

# POWER RELAY

## 1 POLE - 8A Polarized Latching Type

### JSL Series

#### ■ FEATURES

- Small footprint  
Width: 10mm  
Height: 12.5mm
- High insulation  
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
- RoHS compliant  
Please see page 7 for more information



#### ■ Part Numbers

[Example]    JSL       D       12       M       N       -       K  
                  (a)        (b)        (c)        (d)        (e)        (f)

|     |                       |   |
|-----|-----------------------|---|
| (a) | Relay type            | JS : JSL series                                   |
| (b) | Coil type             | Nil : 1 coil<br>D : 2 coils                       |
| (c) | Coil rated voltage    | 12 : 3....24VDC<br>Contact rating table at page 3 |
| (d) | Contact configuration | Nil : 1 form c<br>M : 1 form a                    |
| (e) | Contact material      | N : AgSnO <sub>2</sub> , Au plated                |
| (f) | Sealed type           | K : Plastic sealed type                           |
| (g) | Special type          | Nil : Standard                                    |

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

# JSL Series

## ■ Specifications

| Item         |                                       |                  | JSL (1 coil)                              | JSL-D (2 coils) | Remarks / conditions     |
|--------------|---------------------------------------|------------------|---|-----------------|--------------------------|
| Contact data | Configuration                         |                  | 1 form A, 1 form C                        |                 |                          |
|              | Construction                          |                  | Single                                    |                 |                          |
|              | Material                              |                  | AgSnO <sub>2</sub> + Au plated            |                 |                          |
|              | Resistance                            |                  | Max.100mΩ at 6VDC, 1A                     |                 |                          |
|              | Contact rating                        |                  | 8A, 250VAC / 24VDC                        |                 | Resistive                |
|              | Max. carrying current                 |                  | 10A                                       |                 |                          |
|              | Max. switching voltage                |                  | 400VAC / 150VDC                           |                 |                          |
|              | Max. switching power                  |                  | 2000VA / 192W                             |                 |                          |
|              | Max. switching current                |                  | 10A                                       |                 |                          |
|              | Min. switching load <sup>*1</sup>     |                  | 100 mA, 5VDC                              |                 |                          |
| Coil         | Rated power (20°C)                    |                  | 220 - 290mW                               | 480mW           |                          |
|              | Operating temperature range           |                  | -40°C ~ +85°C (at rated voltage)          |                 | No frost                 |
| Timing data  | Set / reset (at nominal coil voltage) |                  | Max. 10ms                                 |                 | without bounce, no diode |
|              | Applied pulse width                   |                  | 20ms to 1000ms                            |                 |                          |
| Life         | Mechanical                            |                  | Min. 5 × 10 <sup>6</sup> operations       |                 |                          |
|              | Electrical (resistive)                |                  | Min. 50 × 10 <sup>3</sup> operations      |                 | At rated load            |
| Insulation   | Insulation resistance                 |                  | Min. 1000MΩ at 500VDC                     |                 |                          |
|              | Dielectric strength                   | Open contacts    | 1000VAC (50/60Hz), 1 minute               |                 |                          |
|              |                                       | Coil contact     | 5000VAC (50/60Hz), 1 minute               |                 |                          |
|              | Surge strength                        | Coil to contacts | 10000V / 1.2 × 50μs standard wave         |                 |                          |
|              | Clearance                             |                  | 8mm                                       |                 |                          |
|              | Creepage                              |                  | 8mm                                       |                 |                          |
| Other        | Vibration resistance                  | Misoperation     | 10Hz ~ 55Hz ~ 10Hz single amplitude 1mm   |                 |                          |
|              |                                       | Endurance        | 10Hz ~ 55Hz ~ 10Hz single amplitude 1.5mm |                 |                          |
|              | Shock resistance                      | Misoperation     | Min. 100m/s <sup>2</sup> (11 ± 1ms)       |                 |                          |
|              |                                       | Endurance        | Min. 1,000m/s <sup>2</sup> (6 ± 1ms)      |                 |                          |
|              | Dimensions / weight                   |                  | 10.0 × 29.0 × 12.5 mm / approx. 8.0g      |                 |                          |
|              | Sealing                               |                  | Plastic sealed                            |                 |                          |

\*1: 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.

# JSL Series

## ■ Coil Data

| Coil code | 1 coil          |          |                                  | 2 coils         |          |                                  |
|-----------|-----------------|----------|----------------------------------|-----------------|----------|----------------------------------|
|           | Operating range |          | Coil Resistance<br>+/- 10% (Ohm) | Operating range |          | Coil Resistance<br>+/- 10% (Ohm) |
|           | Min. VDC        | Max. VDC |                                  | Min. VDC        | Max. VDC |                                  |
| 003       | 2.4             | 5.4      | 41                               | 2.4             | 5.4      | 19                               |
| 005       | 4               | 9        | 114                              | 4               | 9        | 53                               |
| 012       | 9.6             | 21.2     | 655                              | 9.6             | 21.2     | 300                              |
| 024       | 19.2            | 42.2     | 2304                             | 19.2            | 42.2     | 1200                             |

Note: All values in the table are valid at 20°C and zero contact current, unless otherwise specified.

\*: Specified operated values are valid for pulse wave voltage.

Note: Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

Care shall be taken on the heat generated on PC board when maximum carrying current exceeds 10A. Please perform the confirmation test with actual conditions.

## ■ Safety Standards

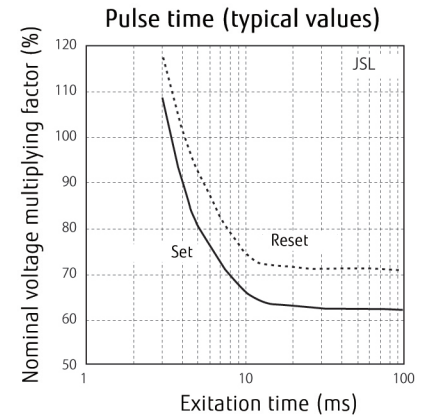
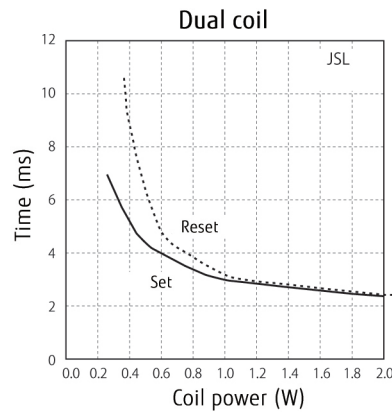
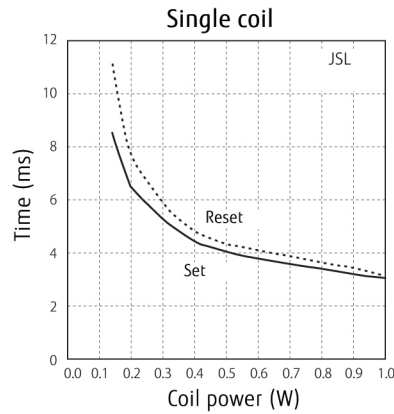
| Type | Compliance   | Contact rating                         |
|------|--|--|
| UL   | UL 508   | Flammability: UL 94-V-0 (plastics)     |
|      | File No. E63614  | 8A, 24 VDC (resistive)                 |
| CSA  | C22.2 No. 14   | 8A, 250VAC (resistive)                 |
|      | File No. LR 40304  |  |
| VDE  | IEC/EN61810-1<br>EN60335-1 clause 15.3; 16.3;<br>29.1; 29.2; 29.3<br>EN60730-1 clause 12.2; 13.2;<br>20.1; 20.2; 20.3; 17.5; 17.7;<br>17.8<br>EN60974-1 Appendix C | 8A, 24VDC (0ms)<br>8A, 250VAC (cosφ=1) |

# JSL Series

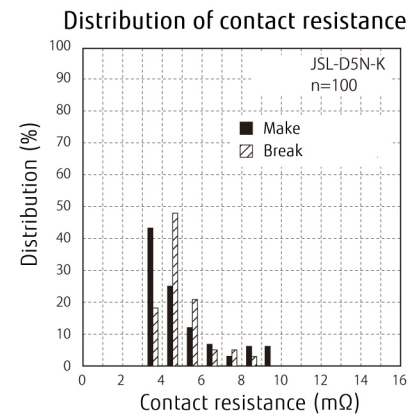
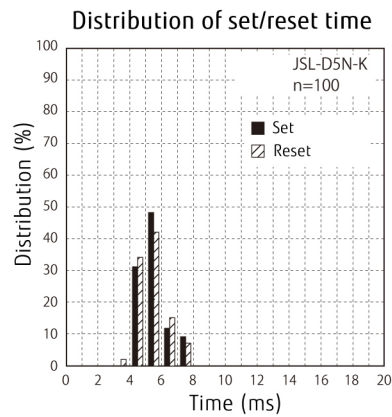
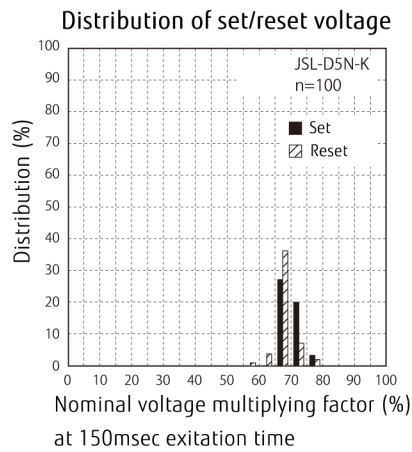
## ■ Characteristic Data (Reference)

\* Characteristic data is not guaranteed value but measured values of samples from production line.

Set/Reset time characteristic (typical values)



## ■ Reference Data



## ■ Reference Data

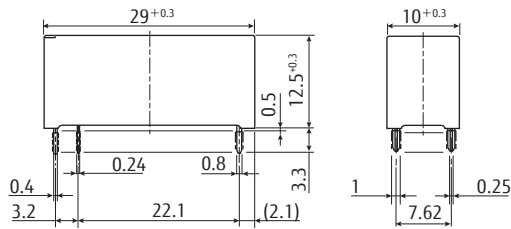
| Version      | 1 coil |   | 2 coil |   |   |
|--------------|--------|---|--------|---|---|
| Terminal No. | 3      | 5 | 3      | 4 | 5 |
| Set          | -      | + |        | - | + |
| Reset        | +      | - | +      | - |   |

# JSL Series

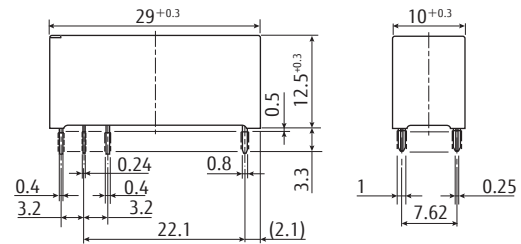
## ■ Dimensions

- Dimensions

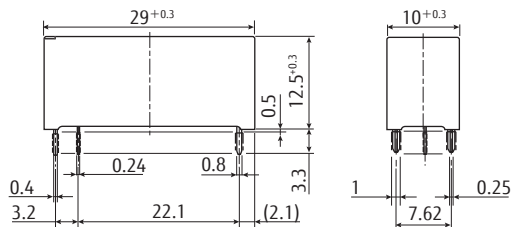
JSL-M



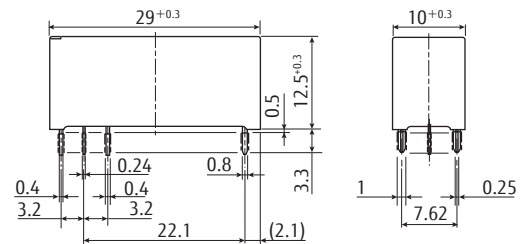
JSL



JSL-DM



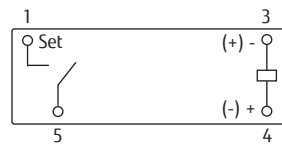
JSL-D



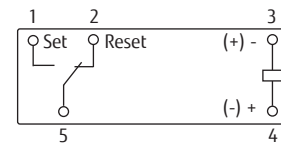
\* Dimensions of the terminals do not include thickness of pre-solder.

- Schematics  
(BOTTOM VIEW)

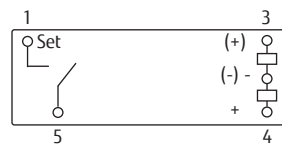
JSL-M



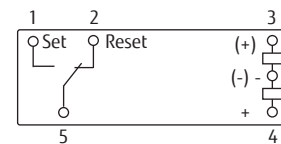
JSL



JSL-DM



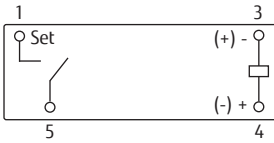
JSL-D



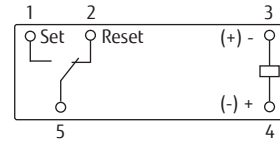
# JSL Series

- PC Board Mounting Hole Layout  
(BOTTOM VIEW)

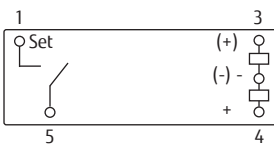
JSL-M



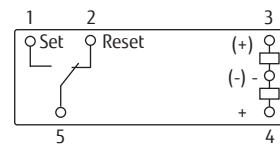
JSL



JSL-DM



JSL-D



( ): Reference value  
Unit: mm

\* Tolerance of PC board mounting hole layout :  $\pm 0.1$  unless otherwise specified.

## GENERAL INFORMATION

### 1. ROHS Compliance

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Use of Cadmium in electrical contacts is exempted as per Annex III of the RoHS directive 2011/65/EU. Please consider expiry date of exemption. Relays with Cadmium containing contacts are not to be used for new designs.
- 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>
- Characteristic data is not guaranteed values, but measured values of samples from production line.

### 2. Recommended lead free solder condition

- 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.
- Recommended solder for assembly: Sn-3.0Ag-0.5Cu.

#### Flow Solder Condition:

Pre-Heating: maximum 120°C  
within 90 sec.  
Soldering: dip within 5 sec. at  
255°C ± 5°C solder bath  
Relay must be cooled by air immediately  
after soldering

#### Solder by Soldering Iron:

Soldering Iron: 30-60W  
Temperature: maximum 350-360°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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