

# POWER RELAY

## 1 POLE - 8A Polarized Latching Type

### JSL Series

#### ■ FEATURES

- Small footprint
  - Width: 10mm
  - Height: 12.5mm
- High insulation
  - Insulation distance: 8 mm (between coil and contacts)
  - Dielectric strength: 5,000 VAC (between coil and contacts)
  - Surge strength: 10,000 V (between coil and contacts)
- Plastic materials
  - UL 94 flame class V-0
- RoHS compliant.  
Please see page 6 for more information



#### ■ PARTNUMBER INFORMATION

**[Example]**      $\frac{\text{JSL}}{\text{(a)}}$     $\frac{\text{D}}{\text{(b)}}$     $\frac{12}{\text{(c)}}$     $\frac{\text{M}}{\text{(d)}}$     $\frac{\text{N}}{\text{(e)}}$    -    $\frac{\text{K}}{\text{(f)}}$

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

## ■ SPECIFICATION

| Item         |                                          |                  | JSL (1 coil)                              | JSL (2 coils) |
|--------------|------------------------------------------|------------------|-------------------------------------------|---------------|
| Contact Data | Configuration                            |                  | 1 form A, 1 form C                        |               |
|              | Construction                             |                  | Single                                    |               |
|              | Material                                 |                  | AgSnO <sub>2</sub> + Au plated            |               |
|              | Resistance (initial)                     |                  | Max. 100 mΩ at 6VDC, 1A                   |               |
|              | Contact rating (at resistive load)       |                  | 8A, 250VAC / 24VDC                        |               |
|              | Max. carrying current                    |                  | 10A                                       |               |
|              | Max. switching voltage                   |                  | 400VAC / 150VDC                           |               |
|              | Max. switching power                     |                  | 2,000VA / 192W                            |               |
|              | Max. switching current                   |                  | 10A                                       |               |
|              | Min. switching load *                    |                  | 100 mA, 5 VDC                             |               |
| Life         | Mechanical                               |                  | Min. 5 x 10 <sup>6</sup> operations       |               |
|              | Electrical                               |                  | Min. 50 x 10 <sup>3</sup> operations      |               |
| Coil Data    | Rated power (at 20 °C)                   |                  | 220mW (24V coil, 250mW)                   | 480mW         |
|              | Operating temperature range              |                  | -40 °C to +85 °C (no frost)               |               |
| Timing Data  | Set / reset (at nominal coil voltage)    |                  | Max. 10ms (without bounce, without diode) |               |
|              | Exitation time (at nominal coil voltage) |                  | Min. 20ms, max. 1,000ms                   |               |
| Insulation   | Resistance (initial)                     |                  | Min. 1,000MΩ at 500VDC                    |               |
|              | Dielectric strength                      | Open contacts    | 1,000VAC (50/60Hz) 1min                   |               |
|              |                                          | Contacts to coil | 5,000VAC (50/60Hz) 1min                   |               |
|              | Surge strength                           | Coil to contacts | 10,000V / 1.2 x 50μs standard wave        |               |
|              | Clearance                                |                  | 8 mm                                      |               |
|              | Creepage                                 |                  | 8 mm                                      |               |
| Other        | Vibration resistance                     | Misoperation>1us | 10 to 55Hz double amplitude 2 mm          |               |
|              |                                          | Endurance        | 10 to 55Hz double amplitude 3 mm          |               |
|              | Shock                                    | Misoperation>1us | Min. 200m/s <sup>2</sup> (11 ± 1ms)       |               |
|              |                                          | Endurance        | Min. 1,000m/s <sup>2</sup> (6 ± 1ms)      |               |
|              | Weight                                   |                  | Approximately 8 g                         |               |

\* 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.

## ■ COIL RATING

| 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 |                                  |
| 3         | 2.4             | 5.4      | 41                               | 2.4             | 5.4      | 19                               |
| 5         | 4               | 9        | 114                              | 4               | 9        | 53                               |
| 12        | 9.6             | 21.2     | 655                              | 9.6             | 21.2     | 300                              |
| 24        | 19.2            | 42.2     | 2,304                            | 19.2            | 42.2     | 1,200                            |

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

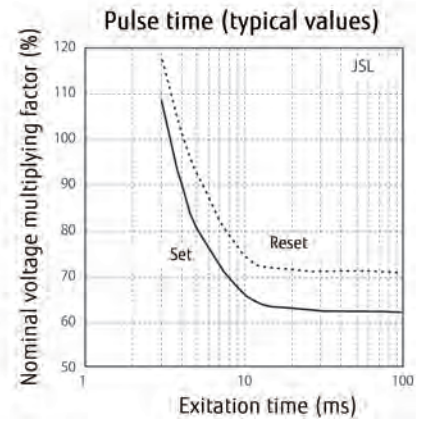
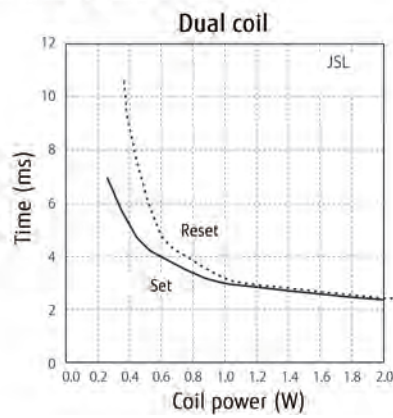
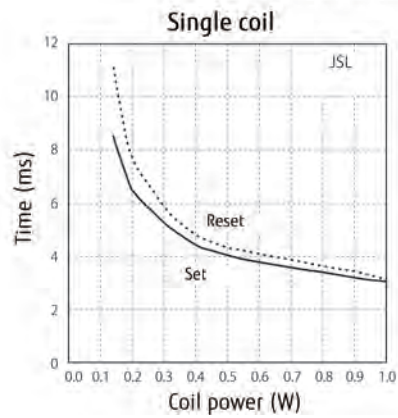
\* Specified operate values are valid for pulse wave voltage.

## ■ SAFETY STANDARDS

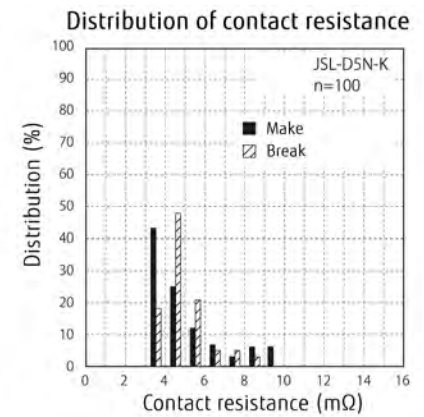
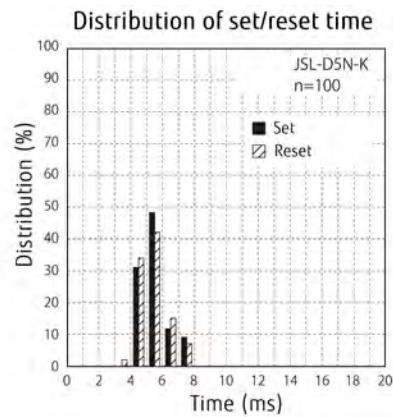
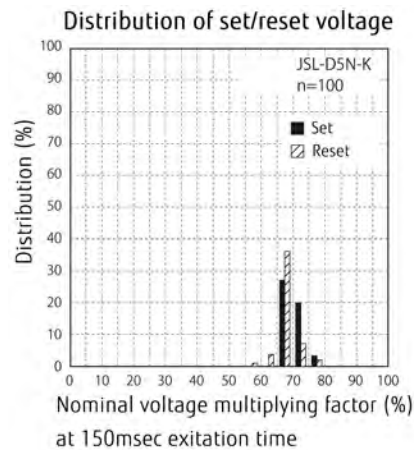
| Type | Compliance       | Contact rating                                   |
|------|------------------|--------------------------------------------------|
| UL   | UL 508           | Flammability: UL 94-V0 (plastics)                |
|      |                  | 8A, 24 VDC (resistive)<br>8A, 250VAC (resistive) |
| CSA  | C22.2 No. 14     |                                                  |
| VDE  | 0435, 0631, 0700 | 8A, 24VDC (0ms)<br>8A, 250VAC (cosφ=0)           |

## ■ CHARACTERISTIC DATA

Set/Reset time characteristic (typical values)



## ■ REFERENCE DATA



## ■ COIL POLARITY

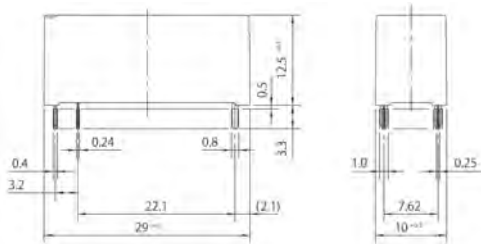
| Version      | 1 coil |   | 2 coils |   |   |
|--------------|--------|---|---------|---|---|
| Terminal No. | 3      | 5 | 3       | 4 | 5 |
| Set          | -      | + |         | - | + |
| Reset        | +      | - | +       | - |   |

## ■ DIMENSIONS Unit: mm

+/- = Set, (+)/(-) = Reset

### JSL-M type

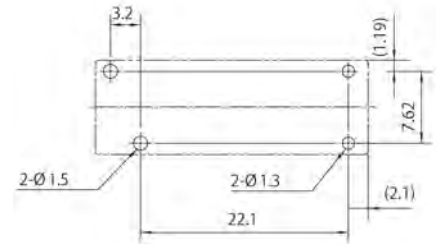
#### ● Dimensions



#### ● Schematics (BOTTOM VIEW)

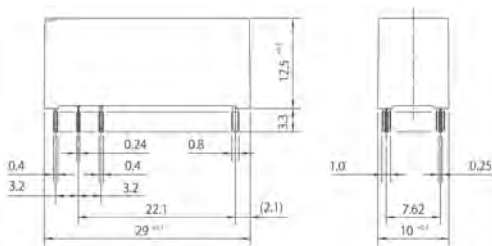


#### ● PC board mounting hole layout (BOTTOM VIEW)

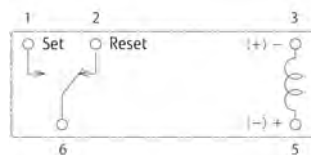


### JSL type

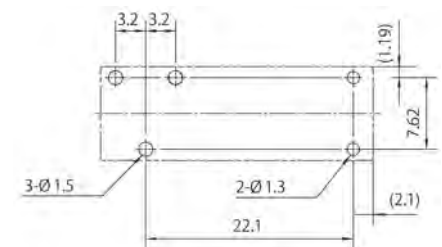
#### ● Dimensions



#### ● Schematics (BOTTOM VIEW)

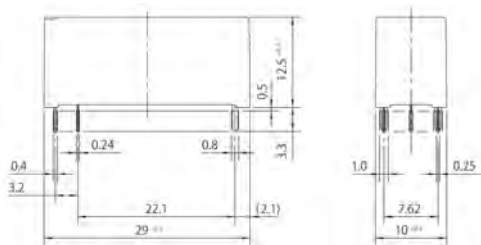


#### ● PC board mounting hole layout (BOTTOM VIEW)



### JSL-DM type

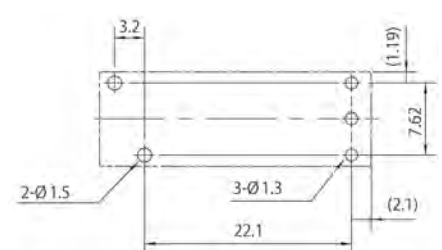
#### ● Dimensions



#### ● Schematics (BOTTOM VIEW)

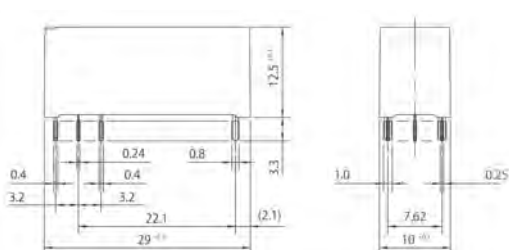


#### ● PC board mounting hole layout (BOTTOM VIEW)

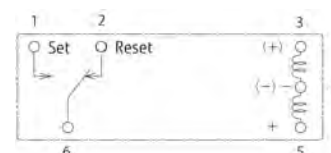


### JSL-D type

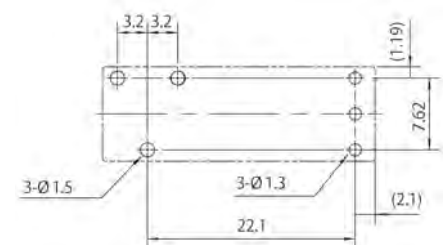
#### ● Dimensions



#### ● Schematics (BOTTOM VIEW)



#### ● PC board mounting hole layout (BOTTOM VIEW)



## RoHS Compliance and Lead Free Information

### 1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives.  
As per Annex III of directive 2011/65/EU.
- 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>
- 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 Condition

- Recommended solder Sn-3.0Ag-0.5Cu.

#### Flow Solder Condition:

Pre-heating: maximum 120°C  
within 9 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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