

POWER RELAY

1 POLE - 8A MEDIUM LOAD CONTROL

JS Series

RoHS Compliant

■ 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: 12.5mm - Mounting space: 290mm²
- High sensitivity in small package
- Operating power 110 to 140mW, nominal power 220 to 290mW
- High insulation in small package
- Insulation distance: 8.0mm (between coil and contacts)
- Dielectric strength: 5,000VAC
- Surge strength: 10,000V
- Plastic materials: UL 94 flame class V-0 UL CTI level class 2
- Plastic sealed
- Various contact material options
- RoHS compliant



■ APPLICATIONS

I/O modules, timer, heater control, air conditioner etc.

■ PART NUMBERS

[Example] JS - 12 M N - K T - V3
 (a) (b) (c) (d) (e) (f) (g)

(a)	Relay type	JS series
(b)	Coil voltage	12 : 5....60VDC Please refer to coil rating table
(c)	Contact configuration	Nil : 1c (1 Form C, SPDT) M : 1a (1 Form A, SPST-NO)
(d)	Contact material	N : Gold flash silver tin oxide F : Gold flash silver nickel D : Silver nickel
(e)	Enclosure	K : Plastic sealed type
(f)	Construction	Nil : 3.2mm T : 5.0mm (only JS-MN)
(g)	Gold plating	Nil : Standard V3 : 3.0µm gold plating for lower current applications V1 : 1.0µm gold plating for lower current applications (available with N contact, not available for T, 5.0mm type)

Note: Actual marking omits the hyphen (-). V3, V1 are marked at different position on the relay. E.g.: Ordering code: JS-12F actual marking: JS12F-K

■ SPECIFICATIONS

Item		Specifications				Remarks/Conditions			
		JS-()F/N-K	JS-()D-K	JS-()N-K-V1	JS-()N-K-V3				
Contact Data	Configuration	1a (1 Form A, SPST-NO), 1c (1 Form C, SPDT)							
	Construction	Single							
	Plating	Au flash	-	1µm Au plate	3µm Au plate				
	Material	See part number information							
	Resistance	Max. 100mΩ		Max. 30mΩ		At 1A, 6VDC			
	Contact rating	8A, 250VAC/24VDC				Resistive			
	Max. carrying current	10A							
	Max. switching voltage	400VAC/300VDC							
	Max. switching power	2,000VA/192W							
Coil	Min. switching load ^{*1}	100mA, 5VDC		10mA, 5VDC					
	Rated power (20°C)	220 to 290mW							
	Operate power (20°C)	110 to 140mW							
Time	Operating temperature range	-40°C ~ +85°C (at rated voltage)				No frost			
	Operate	Max. 10ms				Without bounce			
	Release	Max. 5ms				Without bounce, no diode			
Life	Mechanical	Min. 20 x 10 ⁶ operations							
	Electrical (resistive)	AC contact rating	Min. 50 x 10 ³ operations (AgSnO ₂)			At rated load			
			Min. 20 x 10 ³ operations (AgNi)						
Insulation	DC contact rating	Min. 50 x 10 ³ operations (AgSnO ₂)			At rated load				
		Min. 20 x 10 ³ operations (AgNi)							
	Insulation resistance	Min. 1,000MΩ				At 500VDC			
	Dielectric strength	Open contacts	1,000VAC(50/60Hz), 1 minute						
		Coil to contacts	5,000VAC (50/60Hz), 1 minute						
	Surge strength	Coil to contacts	10,000V / 1.2 x 50µs standard wave						
			8mm						
	Clearance	8mm							
	Creepage	8mm							
	EN61810-1, VDE0435	Voltage	250V						
Others		Pollution	3						
		Material group	IIIa						
		Category	C / 250V (reference voltage) (VDE 01106)						
Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.825mm			Coil ON/OFF, 3 axis, total 6 cycles				
	Endurance	10 to 55 to 10Hz single amplitude 1.65mm			Coil OFF, 3 axis, total 6 hours				
	Shock resistance	Misoperation	Min. 100m/s ² (11±1ms)			Coil ON/OFF, 3 axis, total 36 operations			
		Endurance	Min. 1,000m/s ² (6±1ms)			Coil OFF, 3 axis, total 18 operations			
	Dimensions / Weight	10.0 x 29.0 x 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.

■ COIL DATA

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance (Ω) $\pm 10\%$	Must Operate Voltage ^{*1} (VDC)	Must Release Voltage ^{*1} (VDC)	Rated Power (mW)
5	5	112	3.5	0.5	225
6	6	160	4.2	0.6	225
9	9	360	6.3	0.9	225
12	12	660	8.5	1.2	220
18	18	1,455	12.7	1.8	225
24	24	2,350	16.8	2.4	245
48	48	8,000	33.4	4.8	290
60	60	12,500	41.7	6.0	290

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

*: Specified operate 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.

Note: 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.

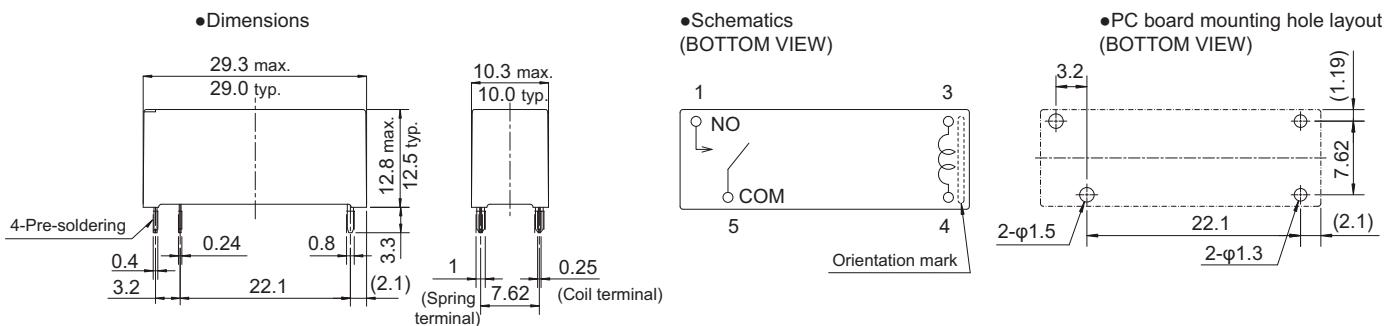
■ SAFETY STANDARDS

Type	Compliance	Contact Rating	
		Contact Material: N	Contact Material: D, F
UL	UL508 File No. E56140	8A, 250VAC (resistive) 100k 8A, 24VDC (resistive) 100k 10A, 250VAC (resistive)	
CSA	C22.2 No.14 File No. LR40304	10A, 30VDC (resistive) 1/4hp, 125VAC/250VAC 1/3hp, 125VAC 1/2hp, 250VAC Pilot duty: A300, B300, C150, R300	8A, 250VAC (resistive) 8A, 24VDC (resistive)
VDE	IEC/EN 61810-1 EN60335-1 clause 15.3; 16.3; 29.1; 29.2; 29.3 EN60730-1 clause 12.2; 13.2; 20.1; 20.2; 20.3 EN60947-5-1 Appendix C	8A, 250VAC $\cos\phi=1$ 8A, 24VDC L/R=0ms	<JS-()D-K, JS-()F-K> 6A, 250VAC $\cos\phi=1$ 8A, 24VDC L/R=0ms <JS-()MD-K(T), JS-()MF-K(T)> 8A, 250VAC $\cos\phi=1$ 8A, 24VDC L/R=0ms
CQC	GB15092.1 File No. 17001162883	10A, 250VAC/30VDC	

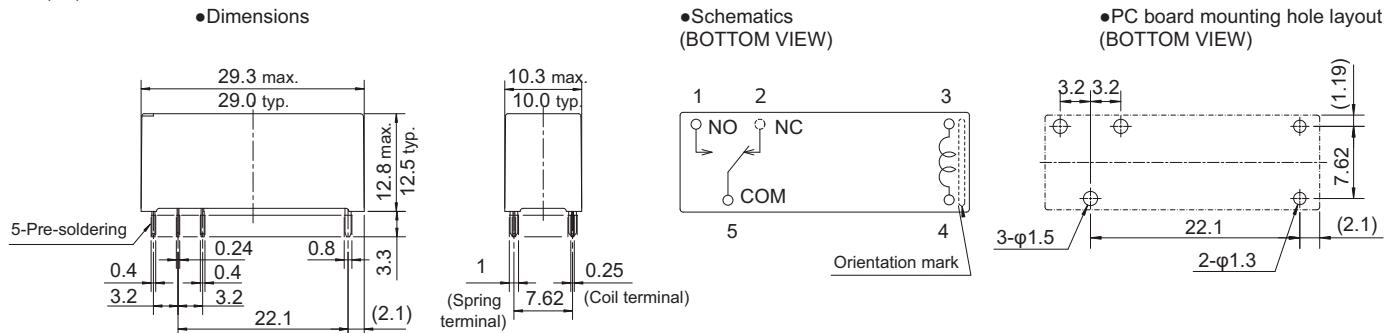
* -V1 and -V3 are not covered by the safety standards.

■ DIMENSIONS

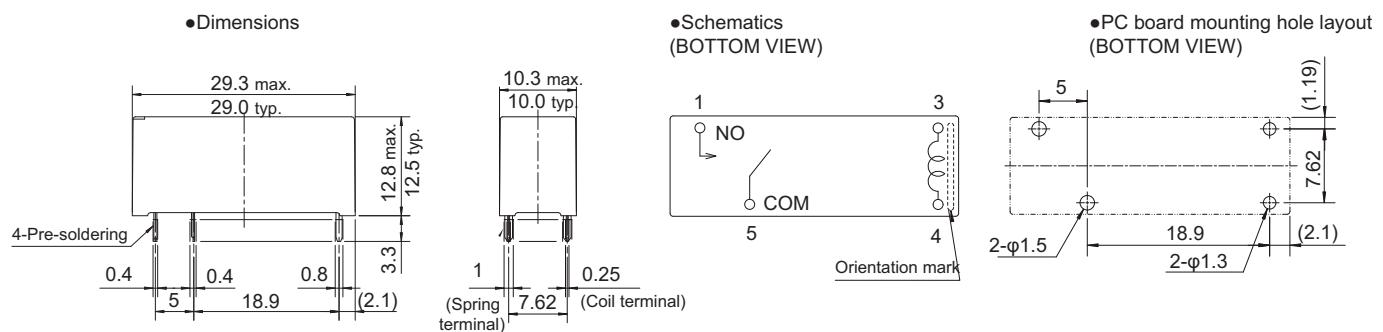
JS-M (1a)



JS (1c)



JS-MN-T (1a, 5.0mm terminal pitch)



- Dimensions of the terminals do not include thickness of pre-soldering.
- Tolerance of PC board mounting hole layout: ± 0.1 unless otherwise specified.

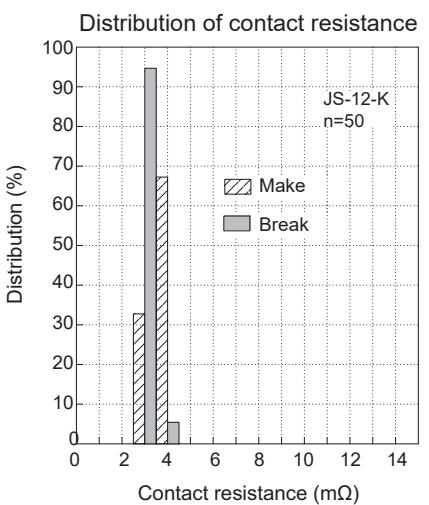
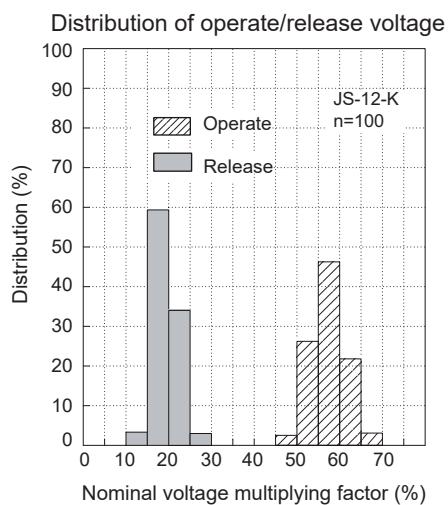
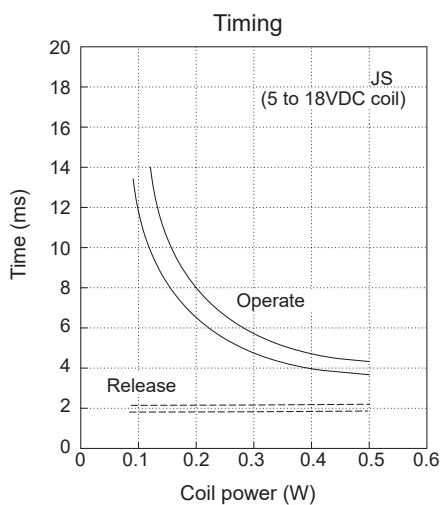
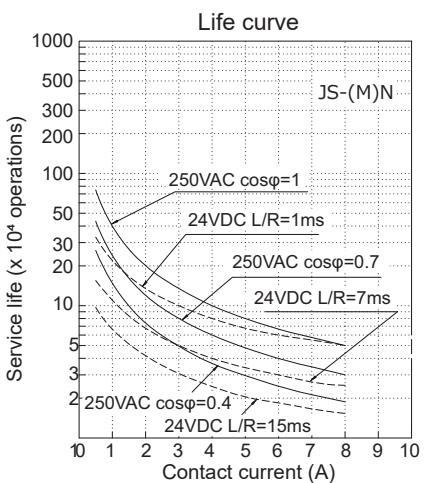
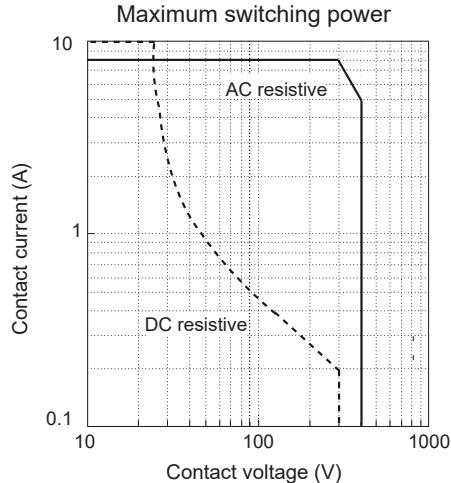
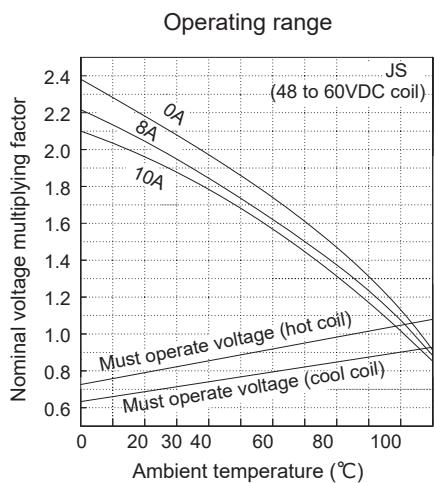
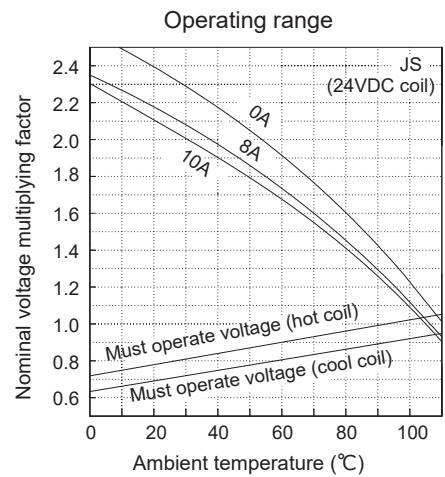
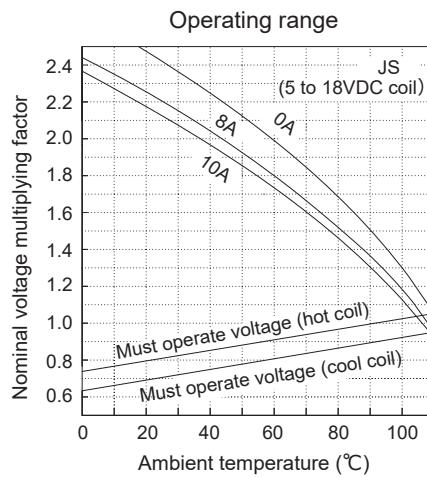
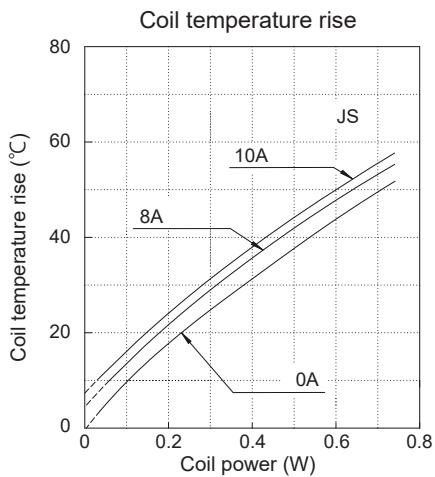
(): Reference value
Unit: mm

■ PART NUMBER LIST

Part Number	Contact Configuration	Contact Material	Construction	Enclosure	Others		
JS-()N-K	1c (1 Form C)	Gold flash silver tin oxide	3.2mm	Plastic sealed	-		
JS-()N-K-V1					1μm gold plating		
JS-()N-K-V3		Gold flash silver nickel			3μm gold plating		
JS-()F-K					-		
JS-()D-K		Silver nickel			-		
JS-()MN-K	1a (1 Form A)	Gold flash silver tin oxide	3.2mm	Plastic sealed	-		
JS-()MN-K-V1					1μm gold plating		
JS-()MN-K-V3		Gold flash silver nickel			3μm gold plating		
JS-()MN-KT		5.0mm	-				
JS-()MF-K		Silver nickel	3.2mm		-		
JS-()MD-K					-		

■ CHARACTERISTIC DATA

(Characteristic data is not guaranteed value but measured values of samples from production line.)



CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- Reflow soldering is prohibited.
- Do not use relays in the atmosphere with sulfide gas, chloride gas or nitric oxide. Contact resistance may increase.
- Do not use silicon or silicon-containing product or materials near relays. It may cause contact failure.

GENERAL INFORMATION

1. ROHS Compliance

- All relays produced by FCL Components are compliant with RoHS directive 2011/65/EU, including commission delegated directive 2015/863.

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 340-360°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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