

# POWER RELAY

## 1 POLE—8 A (MEDIUM LOAD CONTROL)

### JS SERIES

RoHS compliant

#### ■ FEATURES

- UL, CSA, VDE, SEV, SEMKO, FIMKO, NEMKO, DEMKO, ÖVE, CQC, BSI compliance
- 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 290m W
- High isolation in small package  
—Insulation distance : 8 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 since date code: 0438B9, 0434R - Please see page 7 for more information



#### ■ ORDERING INFORMATION

[Example] JS - 12 M E - K T -(V3)\*  
 (a) (\*) (b) (c) (d) (e) (f) (j)

(a)	Series Name	JS : JS Series
(b)	Nominal Voltage	Refer to the COIL DATA CHART
(c)	Contact Arrangement	Nil : 1 form C (SPDT) M : 1 form A (SPST-NO)
(d)	Contact Material	Nil : Gold plate silver cadmium oxide D : Silver nickel E : Silver cadmium oxide F : Gold plate silver nickel N : Gold plate silver tin oxide
(e)	Enclosure	K : Plastic sealed type
(f)	Construction	Nil: 3.2 mm T : 5.0 mm (only JS-MN, MD, MF)
(j)	Gold plating	Nil: 0.3μ gold overlay (available with Nil, N and F contact) V3: 3μ gold overlay for lower current applications (available with Nil, N) and not available for T (5.0mm type)

Note: Actual marking omits the hyphen (-) of (\*)  
 \*: V3 is marked at different place from P/N.

# JS SERIES

## ■ PART NUMBERS

### 1. Terminal Pitch: 3.2mm

Order P/N	Series	Voltage	Contact Arrangement	Contact material	Enclosure	Terminal Pitch	Special	
JS-5M ( )-K(-V3)	JS	5	M: 1 form A	Nil: Gold plate + silver cadmium oxide	K: Plastic Seal	3.2 mm	Gold plate Nil: 0.3 $\mu$ m V3: 3 $\mu$ m	
JS-6M ( )-K(-V3)		6						
JS-9M ( )-K(-V3)		9						
JS-12M ( )-K(-V3)		12						
JS-18M ( )-K(-V3)		18						
JS-24M ( )-K(-V3)		24						
JS-48M ( )-K(-V3)		48						
JS-60M ( )-K(-V3)		60						
JS-5 ( )-K(-V3)		Nil: 1 form C	5	Nil: 1 form C				N: Gold plate silver tin oxide  F: Gold plate silver nickel  D: Silver nickel
JS-6 ( )-K(-V3)			6					
JS-9 ( )-K(-V3)			9					
JS-12 ( )-K(-V3)			12					
JS-18 ( )-K(-V3)			18					
JS-24 ( )-K(-V3)			24					
JS-48 ( )-K(-V3)			48					
JS-60 ( )-K(-V3)			60					

### 2. Terminal Pitch: 5.0mm

Order P/N	Series	Voltage	Contact Arrangement	Contact material	Enclosure	Terminal Pitch
JS-5MN-K	JS	5	M: 1 form A	N: Gold plate silver + tin oxide	K	T: 5.0 mm
JS-6MN-K		6				
JS-9MN-K		9				
JS-12MN-K		12				
JS-18MN-K		18				
JS-24MN-K		24				
JS-48MN-K		48				
JS-60MN-K		60				

## ■ COIL DATA CHART

Coil voltage	Nominal voltage	Maximum voltage* <sup>1</sup>	Coil resistance ( $\pm 10\%$ )	Must operate voltage* <sup>2</sup>	Must release voltage* <sup>2</sup>	Nominal Power
5	5 VDC	11.8 VDC	112 $\Omega$	3.5 VDC	0.5 VDC	225 mW
6	6 VDC	14.1 VDC	160 $\Omega$	4.2 VDC	0.6 VDC	225 mW
9	9 VDC	21.2 VDC	360 $\Omega$	6.3 VDC	0.9 VDC	225 mW
12	12 VDC	28.3 VDC	660 $\Omega$	8.5 VDC	1.2 VDC	220 mW
18	18 VDC	42.4 VDC	1,455 $\Omega$	12.7 VDC	1.8 VDC	225 mW
24	24 VDC	56.6 VDC	2,350 $\Omega$	16.8 VDC	2.4 VDC	245 mW
48	48 VDC	105.6 VDC	8,000 $\Omega$	33.4 VDC	4.8 VDC	290 mW
60	60 VDC	132.0 VDC	12,500 $\Omega$	41.7 VDC	6.0 VDC	290 mW

Note : All values in the table are measured at 20°C.

\*1: No contact current at 20°C.

\*2: Specified values are subject to pulse wave voltage.

## ■ SPECIFICATIONS

Item		Non-V3 type		V3 type	
		JS ( )-E-K, JS ( )-K, JS ( )-N-K, JS ( )-F-K, JS ( )-D-K		JS ( )-K, JS ( )N-K	
Contact	Arrangement	1 Form C (SPDT), 1 Form A (SPST-NO)			
	Material	0.3μ Ag plated		3μ Ag plated	
	Resistance (initial)	Max. 100mΩ 1A, 6VDC)		Max. 30mΩ (1A 6VDC)	
	Rating	8A 250 VAC / 24 VDC			
	Max. carrying current	10A			
	Max. switching power	2,000 VA / 192 W			
	Max. switching voltage	400 VAC/ 150 VDC			
	Min. switching load	100 mA 5 VDC		10 mA 5 VDC	
Coil	Nominal power (at 20°C)	220 to 290 mW			
	Operate power (at 20°C)	110 to 140 mW			
	Operating temperature (at 20°C)	-40°C to +85°C (no frost)			
Time value	Operate	Max. 10 ms (at nominal voltage, without bounce)			
	Release (without diode)	Max. 5 ms (at nominal voltage, without bounce)			
Life	Mechanical	Min. 20x10 <sup>6</sup> operations			
	Electrical	AC rated load	Min. 100x10 <sup>3</sup> operations (JS-( )N-K min. 50x10 <sup>3</sup> ops.)		
		DC rated load	Min. 100x10 <sup>3</sup> operations (JS-( )N-K min. 50x10 <sup>3</sup> ops.)		
Vibration resistance	Misoperation ≥ 1μs	10 to 55 Hz at double amplitude of 1.65 mm			
	Endurance	10 to 55 Hz at double amplitude of 3.3 mm			
Shock resistance	Misoperation ≥ 1μs	Min. 100 m/s <sup>2</sup> (11±1 ms)			
	Endurance	Min. 1,000 m/s <sup>2</sup> (6±1 ms)			
Weight	Approx. 8 g				

\* Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

## ■ INSULATION

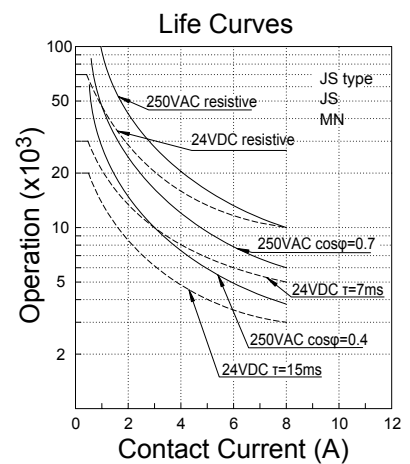
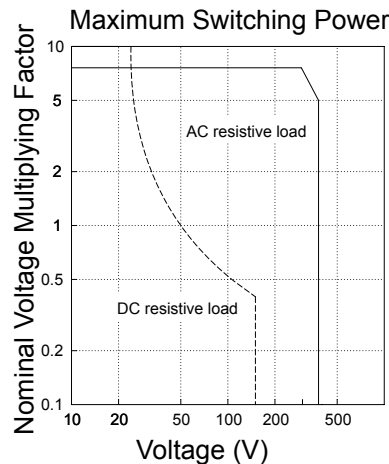
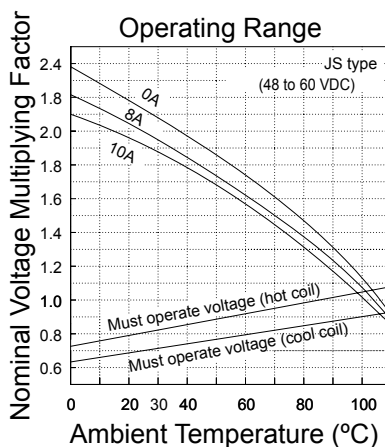
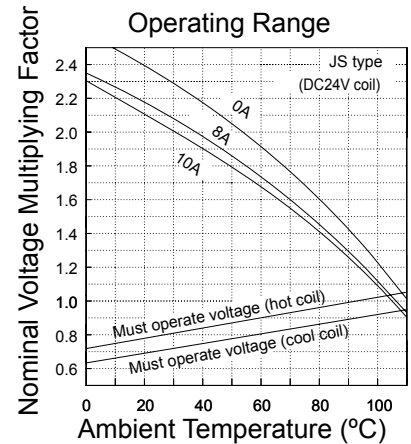
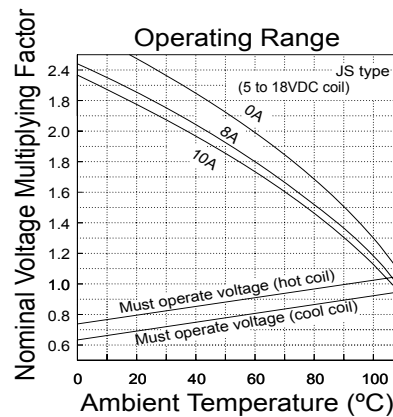
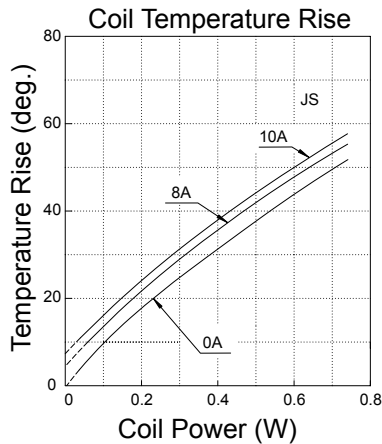
Items		
Resistive (at 500 VDC)		Min. 1,000 MΩ
Dielectric Strength	Open contacts	1,000 VAC (50/60 Hz) 1 min.
	Coil and contacts	5,000 VAC (50/60 Hz) 1 min.
Surge strength (coil and contacts)		10,000 V (1.2 x 50 μs standard wave)
Clearance / crepage		6 mm / 8 mm
Isolation (DIN EN 61810-1 VDE 0435)		
Voltage		250 V
Pollution		3
Isolation material group		III a
Isolation category / Reference voltage (VDE 01106)		C / 250V

## ■ SAFETY STANDARD (VDE 01106)

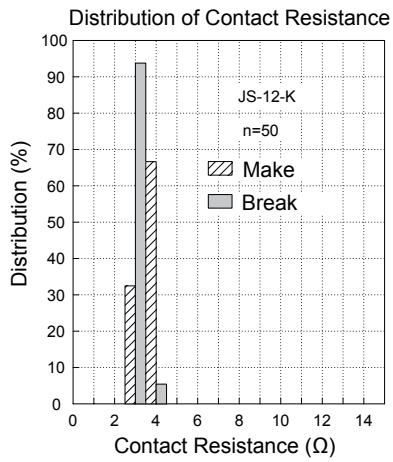
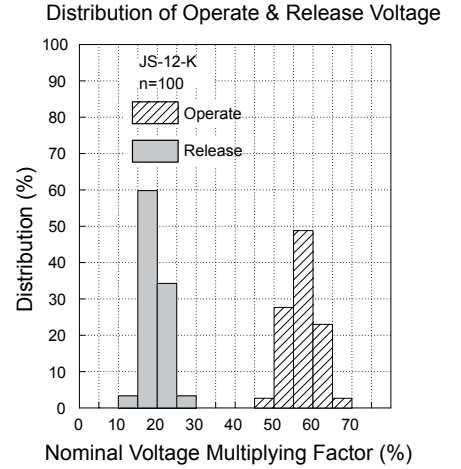
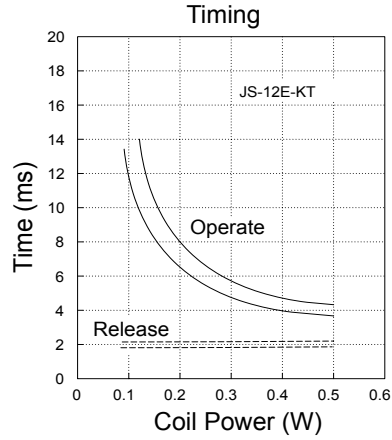
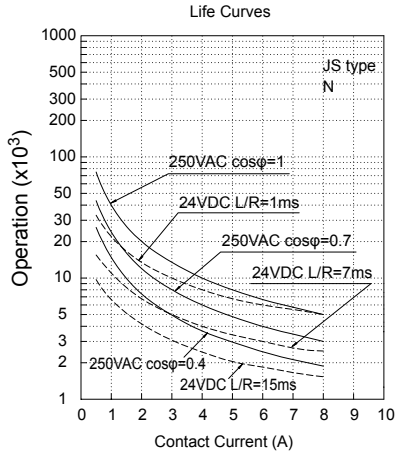
Type	Compliance	Contact rating	
UL	UL 508 E 56140	Flammability: UL 94-V0 (plastics)	
		Contact material: Nil, E	N
CSA	C22.2 No. 14 LR 35579	8 A 24 VDC (resistive) 100k	8 A 24 VDC (resistive) 100k
		8 A, 250 VDC (resistive) 100k	8 A, 250 VDC (resistive) 100k
VDE	0435, 0631, 0700, 40013847	10 A, 30 VDC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

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

## ■ CHARACTERISTIC DATA



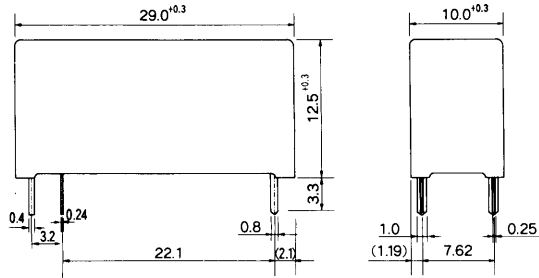
## ■ REFERENCE DATA



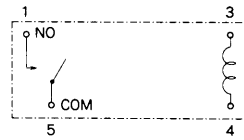
## ■ DIMENSIONS

- Dimensions

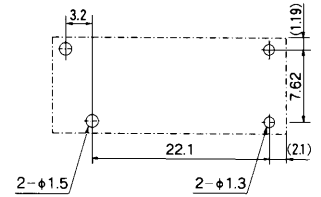
### JS-MK type



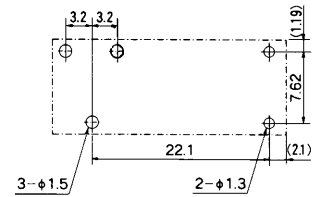
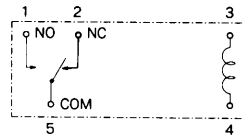
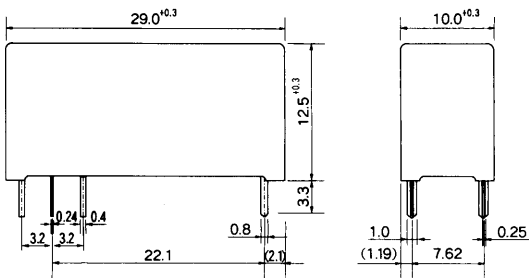
- Schematics (BOTTOM VIEW)



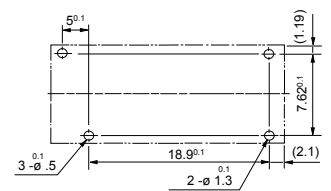
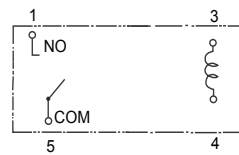
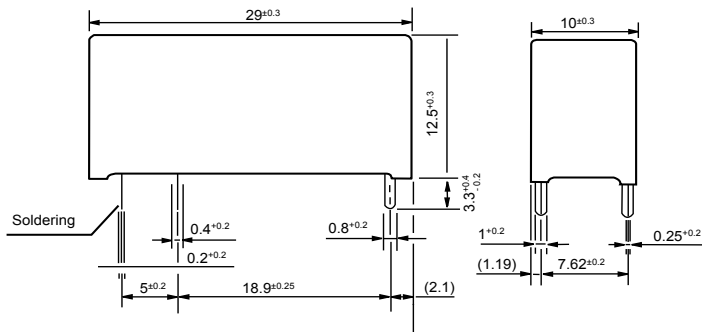
- PC board mounting hole layout (BOTTOM VIEW)



### JS-K type



### JS-MN( )-KT type



Unit: mm

## RoHS Compliance and Lead Free Relay Information

### 1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (<http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>)
- Lead free solder plating currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials above the threshold level that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

### 2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu.

#### Solder condition

**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 through hole electromechanical relays.

### 4. Tin Whisker

- Dipped SnAgCu solder is known as low risk tin whisker. No considerable length whisker was found at our in house test.

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