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: 290mm^2
- 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)	Coil 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 (available with N contact, not available for T, 5.0mm type) 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				
	Min. switching load *1		100mA, 5VDC		10mA, 5VDC		
Coil	Rated power (20°C)		220 to 290mW				
	Operate power (20°C)		110 to 140mW				
	Operating temperature range		-40°C ~ +85°C (at rated voltage)				No frost
Time	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 ($AgSnO_2$) Min. 20 x 10^3 operations (AgNi)				At rated load
		DC contact rating	Min. 50 x 10^3 operations ($AgSnO_2$) Min. 20 x 10^3 operations (AgNi)				At rated load
Insulation	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				
	Clearance		8mm				
	Creepage		8mm				
	EN61810-1, VDE0435	Voltage	250V				
		Pollution	3				
		Material group	IIIa				
		Category	C / 250V (reference voltage) (VDE 01106)				
Others	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)±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

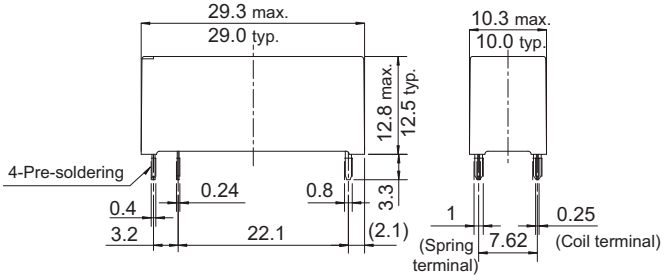
<table>
<tr><th rowspan="2">Type</th><th rowspan="2">Compliance</th><th colspan="2">Contact Rating</th></tr>
<tr><th>Contact Material: N</th><th>Contact Material: D, F</th></tr>
<tr><td>UL</td><td>UL508
File No. E56140</td><td rowspan="2">8A, 250VAC (resistive) 100k
8A, 24VDC (resistive) 100k
10A, 250VAC (resistive)
10A, 30VDC (resistive)
1/4hp, 125VAC/250VAC
1/3hp, 125VAC
1/2hp, 250VAC
Pilot duty: A300, B300, C150, R300</td><td rowspan="2">8A, 250VAC (resistive)
8A, 24VDC (resistive)</td></tr>
<tr><td>CSA</td><td>C22.2 No.14
File No. LR40304</td></tr>
<tr><td>VDE</td><td>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</td><td>8A, 250VAC cosφ=1
8A, 24VDC L/R=0ms</td><td><JS-( )D-K, JS-( )F-K>
6A, 250VAC cosφ=1
8A, 24VDC L/R=0ms
<JS-( )MD-K(T), JS-( )MF-K(T)>
8A, 250VAC cosφ=1
8A, 24VDC L/R=0ms</td></tr>
<tr><td>CQC</td><td>GB15092.1
File No. 17001162883</td><td colspan="2">10A, 250VAC/30VDC</td></tr>
</table>

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

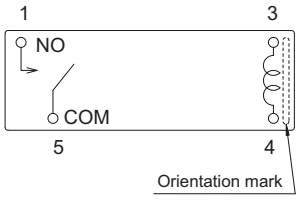
■ DIMENSIONS

JS-M (1a)

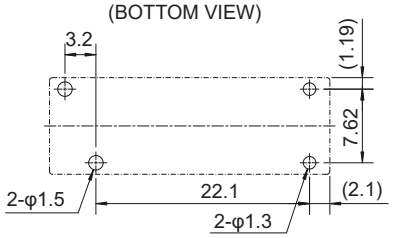
●Dimensions



●Schematics (BOTTOM VIEW)

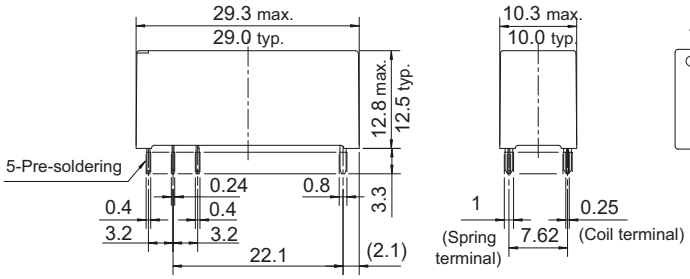


●PC board mounting hole layout (BOTTOM VIEW)

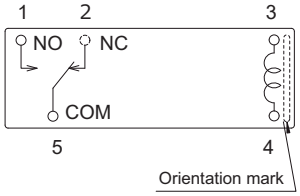


JS (1c)

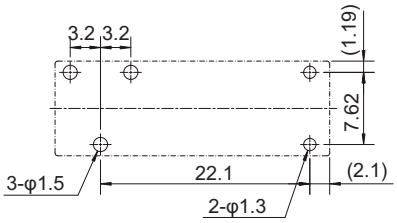
●Dimensions



●Schematics (BOTTOM VIEW)

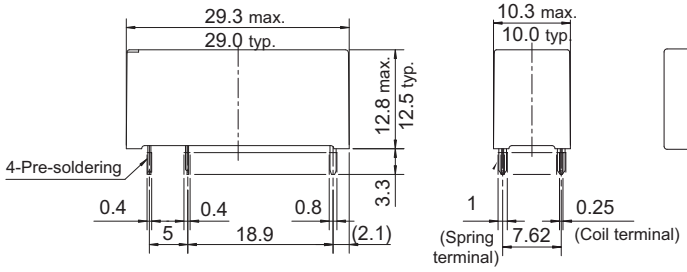


●PC board mounting hole layout (BOTTOM VIEW)

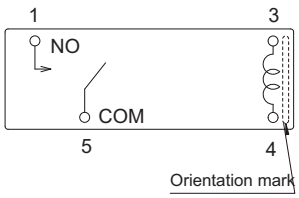


JS-MN-T (1a, 5.0mm terminal pitch)

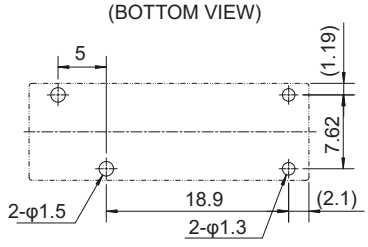
●Dimensions



●Schematics (BOTTOM VIEW)



●PC board mounting hole layout (BOTTOM VIEW)



- 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

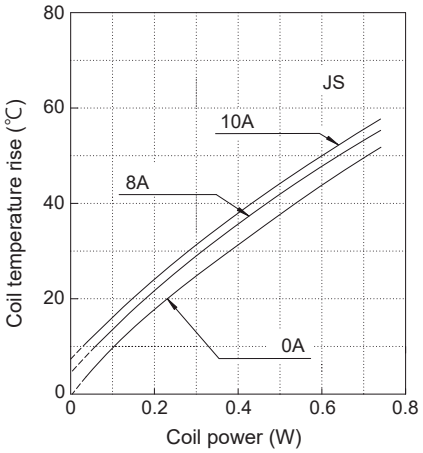
■ PART NUMBER LIST

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					3μm gold plating
JS-( )F-K		Gold flash silver nickel			-
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					3μm gold plating
JS-( )MN-KT			5.0mm		-
JS-( )MF-K		Gold flash silver nickel	3.2mm		-
JS-( )MD-K		Silver nickel			-

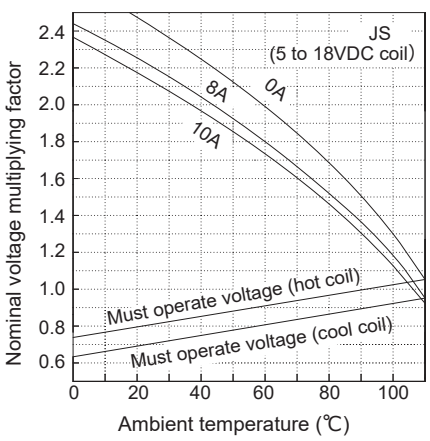
■ CHARACTERISTIC DATA

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

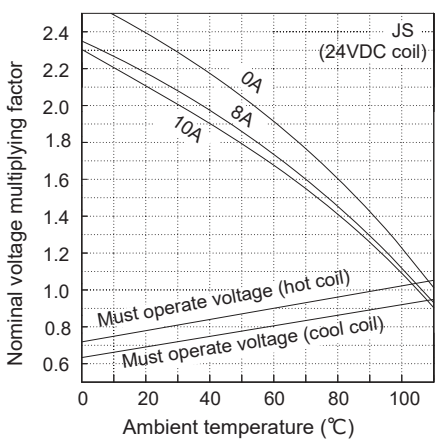
Coil temperature rise



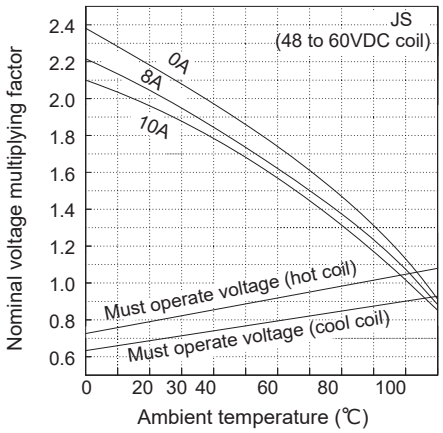
Operating range



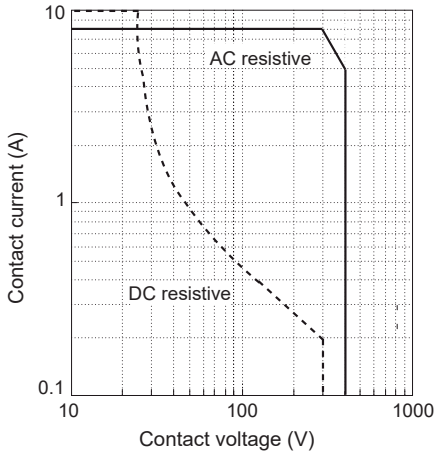
Operating range



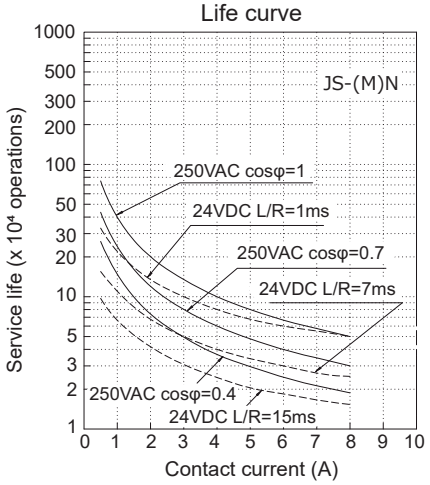
Operating range



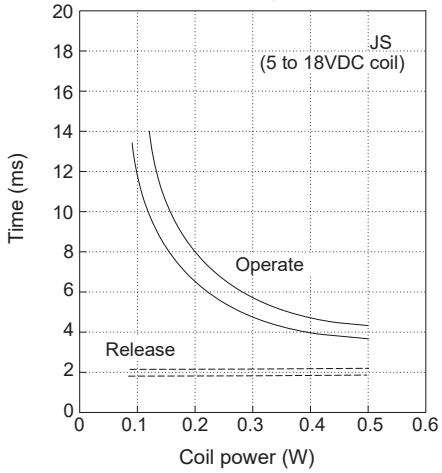
Maximum switching power



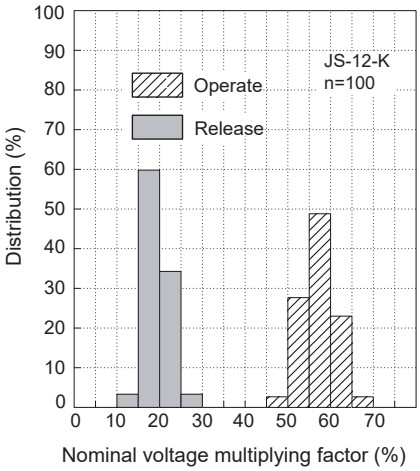
Life curve



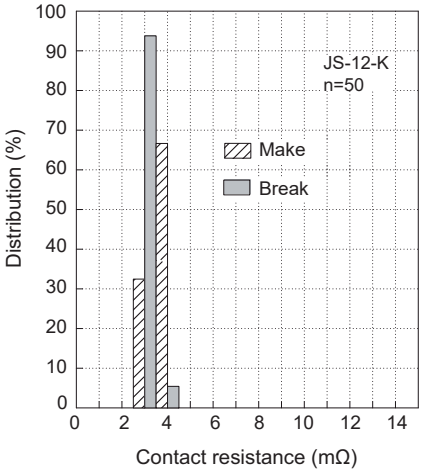
Timing



Distribution of operate/release voltage



Distribution of contact resistance



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.

Contact

Japan
FCL COMPONENTS LIMITED
Shinagawa Seaside Park Tower
12-4, Higashi-shinagawa 4-chome,
Tokyo 140 0002, Japan
Tel: +81-3-3450-1682
Email: fcl-contact@cs.fcl-components.com

North and South America
FCL COMPONENTS AMERICA, INC.
2055 Gateway Place Suite 480,
San Jose, CA 95110 USA
Tel: +1-408-745-4900
Email: contact@fcl-components.us

Europe
FCL COMPONENTS EUROPE B.V.
Diamantlaan 25
2132 WV Hoofddorp, Netherlands
Tel: +31-23-556-0910
Email: info@fcl-components.eu

Asia Pacific
FCL COMPONENTS ASIA PTE LTD.
51 Changi Business Park Central 2, #06-07
The Signature Singapore 486066
Tel: +65-6375-8560
Email: fcal@fcl-components.com

China
FCL COMPONENTS (SHANGHAI) CO.,LTD.
Unit 1105, Central Park - Jing An,
No.329 Heng Feng Road, Shanghai
200070, China
Tel: +86-21-3253 0998
Email: fcsh@fcl-components.com

Hong Kong
FCL COMPONENTS HONG KONG CO., LIMITED
Unit 2313, Seapower Tower, Concordia
Plaza, No.1 Science Museum Road,
TST, Kowloon, Hong Kong
Tel: +852-2881-8495
Email: fcal@fcl-components.com

Web: www.fcl-components.com/en/

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