.6 VDC | 2,350 Ω | 16.8 VDC | 2.4 VDC | 245 mW |
| 48 | 48 VDC | 105.6 VDC | 8,000 Ω | 33.4 VDC | 4.8 VDC | 290 mW |
| 60 | 60 VDC | 132.0 VDC | 12,500 Ω | 41.7 VDC | 6.0 VDC | 290 mW |

Note : All values in the table are measured at 20°C.

*1: No contact current at 20°C.

*2: Specified values are subject to pulse wave voltage.

■ SPECIFICATIONS

| Item | | Non-V3 type | | V3 type | |
|----------------------|---------------------------------|--|--|---------------------|--|
| | | JS ()-E-K, JS ()-K, JS ()-N-K, JS ()-F-K, JS ()-D-K | | JS ()-K, JS ()N-K | |
| Contact | Arrangement | 1 Form C (SPDT), 1 Form A (SPST-NO) | | | |
| | Material | 0.3μ Ag plated | | 3μ Ag plated | |
| | Configuration | Single, | | | |
| | Resistance (initial) | Max. 100mΩ 1A, 6VDC) | | Max. 30mΩ (1A 6VDC) | |
| | Rating | 8A 250 VAC / 24 VDC | | | |
| | Max. carrying current | 10A | | | |
| | Max. switching power | 2,000 VA / 192 W | | | |
| | Max. switching voltage | 400 VAC/ 150 VDC | | | |
| | Min. switching load | 100 mA 5 VDC | | 10 mA 5 VDC | |
| Coil | Nominal power (at 20°C) | 220 to 290 mW | | | |
| | Operate power (at 20°C) | 110 to 140 mW | | | |
| | Operating temperature (at 20°C) | -40°C to +85°C (no frost) | | | |
| Time value | Operate | Max. 10 ms (at nominal voltage, without bounce) | | | |
| | Release (without diode) | Max. 5 ms (at nominal voltage, without bounce) | | | |
| Life | Mechanical | Min. 20x10 ⁶ operations | | | |
| | Electrical | AC rated load | Min. 100x10 ⁶ operations (JS-()N-K min. 10x10 ³ ops.) | | |
| | | DC rated load | Min. 100x10 ⁶ operations (JS-()N-K min. 10x10 ³ ops.) | | |
| Vibration resistance | Misoperation | 10 to 55 Hz at double amplitude of 1.65 mm | | | |
| | Endurance | 10 to 55 Hz at double amplitude of 3.3 mm | | | |
| Shock resistance | Misoperation | Min. 100 m/s ² (11±1 ms) | | | |
| | Endurance | Min. 1,000 m/s ² (6±1 ms) | | | |
| Weight | | Approx. 8 g | | | |

■ INSULATION

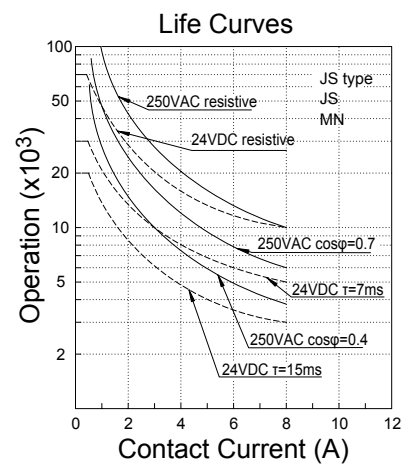
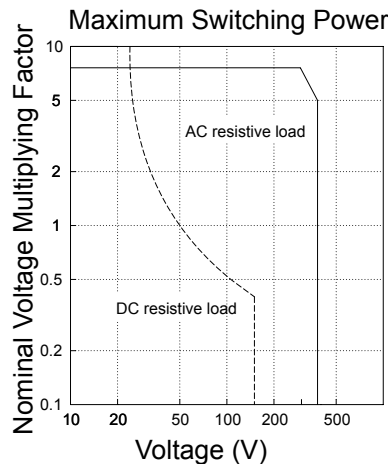
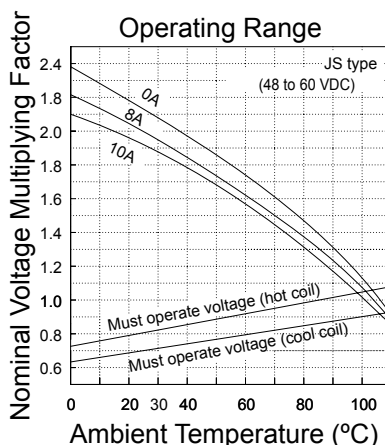
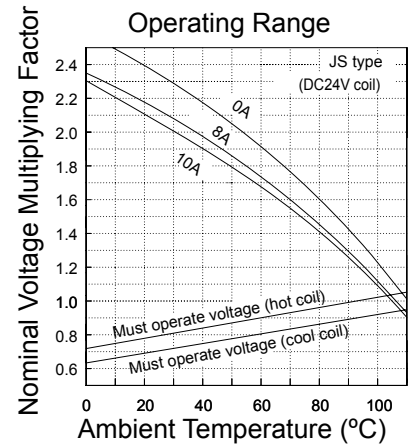
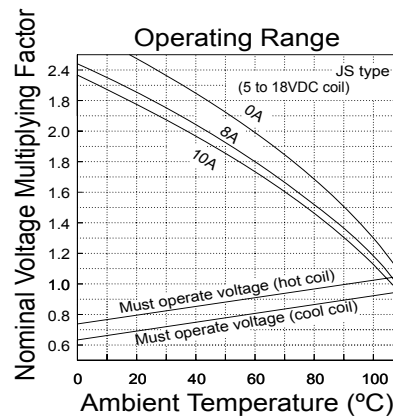
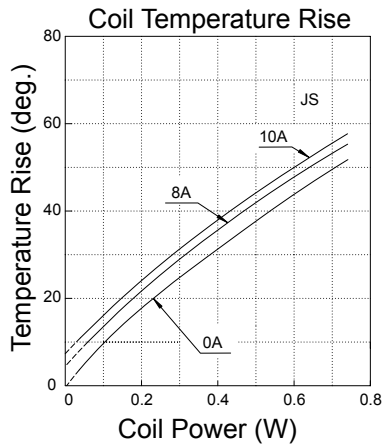
| | | |
|--|-------------------|--------------------------------------|
| Items | | |
| Resistive (at 500 VDC) | | Min. 1,000 MΩ |
| Dielectric Strength | Open contacts | 1,000 VAC (50/60 Hz) 1 min. |
| | Coil and contacts | 5,000 VAC (50/60 Hz) 1 min. |
| Surge strength (coil and contacts) | | 10,000 V (1.2 x 50 μs standard wave) |
| Clearance / crepage | | 8 mm / 8 mm |
| Isolation (DIN EN 61810-1 VDE 0435) | | |
| Voltage | | 250 V |
| Pollution | | 3 |
| Isolation material group | | III a |
| Isolation category / Reference voltage (VDE 01106) | | C / 250V |

■ SAFETY STANDARD (VDE 01106)

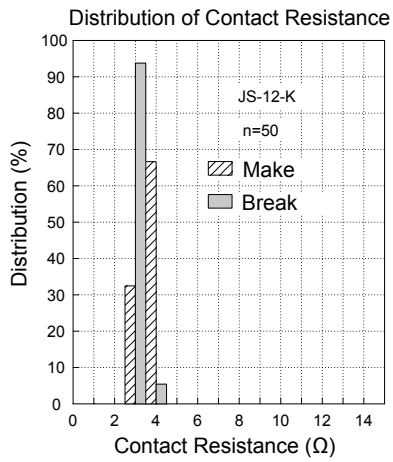
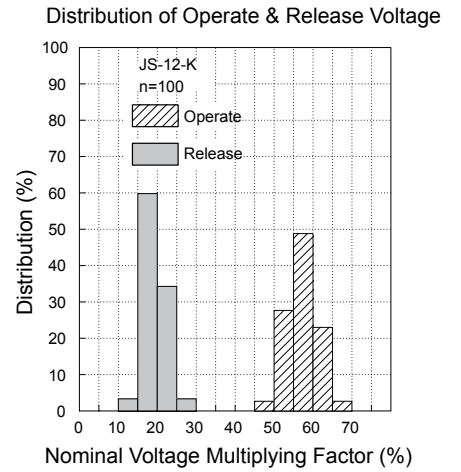
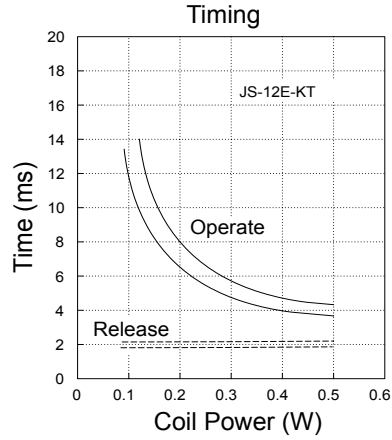
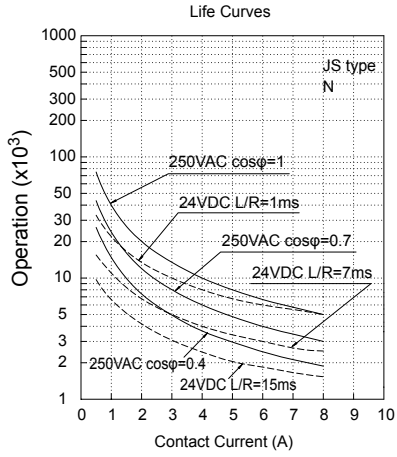
| Type | Compliance | Contact rating | |
|-------|--|-----------------------------------|-------------------------------|
| UL | UL 508 E 56140 | Flammability: UL 94-V0 (plastics) | |
| | | Contact material: Nil, E | N |
| CSA | C22.2 No. 14 LR 35579 | 8 A 24 VDC (resistive) 100k | 8 A 24 VDC (resistive) 100k |
| | | 8 A, 250 VDC (resistive) 100k | 8 A, 250 VDC (resistive) 100k |
| | | 10 A, 30 VDC (resistive) | 10 A, 30 VDC (resistive) |
| | | 10 A, 250 VAC (resistive) | 10 A, 250 VAC (resistive) |
| | | 1/4 HP, 125 V/ 250 VAC | 1/4 HP, 125 V/ 250 VAC |
| | | 1/3 HP, 125 VAC | 1/3 HP, 125 VAC |
| | | 1/2 HP, 250 VAC | 1/2 HP, 250 VAC |
| | | Pilot duty: C150, B300 | Pilot duty: A300, B300 |
| | | Pilot duty: 0.27A, 250VDC | C150, R300 |
| VDE | 0435, 0631, 0700 | 8 A 250 VAC (cos $\phi=1$) | |
| | | 8 A 24 VDC (0 ms) | |
| SEMKO | EN 61058-1 + A1: 1993 EN 61095:1993 + A11 | Rated Voltage (V): 250 | |
| | | Rated Current (A): 8 (2) or 8 | |

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

■ CHARACTERISTIC DATA



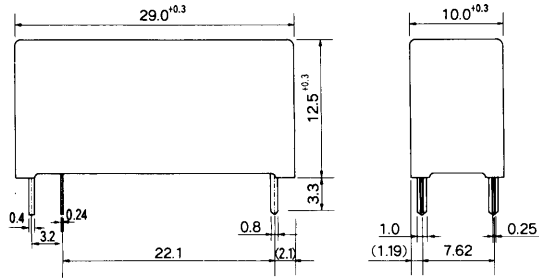
■ REFERENCE DATA



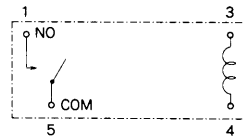
■ DIMENSIONS

- Dimensions

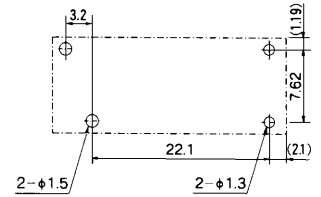
JS-MK type



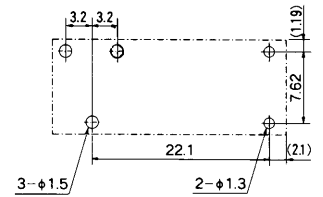
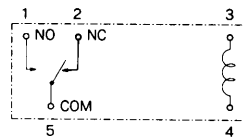
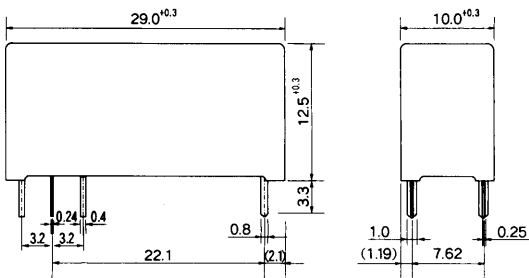
- Schematics (BOTTOM VIEW)



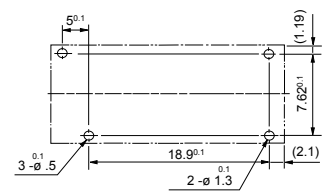
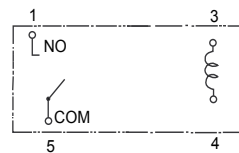
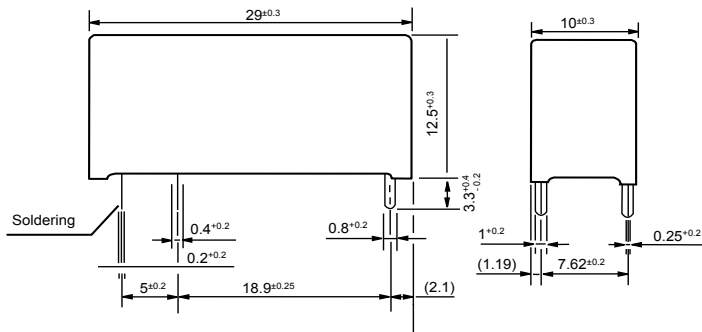
- PC board mounting hole layout (BOTTOM VIEW)



JS-K type



JS-MN()-KT type



Unit: mm

RoHS Compliance and Lead Free Relay Information

1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (<http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
- We will ship leaded relays as long as the leaded relay inventory exists.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

2. Recommended Lead Free Solder Profile

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

Reflow Solder condition

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.

4. Tin Whisker

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

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Rev. September 27, 2007