

# POWER RELAY

## 1 POLE - 3, 5A Medium Load Control

### JY Series

#### ■ FEATURES

- UL, CSA, VDE recognized
- High sensitivity and low power consumption
- High insulation
- Wide operating range
- DIL pitch terminals
- Plastic sealed type, RTIII
- Socket mounting type and socket available
- Compatible with solid state relays type SJ
- RoHS compliant.

Please see page 7 for more information



#### ■ PARTNUMBER INFORMATION

[Example]      JY - 12 H E - K P\*

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

|     |                    |                 |  |
|-----|--------------------|-----------------|--|
| (a) | Relay type         | JY              | : JY Series  |
| (b) | Coil rated voltage | 12              | : 4.5...48VDC<br>Coil rating table at page 3   |
| (c) | Contact style      | Nil<br>H<br>W   | : 3A (Single contact)<br>: 5A (Single contact)<br>: 3A (Bifurcated contact)  |
| (d) | Contact material   | Nil<br>Nil<br>E | : Gold-plate silver cadmium oxide (single contact type)<br>: Gold overlay silver alloy (bifurcated contact type)<br>: Silver cadmium oxide (single contact type) |
| (e) | Enclosure          | K               | : Plastic sealed type, RTIII   |
| (f) | Terminal type      | Nil<br>P        | : PC board mounting type<br>: Socket mounting type (without JY-W)  |

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

# JY SERIES

## ■ SPECIFICATION

| Item         | 3A Type                             |  |                                      | 5A Type              |                                 |                      |
|--------------|-------------------------------------|--|--------------------------------------|----------------------|---------------------------------|----------------------|
|              | JY - ( ) W                          | JY - ( )   | JY - ( ) E                           | JY - ( ) H           | JY - ( ) HE                     |                      |
| Contact Data | Configuration                       | 1 form A (SPST-NO)                                     |                                      |                      |                                 |                      |
|              | Construction                        | Bifurcated   | Single                               |                      |                                 |                      |
|              | Material                            | Gold-over-lay silver alloy AgNi                        | Gold-plate silver cadmium oxide      | Silver cadmium oxide | Gold-plate silver cadmium oxide | Silver cadmium oxide |
|              | Resistance (initial) (at 6 VDC, 1A) | Max. 30 mOhm   |                                      | Max. 100 mOhm        | Max. 30 mOhm                    | Max. 100 mOhm        |
|              | Contact rating                      | 3A, 250VAC / 30VDC                                     |                                      | 5A, 250VAC / 30VDC   |                                 |                      |
|              | Max. carrying current               | 5A   |                                      |                      |                                 |                      |
|              | Max. switching voltage              | 250VAC / 150 VDC                                       |                                      |                      |                                 |                      |
|              | Max. switching power                | 750VA, 90W   |                                      | 1,250VA, 150W        |                                 |                      |
|              | Max. switching current              | 3A   |                                      |                      |                                 |                      |
|              | Min. switching load *               | 0.1mA<br>100 mVDC                                      | 10mA<br>5VDC                         | 100mA<br>5VDC        | 10mA<br>5VDC                    | 100mA<br>5VDC        |
| Life         | Mechanical                          | Min. 20 x 10 <sup>6</sup> operations                   |                                      |                      |                                 |                      |
|              | Electrical                          | Min. 100 x 10 <sup>3</sup> operations (contact rating) |                                      |                      |                                 |                      |
| Coil Data    | Rated power (at 20 °C)              | 200 mW (48V type: 360 mW)                              |                                      |                      |                                 |                      |
|              | Operate power (at 20 °C)            | 100 mW (48V type: 170 mW)                              |                                      |                      |                                 |                      |
|              | Operating temperature range         | -40 °C to +90 °C (no frost) (48V type: +80 °C)         |                                      |                      |                                 |                      |
| Timing Data  | Operate (at nominal voltage)        | Max. 6 ms (without bounce)                             |                                      |                      |                                 |                      |
|              | Release (at nominal voltage)        | Max. 3 ms (no diode)                                   |                                      |                      |                                 |                      |
| Insulation   | Resistance (initial)                | Min. 1,000MOhm at 500VDC                               |                                      |                      |                                 |                      |
|              | Dielectric strength                 | Open contacts  | 750VAC, 1min                         |                      |                                 |                      |
|              |                                     | Contacts to coil                                       | 2,000VAC, 1min                       |                      |                                 |                      |
|              | Surge strength                      | Coil to contacts                                       | 4,000V / 1.2 x 50µs standard wave    |                      |                                 |                      |
| Other        | Vibration resistance                | Misoperation   | 10 to 55Hz double amplitude 1.5 mm   |                      |                                 |                      |
|              |                                     | Endurance  | 10 to 55Hz double amplitude 4.5 mm   |                      |                                 |                      |
|              | Shock                               | Misoperation   | Min. 100m/s <sup>2</sup> (11 ± 1ms)  |                      |                                 |                      |
|              |                                     | Endurance  | Min. 1,000m/s <sup>2</sup> (6 ± 1ms) |                      |                                 |                      |
|              | Weight                              | Approximately 5 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 conditions and expected reliability levels.

# JY SERIES

## ■ COIL RATING

| Coil Code | Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release-Voltage (VDC) * | Rated Power (mW) |
|-----------|-----------|--------------------------|-------------------------------|------------------------------|------------------------------|------------------|
| 5A type   | 3A type   |                          |                               |                              |                              |                  |
| 4.5       | 4.5       | 4.5                      | 100                           | 3.1                          | 0.23                         | 200              |
| 5         | 5         | 5                        | 125                           | 3.5                          | 0.25                         |                  |
| 6         | 6         | 6                        | 180                           | 4.2                          | 0.3                          |                  |
| 9         | 9         | 9                        | 405                           | 6.3                          | 0.45                         |                  |
| 12        | 12        | 12                       | 720                           | 8.4                          | 0.6                          |                  |
| 18        | 18        | 18                       | 1,620                         | 12.6                         | 0.9                          |                  |
| 24        | 24        | 24                       | 2,880                         | 16.8                         | 1.2                          |                  |
| 48        | 48        | 48                       | 6,400                         | 32.6                         | 2.4                          | 360              |
| 101       | -         | 23.5                     | 2,760                         | 15.5                         | 1.18                         | 200              |
| 105       | -         | 12                       | 720                           | 8.4                          | 0.6                          |                  |
| 107       | -         | 5                        | 125                           | 3.5                          | 0.25                         |                  |

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

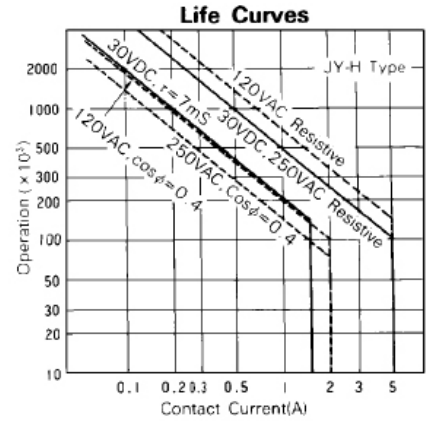
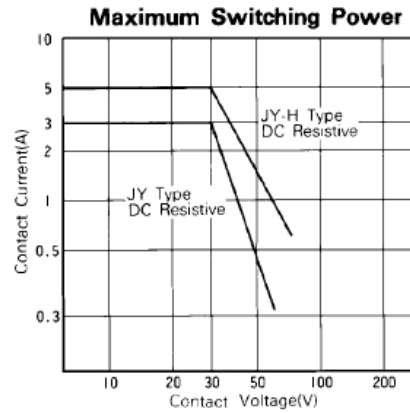
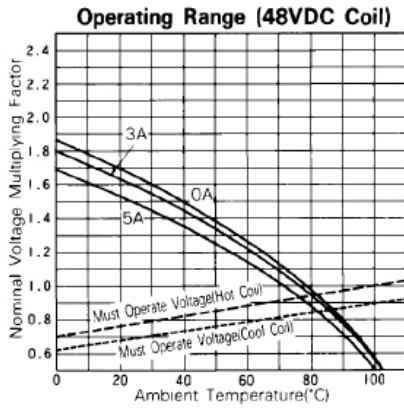
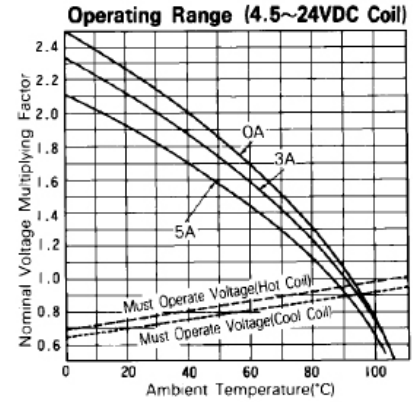
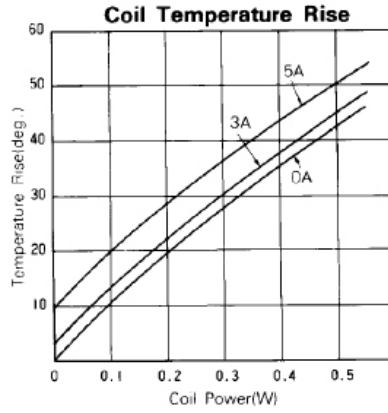
\* Specified operate values are valid for pulse wave voltage.

## ■ SAFETY STANDARDS

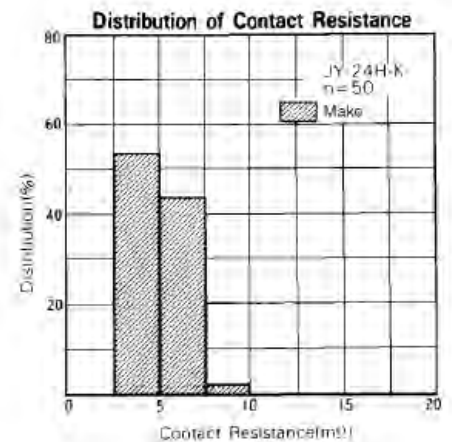
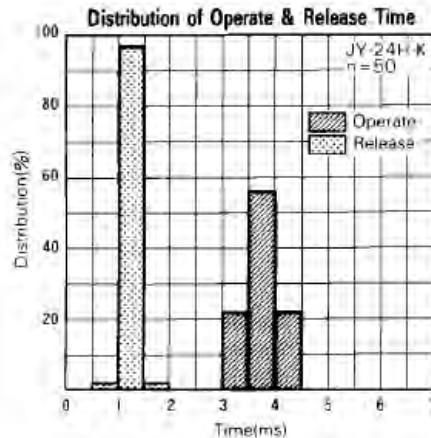
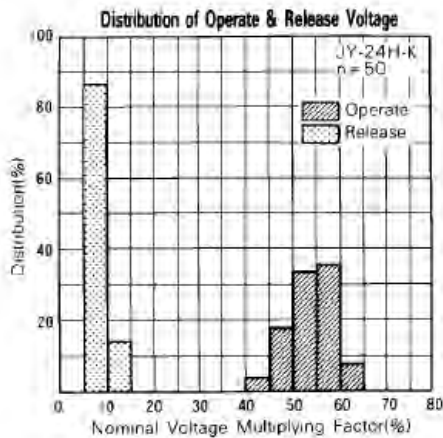
| Type                     | Compliance               | Contact rating   |
|--------------------------|--------------------------|--|
| UL                       | UL 508                   | Flammability: UL 94-V0 (plastics)  |
|                          | E56140                   | [JY-H, JY-HE]<br>5A, 250 VAC / 30 VDC (resistive)  |
| CSA                      | C22.2 No. 14<br>LR 35579 | 1/8 HP, 125VAC, 250 VAC<br>Pilot duty code C150  |
|                          |                          | [JY, JY-W, JY-E]<br>3A, 250 VAC / 30 VDC (resistive)<br>1/10 HP, 125VAC, 250 VAC<br>Pilot duty: C150 |
| VDE<br>(JY..W-K<br>type) | VDE 0435 part 201        | 3A, 250VAC, cos φ1, 100K<br>3A, 30VDC, 0msec. 100K   |

# JY SERIES

## CHARACTERISTIC DATA

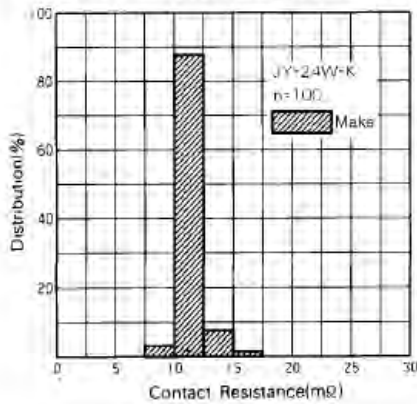


## REFERENCE DATA

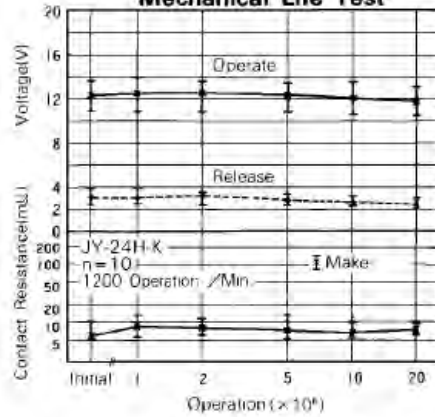


# JY SERIES

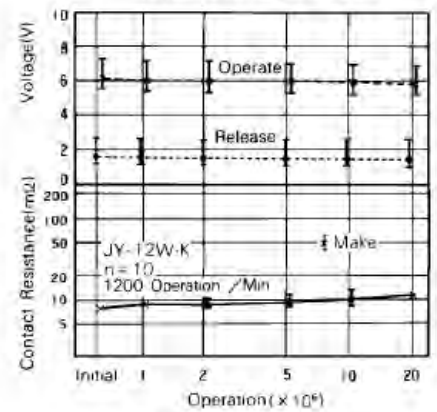
**Distribution of Contact Resistance**



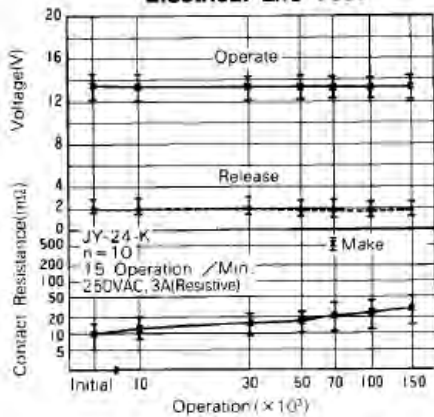
**Mechanical Life Test**



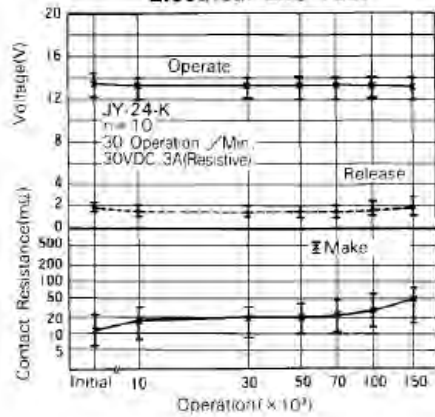
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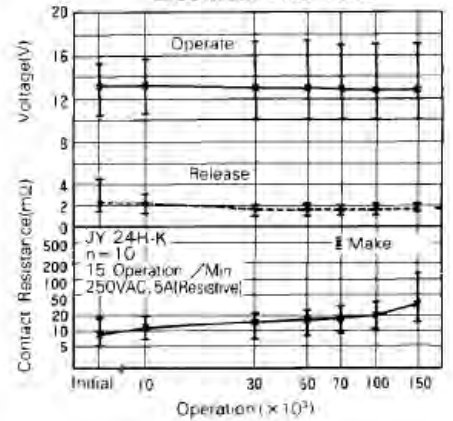
**Electrical Life Test**



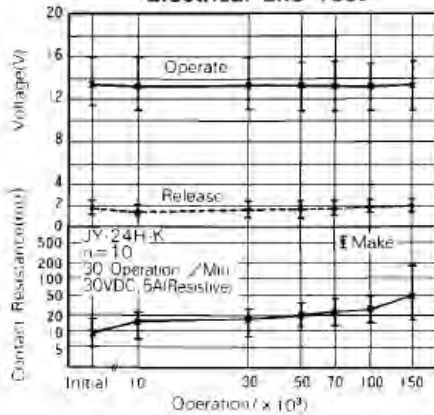
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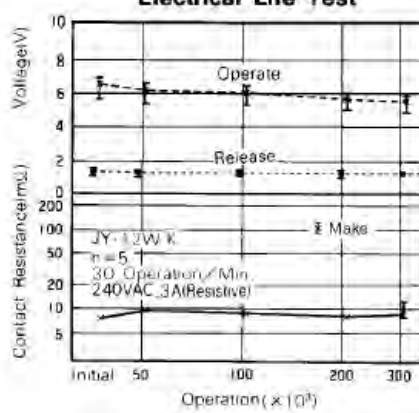
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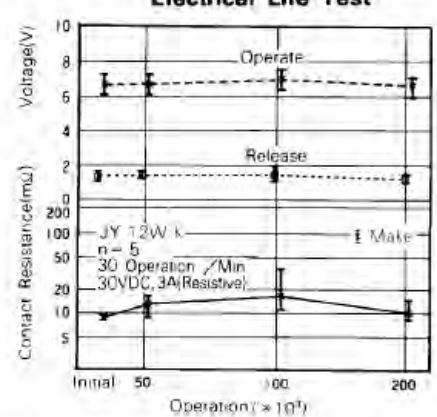
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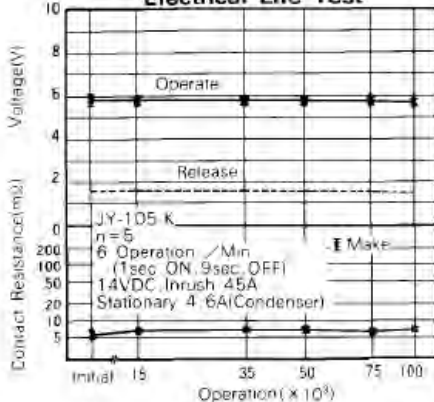
**Electrical Life Test**



**Electrical Life Test**



**Electrical Life Test**



# JY SERIES

## ■ DIMENSIONS

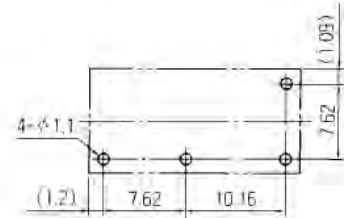
● Dimensions  
JY Type



● Schematics  
(BOTTOM VIEW)

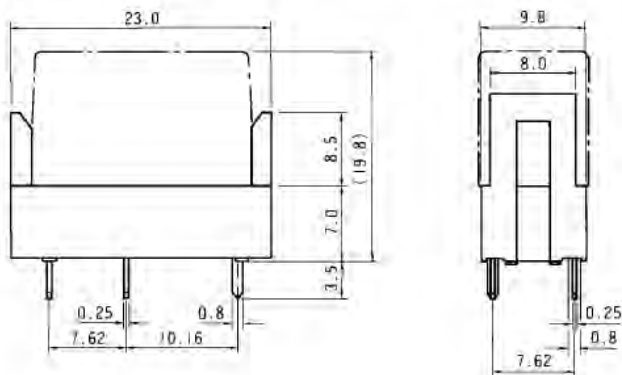


● PC board mounting  
hole layout  
(BOTTOM VIEW)

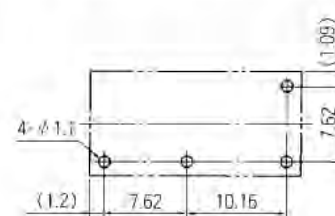


Unit: mm

## ■ SOCKET DIMENSIONS



● PC board mounting hole layout



Unit: mm

## ■ NOTES

1. Socket ordering code : JK-4N
2. Standard IC socket is not recommended.  
Please use socket "JK-4N".

## RoHS Compliance and Lead Free Information

### 1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95/EC 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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