

# POWER RELAY

## 1 POLE - 8A Medium Load Control

### JS Series

#### ■ FEATURES

- UL class B (130°C) coil wire insulation
- 1 form A (SPST-NO) or 1 form C (SPDT) contact
- Low profile and space saving
  - Height: 12.5 mm - Mounting space: 290 mm<sup>2</sup>
- High sensitivity in small package
  - Operating power 110 to 140 mW
  - Nominal power 220 to 290 mW
- High insulation in small package
  - 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 - UL CTI level class 2
- Plastic sealed type
- Various contact material options
- RoHS compliant. Please see page 6 for more information



#### ■ PARTNUMBER INFORMATION

[Example]     JS   -   12   M   E   -   K   T   -   V3 \*

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

(a)	Relay type	JS	: JS-Series
(b)	Coil rated voltage	12	: 5.....60 VDC Coil rating table at page 3
(c)	Contact configuration	Nil M	: 1 form C (SPDT) : 1 form A (SPST-NO)
(d)	Contact material	Nil D E F N	: Gold plate silver cadmium oxide : Silver nickel : Silver cadmium oxide : Gold plate silver nickel : Gold plate silver tin oxide
(e)	Enclosure	K	: Plastic sealed type
(f)	Construction	Nil T	: 3.2mm : 5.0mm (only JS-MN)
(g)	Gold plating	Nil V3	: 0.3μ gold overlay (available with Nil, N and F contact) : 3.0μ gold overlay for lower current applications (available with Nil and N contact, not available for T, 5.0mm type)

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

\*: V3 is marked at different position on the relay

E.g.: Ordering code: JS-12E-K

Actual marking: JS12E-K

## ■ SPECIFICATION

Item			Non V3 type	V3 type
			JS - ( ) - K JS - ( ) D/E/F/N - K	JS - ( ) - K JS - ( ) N - K
Contact Data	Configuration		1 form A (SPST-NO), 1 form C (SPDT)	
	Construction		Single	
	Material (see part number information)		0.3μ Au plated	3μ Au plated
	Resistance (initial)		Max. 100 mΩ at 6VDC, 1A	Max. 30 mΩ at 6VDC, 1A
	Contact rating		8A, 250VAC / 24VDC	
	Max. carrying current		10A	
	Max. switching voltage		400VAC / 300VDC	
	Max. switching power		2,000VA / 192W	
	Min. switching load *		100mA, 5VDC	10mA, 5VDC
Life	Mechanical		Min. 20 x 10 <sup>6</sup> operations	
	Electrical	AC contact rating (resistive load)	Min. 100 x 10 <sup>3</sup> operations (AgCd) Min. 50 x 10 <sup>3</sup> operations (AgSnO <sub>2</sub> ) Min. 20 x 10 <sup>3</sup> operations (AgNi)	
		DC contact rating (resistive load)	Min. 100 x 10 <sup>3</sup> operations (AgCd) Min. 50 x 10 <sup>3</sup> operations (AgSnO <sub>2</sub> ) Min. 20 x 10 <sup>3</sup> operations (AgNi)	
Coil Data	Rated power (at 20 °C)		220 - 290mW	
	Operate power (at 20 °C)		110 - 140mW	
	Operating temperature range		-40 °C to +85 °C (no frost)	
Timing Data	Operate (at nominal voltage)		Max. 10ms (no bounce)	
	Release (at nominal voltage)		Max. 5ms (no diode, no bounce)	
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	
	EN61810-1, VDE0435	Voltage	250V	
		Pollution degree	3	
		Material group	III a	
	Category	C / 250V (reference voltage) (VDE 01106)		
Other	Vibration resistance	Misoperation>1us	10 - 55 - 10 Hz double amplitude 1.65mm	
		Endurance	10 - 55 - 10 Hz double amplitude 3.3mm	
	Shock	Misoperation>1us	Min. 100m/s <sup>2</sup> (11 ± 1ms) 3 directions; 36 shocks (18 with coil energizing, 18 no coil energizing)	
		Endurance	Min. 1,000m/s <sup>2</sup> (6 ± 1ms) 3 directions, no coil energizing 18 shocks	
	Weight	Approximately 8.0 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	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release Voltage (VDC) *	Max. Coil Voltage (VDC)	Rated Power (mW)
5	5	112	3.5	0.5	11.8	225
6	6	160	4.2	0.6	14.1	
9	9	360	6.3	0.9	21.2	
12	12	660	8.5	1.2	28.3	220
18	18	1,455	12.7	1.8	42.4	225
24	24	2,350	16.8	2.4	56.6	245
48	48	8,000	33.4	4.8	105.6	290
60	60	12,500	41.7	6.0	132.0	

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

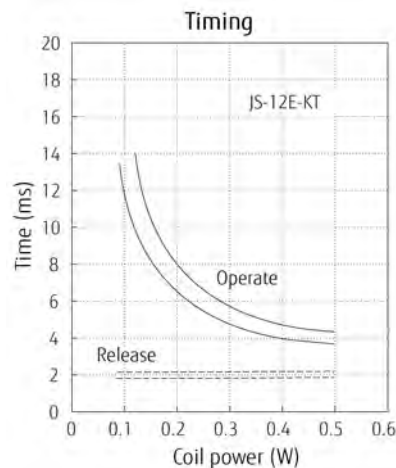
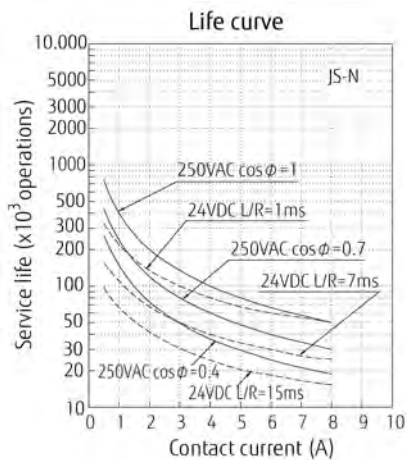
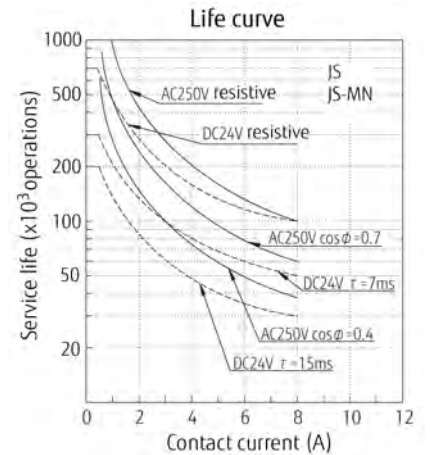
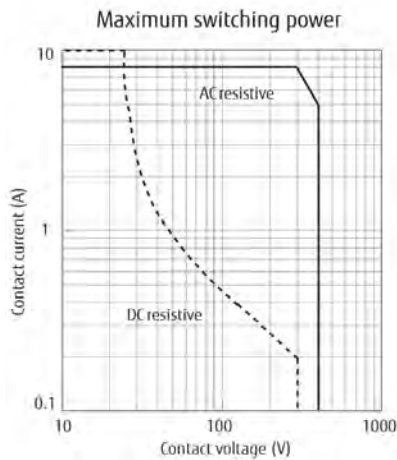
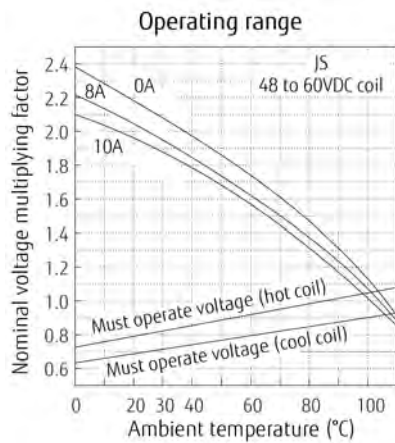
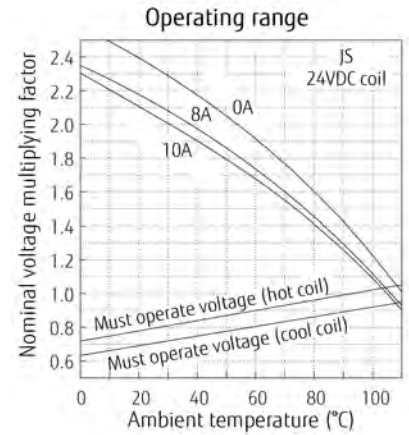
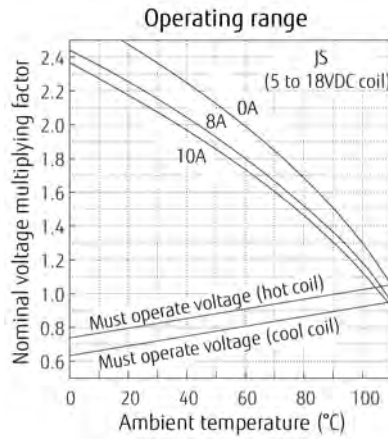
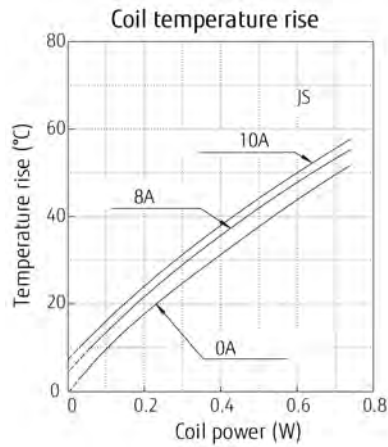
\* Specified operate values are valid for pulse wave voltage.

## ■ SAFETY STANDARDS

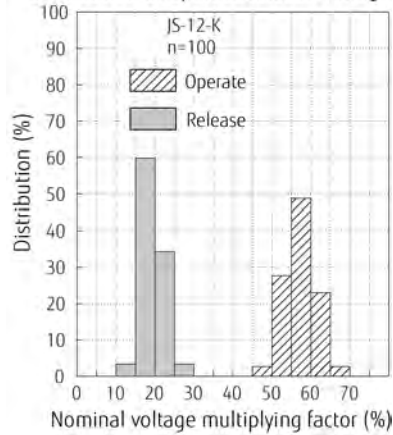
Type	Compliance	Contact rating		
UL	UL 508	Flammability: UL 94-V0 (plastics)		
	E 56140	Contact material: Nil, E	N	D, F
CSA	C22.2 No. 14 LR 35579	8A 24VDC (resistive) 100k 8A, 250VAC (resistive) 100k 10A, 30VDC (resistive) 10A, 250VAC (resistive) 1/4HP, 125VAC / 250VAC 1/3HP, 125VAC 1/2HP, 250VAC Pilot duty: C150, B300 Pilot duty: 0.27A, 250VDC	8A 24VDC (resistive) 100k 8A, 250VAC (resistive) 100k 10A, 30VDC (resistive) 10A, 250VAC (resistive) 1/4HP, 125VAC / 250VAC 1/3HP, 125VAC 1/2HP, 250VAC Pilot duty: A300, B300 C150, R300	8A, 24VDC 8A, 250VAC
VDE	0435, 0631, 0700, 40013847	8A 250VAC (cos φ=1) 8A 24VDC (0 ms)		JS-( )D-K, JS-( )F-K: 6A, 250VAC, (cos φ=1) JS-( )MD-K, JS-( )MF-K: 8A, 250VAC
SEMKO	EN 61058-1 + A1: 1993 EN 61095:1993 + A11	Rated voltage (V): 250 Rated current (A): 8 (2) or 8	-	-

Also complies with SEV, ÖVE, FIMKO, BSI, CQC, NEMKO, DEMKO

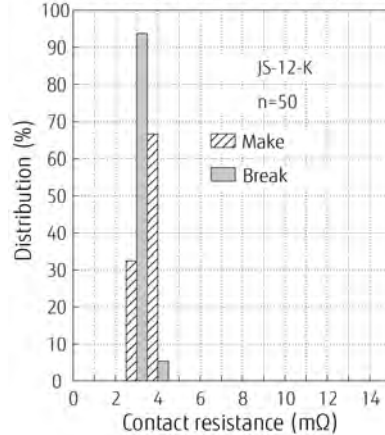
## CHARACTERISTIC DATA



Distribution of operate/release voltage



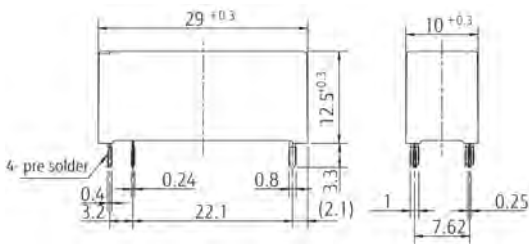
Distribution of contact resistance



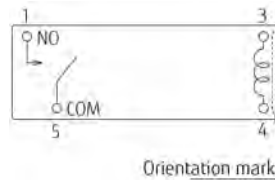
## ■ DIMENSIONS Unit: mm

### JS-MK

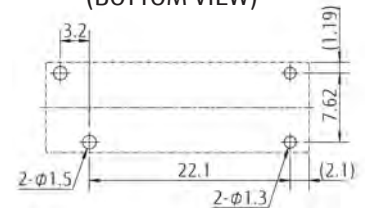
#### ● Dimensions



#### ● Schematics

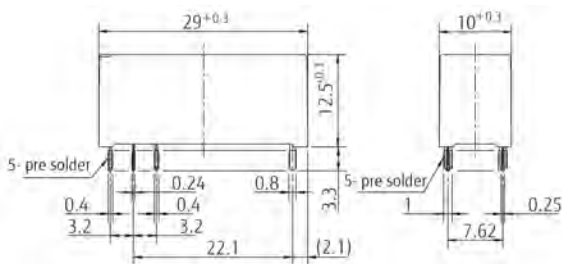


#### ● PC board mounting hole layout (BOTTOM VIEW)

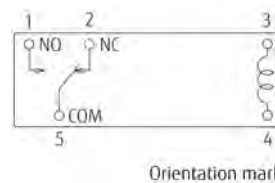


### JS-K

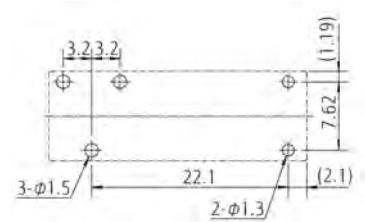
#### ● Dimensions



#### ● Schematics

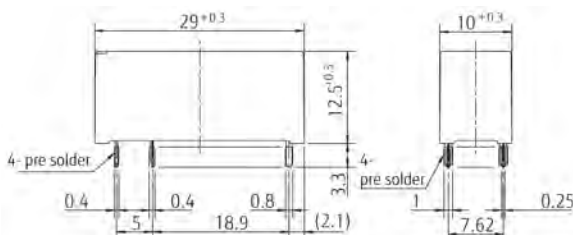


#### ● PC board mounting hole layout (BOTTOM VIEW)

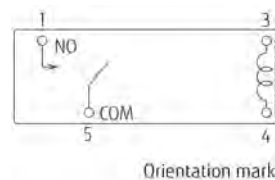


### JS-MN-KT

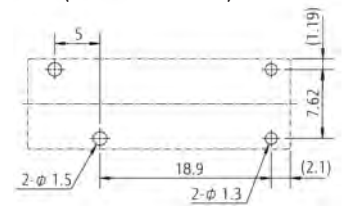
#### ● Dimensions



#### ● Schematics



#### ● 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  
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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