FUJITSU

# POWER RELAY
# 1 POLE - 5A/10A Medium Load Control
# JV Series

## ■ FEATURES

- UL, CSA, VDE, SEMKO, CQC recognized
- UL class B (130°C) wire class
- Low profile and space saving
  - Height: 12.5 mm
  - Mounting space: 175 mm2
- High sensitivity in small package
  - Operating power: 0.112 to 0.13 W
  - Nominal power: 0.2 to 0.3 W
- High insulation with reinforced insulation system (between coil and contacts)
  - Insulation distance: 8 mm
  - Dielectric strength: 5,000 VAC
  - Surge strength: 10,000 V
- Plastic materials
  - UL94 flame class V-0 -UL CTI level class 2
- Plastic sealed type, RTIII
- RoHS compliant.

Please see page 6 for more information


## ■ PARTNUMBER INFORMATION

[Example] JV (a) - (*) 12 (b) S (c) - K (d) T (e)

| | | | |
|---|---|---|---|
| (a) | Relay type | JV | : JV Series |
| (b) | Coil rated voltage | 12 | : 3....48VDC<br>Coil rating table at page 3 |
| (c) | Coil rating | Nil<br>S | : Standard type (300mW) (not for -KS type)<br>: High sensitive type (200mW) (-KS type: 250mW) |
| (d) | Enclosure | K | : Plastic sealed type, RTIII |
| (e) | Construction | T<br>S | : High density mounting type<br>: High power type 10A |

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

## ■ SPECIFICATION

| Item | | | Standard type | High sensitive type | High power type |
|---|---|---|---|---|---|
| | | | JV - ( ) | JV - ( ) S | JV- ( ) - KS |
| Contact Data | Configuration | | 1 form A (SPST-NO) | | |
| | Construction | | Single | | |
| | Material | | Silver alloy AgNi + Au | | $AgSnO_2$ + Au |
| | Resistance (Initial) | | Max. 70 mOhm at 6 VDC, 1 A | | |
| | Contact rating | | 5A, 250VAC / 30VDC (resistive load) | | 10A, 250VAC / 24VDC |
| | Max. carrying current | | 5A | | 10A |
| | Max. switching voltage | | 250VAC / 150 VDC | | |
| | Max. switching power | | 1,250VA / 150W | | 2,500VA / 240W |
| | Max. switching current | | 5A | | 10A |
| | Min. switching load * | | 100 mA, 5 VDC | | |
| Life | Mechanical | | Min. 5 x $10^6$ operations | | |
| | Electrical | | Min. 100 x $10^3$ operations | | Min. 50 x $10^3$ operations |
| Coil Data | Rated power (at 20 °C) | | 300mW | 200mW | 250mW |
| | Operate power (at 20 °C) | | 130mW | 113mW | 145mW |
| | Operating temperature range | | -40 °C to +70 °C (no frost) | | |
| Timing Data | Operate (at nominal voltage) | | Max. 8 ms (without bounce) | | |
| | Release (at nominal voltage) | | Max. 4 ms (no diode) | | |
| Insulation | Resistance (initial) | | Min 1,000MOhm at 500VDC | | |
| | Dielectric strength | Open contacts | 750VAC, 1 min. | | |
| | | Contacts to coil | 5,000VAC, 1 min. | | |
| | Surge strength | Coil to contacts | 10,000V / 1.2 x 50µs standard wave | | |
| Other | Vibration resistance | Misoperation | 10 to 55Hz double amplitude 1.65 mm | | |
| | | Endurance | 10 to 55Hz double amplitude 5 mm | | |
| | Shock | Misoperation | Min. 100m/s² (11 ± 1ms) | | |
| | | Endurance | Min. 1,000m/s² (6 ± 1ms) | | |
| | Weight | | Approximately 4.3 g | | |
| | Sealing | | Plastic sealed RTIII | | |

* 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 contions and expected reliability levels.

## ■ COIL RATING

Standard type (300 mW)

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release Voltage (VDC) * | Rated Power (mW) |
|---|---|---|---|---|---|
| 3 | 3 | 30 | 1.98 | 0.15 | 300 mW |
| 5 | 5 | 83.3 | 3.3 | 0.25 | |
| 6 | 6 | 120 | 3.96 | 0.3 | |
| 9 | 9 | 270 | 5.94 | 0.45 | |
| 12 | 12 | 480 | 7.9 | 0.6 | |
| 24 | 24 | 1,920 | 15.8 | 1.2 | |
| 48 | 48 | 7,680 | 31.7 | 2.4 | |

High sensitive type (200 mW)

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release Voltage (VDC) * | Rated Power (mW) |
|---|---|---|---|---|---|
| 3 | 3 | 45 | 2.25 | 0.15 | 200 mW |
| 5 | 5 | 125 | 3.75 | 0.25 | |
| 6 | 6 | 180 | 4.5 | 0.3 | |
| 9 | 9 | 405 | 6.75 | 0.45 | |
| 12 | 12 | 720 | 9 | 0.6 | |
| 18 | 18 | 1,620 | 13.5 | 0.9 | |
| 24 | 24 | 2,880 | 18 | 1.2 | |

Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are valid for pulse wave voltage.

10A High power type (250 mW)

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release Voltage (VDC) * | Rated Power (mW) |
|---|---|---|---|---|---|
| 3 | 3 | 36 | 2.1 | 0.3 | 250 mW |
| 5 | 5 | 100 | 3.5 | 0.5 | |
| 6 | 6 | 144 | 4.2 | 0.6 | |
| 9 | 9 | 324 | 6.3 | 0.9 | |
| 12 | 12 | 576 | 8.4 | 1.2 | |
| 18 | 18 | 1,296 | 12.6 | 1.8 | |
| 24 | 24 | 2,304 | 14.9 | 2.4 | |

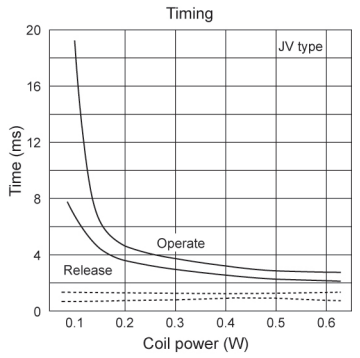
Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are valid for pulse wave voltage.

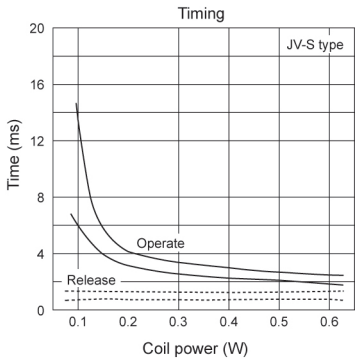
## ■ SAFETY STANDARDS

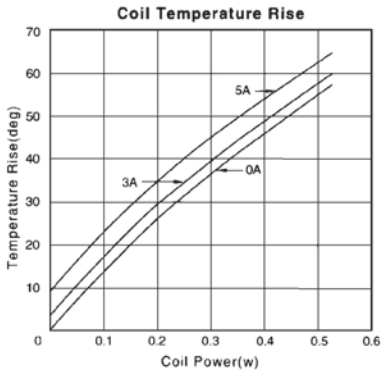
| Type | Compliance | Contact rating |
|---|---|---|
| UL | UL 508, UL 873<br><br>E56140 | Flammability: UL 94-V0 (plastics)<br>5A, 250 VAC / 30 VDC (resistive)<br>1/8 HP, 125VAC/250VAC |
| CSA | C22.2 No. 14<br>LR 35579 | Pilot duty: C300 |
| VDE | 0435, 0631, 0700<br><br><br><br>40016247 | 5A, 250VAC (cos φ1), 100K<br>2A, 250VAC (cos φ0.4), 100K<br>5A, 30VDC (omsec), 100K<br>10A, 250VAC (cos φ1), JV-KS, 25K<br>10A, 30VDC (0msec), JV-KS, 100K |

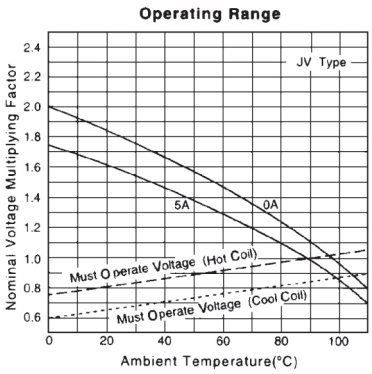
Also complies with SEMKO, CQC.
Please contact sales office when SEMKO, CQC logo marking is neccessary on the cover.

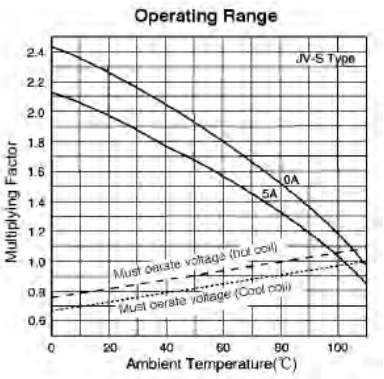
## ■ CHARACTERISTIC DATA

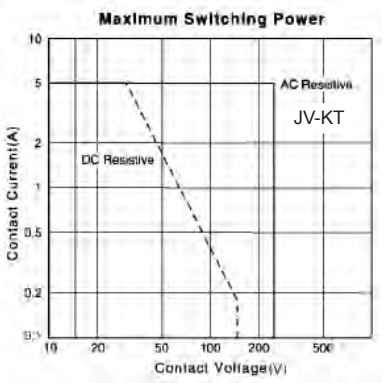


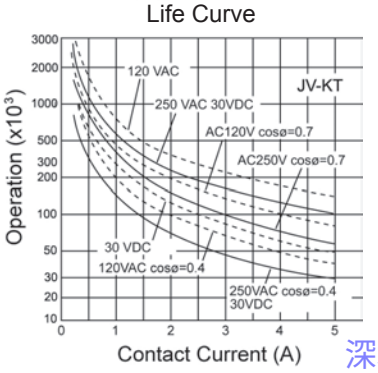



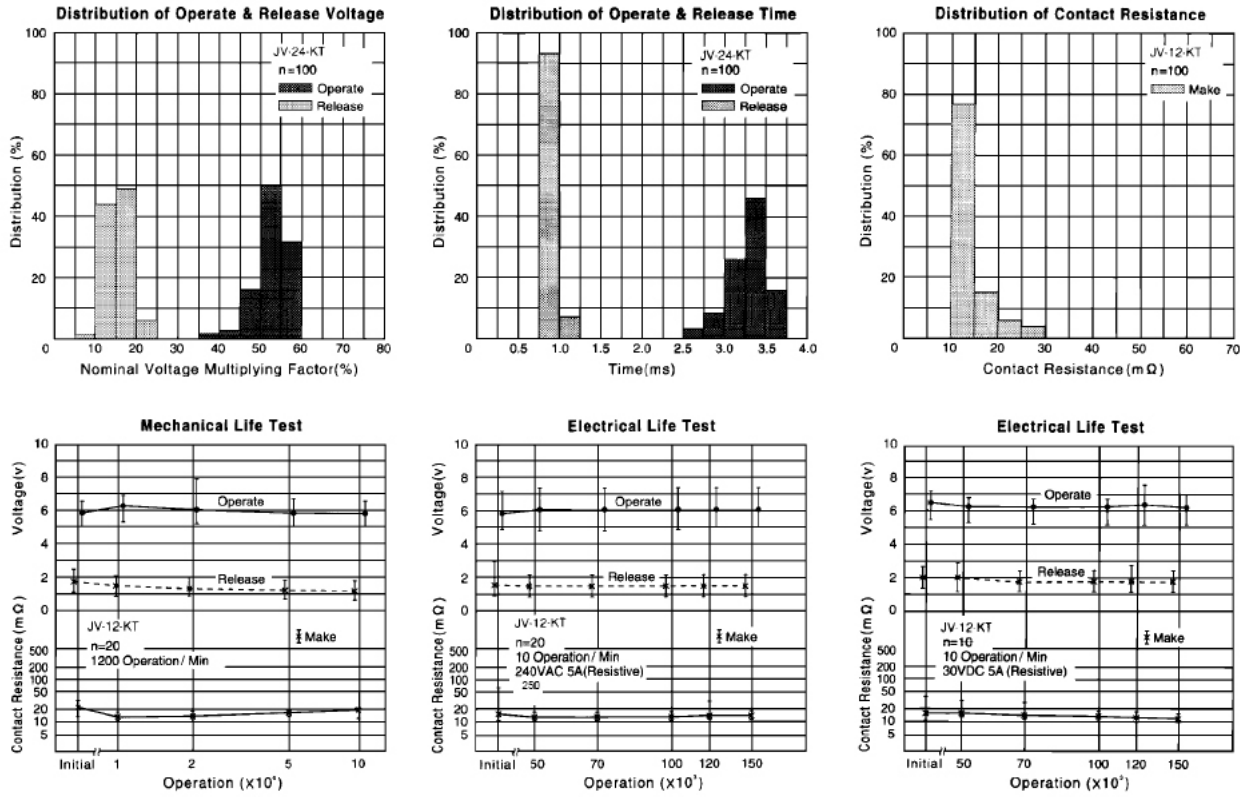



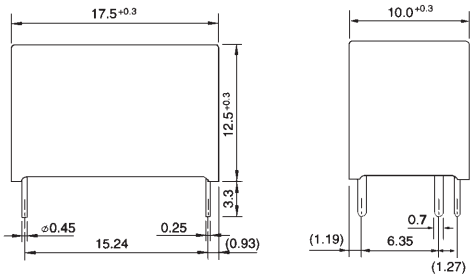
## ■ REFERENCE DATA



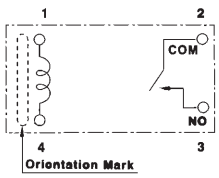

## ■ DIMENSIONS

- Dimensions

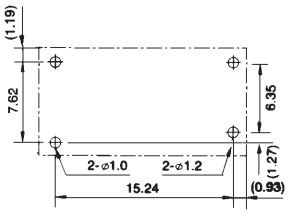
JV-KT type + JV-( )S-KS




- Schematics (BOTTOM VIEW)




- PC board mounting hole layout (BOTTOM VIEW)




Unit: mm

# RoHS Compliance and Lead Free Information

## 1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/us/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 Profile

- 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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