# POWER RELAY

# 1 POLE—8A (65 A HIGH INRUSH CURRENT)

# JS-KS SERIES

**RoHS compliant**

## ■ FEATURES





- Inrush current 65A, 1,000W, lamp load
- UL class B (130°C) coil wire insulation
- 1 form A (SPST-NO)
- Contact application 3 (CA 3)
- Low profile and space saving—Height: 12.5 mm
  —Mounting space: 290 $mm^2$
- 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
- High current contact capacity
- RoHS compliant since date code: 0438B9, 0434R - Please see page 5 for more information

## ■ APPLICATIONS

- I/O module
- Timer
- HVAC

## ■ ORDERING INFORMATION

[Example] JS (a) – (*) 12 (b) M (c) N (d) – K (e) S (f)

| | | |
|---|---|---|
| (a) | Series Name | JS : JS Series |
| (b) | Nominal Voltage | Refer to the COIL DATA CHART |
| (c) | Contact Arrangement | M : 1 form A (SPST-NO) |
| (d) | Contact Material | N : AgSnO2 + Au 0.3μm |
| (e) | Enclosure | K : Plastic sealed type |
| (f) | Construction | S : 5.0 mm (lamp load 1,000W, 230 VAC, 25k operations)) |

Note: Actual marking omits the hyphen (-) of (*)

## ■ PART NUMBERS

Terminal pitch: 5.0mm

| Order P/N | Series | Voltage | Contact Arrangement | Contact material | Enclosure | Terminal Pitch |
|---|---|---|---|---|---|---|
| JS-5M N-KS | JS | 5 | M: 1 form A | *N:* AgSnO2 + Au 0.3μm | K: Plastic Seal | S: 5.0 mm |
| JS-6M N-KS | | 6 | | | | |
| JS-9M N-KS | | 9 | | | | |
| JS-12M N-KS | | 12 | | | | |
| JS-18M N-KS | | 18 | | | | |
| JS-24M N-KS | | 24 | | | | |
| JS-48M N-KS | | 48 | | | | |
| JS-60M N-KS | | 60 | | | | |

## ■ COIL DATA CHART

| Coil voltage | Nominal voltage | Maximum voltage*1 | Coil resistance (±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 | | | JS ( )MN-KS |
|---|---|---|---|
| Contact | Arrangement | | 1 Form A (SPST-NO) |
| | Material | | $AgSnO_2$+Au |
| | Resistance (initial) | | 100m Ohm max., (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 |
| 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. $100x10^3$ operations |
| | | DC rated load | Min. $100x10^3$ operations |
| | | Lamp load | 1,000 W $25x10^3$ operations at 230VAC |
| Vibration resistance | Misoperation ≥1μs | | 10 to 55 Hz at double amplitude of 1.65 mm |
| | Endurance ≥1μs | | 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 |

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

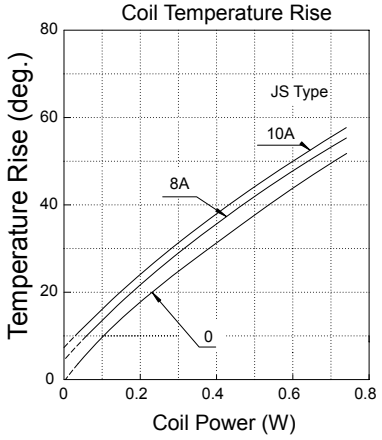
## ■ INSULATION

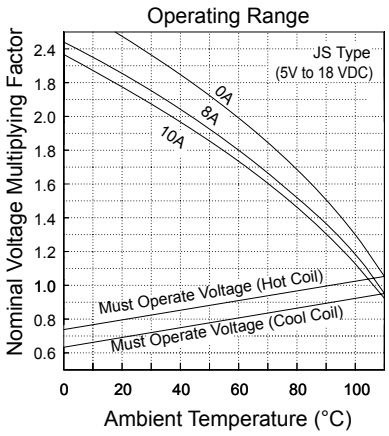
| Items | | |
|---|---|---|
| Resistive (at 5,000 VDC) | | Min. 1,000 MΩ |
| Dielectric Strength | Open contacts | 1,000 VAC (50/60 Hz) 1 min. |
| | Coil and contacts | 5,000 VAC (50/60 Hz) 1 min. |
| Surge strength (coil and contacts) | | 10,000 V (1.2 x 50 μs standard wave) |
| Clearance / crepage | | 6 mm / 8 mm |
| Isolation (DIN EN 61810-1 VDE 0435)<br>Voltage<br>Pollution<br>Isolation material group | | <br>250 V<br>3<br>III a |
| Isolation category / Reference voltage | | C / 250V |

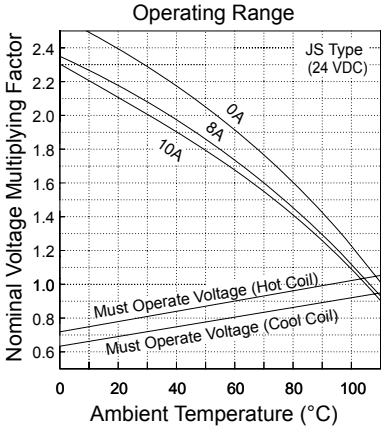
## ■ SAFETY STANDARD (VDE 01106)

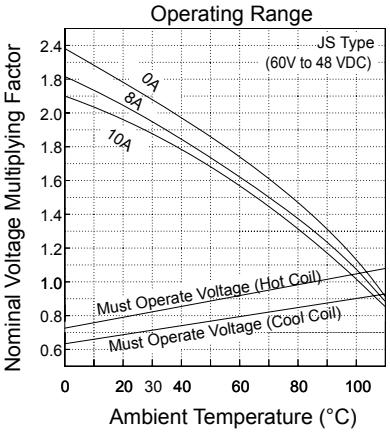
| Type | Compliance | Contact rating |
|---|---|---|
| UL | UL 508<br>E 56140 | Flammability: UL 94-V0 (plastics)<br>8 A 24 VDC (resistive) 100k operations<br>8 A 250 VAC (resistive) 100k operations<br>Pilot duty: A300, R300 |
| CSA | C22.2 No. 14<br>LR 35579 | |
| VDE | 0435, 0660, 40013847 | AC: 15, $100x10^3$<br>DC: 13, $100x\ 10^3$ |

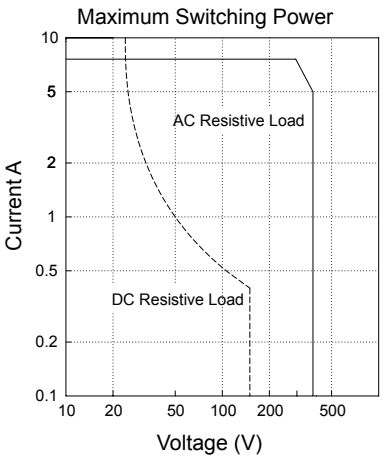
## ■ REFERENCE DATA

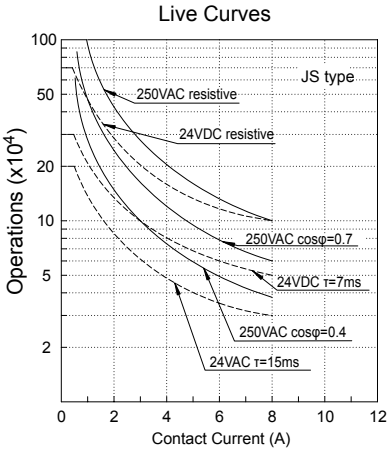


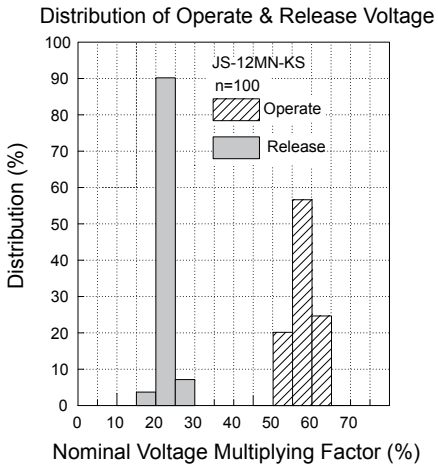



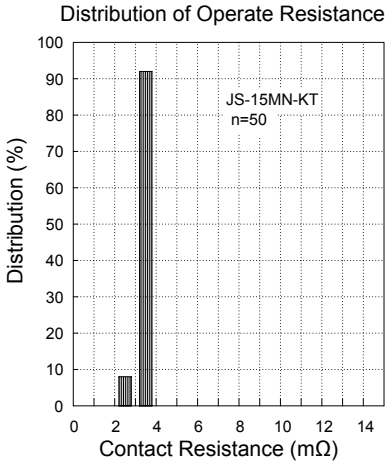



## ■ REFERENCE DATA

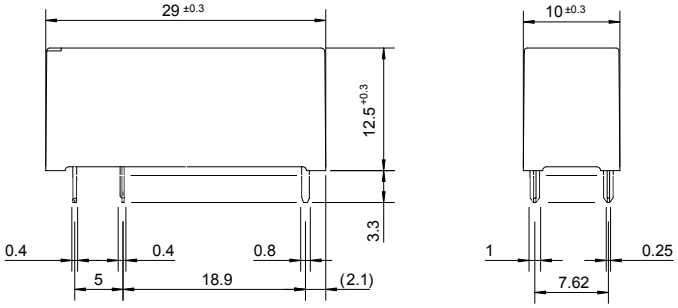



## ■ DIMENSIONS

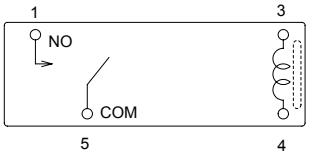
- **Dimensions**

JS-MN-KS type




- **Schematics**

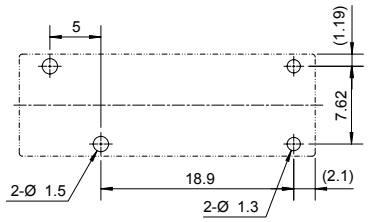
(BOTTOM VIEW)




Unit: mm

- **PC board mounting hole layout**

(BOTTOM VIEW)



# 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 plating 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 above the threshold level 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.

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.

### 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 through hole 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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