

POWER RELAY

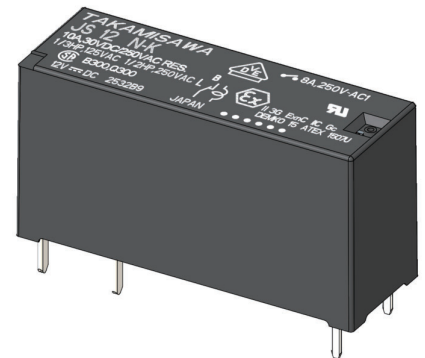
1 POLE - 8A MEDIUM LOAD CONTROL (ATEX COMPLIANT)

JS Series

RoHS Compliant

■ FEATURES

- Compliant to IEC/EN60079-0, IEC/EN60079-15 ATEX Directive
- 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 120mW, nominal power 220 to 245mW
- High insulation in small package
Insulation distance: 8.0mm (between coil and contacts)
Dielectric strength: 5,000VAC
Surge strength: 10,000V
- Glow wire compliant type available which satisfies GWT required for relay in IEC/EN60335-1
- 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. used in hazardous location

■ PART NUMBERS

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

(a)	Relay type	JS series
(b)	Coil voltage	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
(g)	Special type	B : ATEX compliant EB : ATEX compliant + glow wire [GWIT(IEC60952-2-13): 750°C, GWFI (IEC60952-2-12): 850°C]

Note: Actual marking omits the hyphen (-). B, EB are marked at different position on the relay. E.g.: Ordering code: JS-12N-K-B actual marking: JS12N-K

■ SPECIFICATIONS

Item			Specifications		Remarks/Conditions
			JS-()F/N-K-B/-EB	JS-()D-K-B/-EB	
Contact Data	Configuration		1a (1 Form A, SPST-NO), 1c (1 Form C, SPDT)		
	Construction		Single		
	Plating		Au flash	-	
	Material		See part number information		
	Resistance		Max. 100mΩ		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		
Coil	Rated power (20°C)		220 to 245mW		
	Operate power (20°C)		110 to 120mW		
	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) $\pm 10\%$	Must Operate Voltage* ¹ (VDC)	Must Release Voltage* ¹ (VDC)	Rated Power (mW)
5	5	112	3.5	0.5	225
12	12	660	8.5	1.2	220
24	24	2,350	16.8	2.4	245

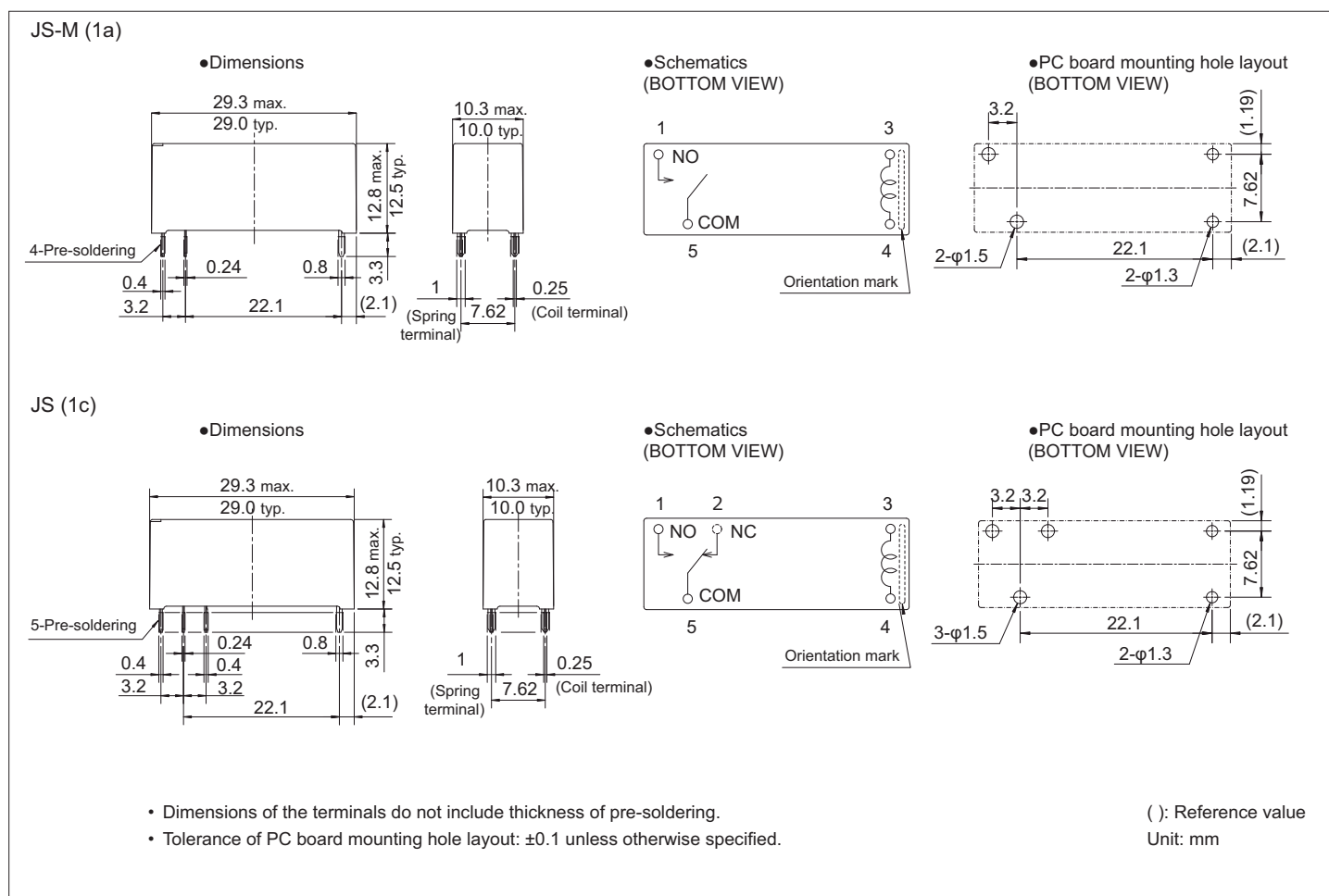
Note: All values in the table are valid at 20°C and zero contact current, unless otherwise specified.

*: 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.

DIMENSIONS



■ SAFETY STANDARDS

• Certifications

Type	Compliance	Contact Rating	
		Contact Material: N	Contact Material: D, F
UL	UL508 File No. E56140	8A, 250VAC (resistive) 100k 8A, 24VDC (resistive) 100k	8A, 250VAC (resistive) 8A, 24VDC (resistive)
CSA	C22.2 No.14 File No. LR40304	10A, 250VAC (resistive) 10A, 30VDC (resistive) 1/4hp, 125VAC/250VAC 1/3hp, 125VAC 1/2hp, 250VAC Pilot duty: A300, B300, C150, R300	
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, JS-()MF-K> 8A, 250VAC $\cos\phi=1$ 8A, 24VDC L/R=0ms

The part numbers on the safety standard certifications and the ordering part numbers may differ. Coil code in in ().

• ATEX directive compliance

Type	Certificate No. / Certified part Number / Compliance		Contact Rating
UL	UL certificate No. DEMKO 15 ATEX 1507U		
	Part number	JS()N-K	10A, 250VAC (General Use), NO 10A, 24VDC (resistive), NO
		JS()MN-K	Pilot Duty, Code C300, Pilot Duty, Code R150
		JS()F-K	8A, 250VAC (resistive), NO 8A, 24VDC (resistive) Pilot Duty, Code B300
		JS()D-K	
		JS()MF-K	
		JS()MD-K	
	Compliance: EC/EN60079-0, IEC/EN60079-15		
	Protection level:  II 3 G Ex nC IIC Gc		

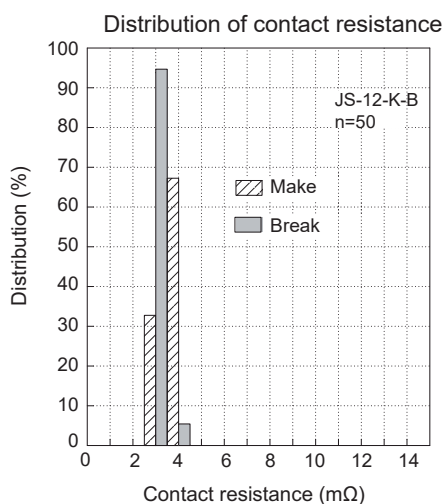
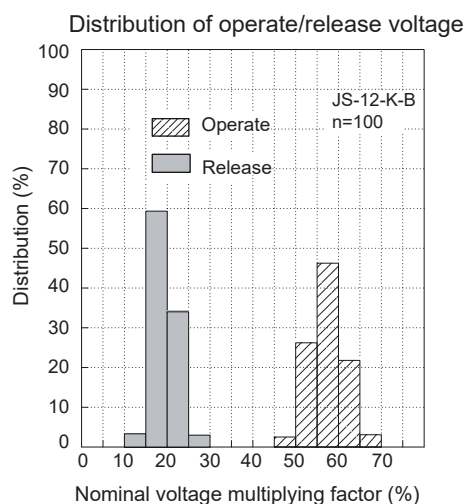
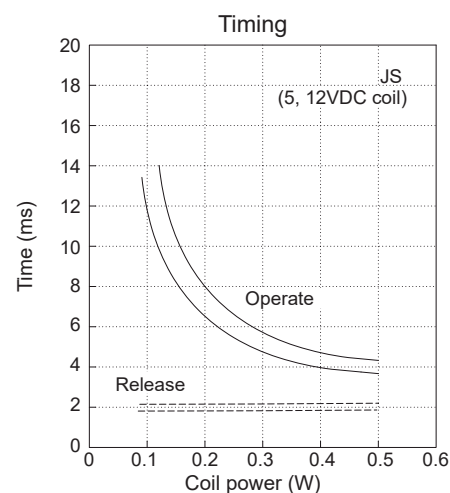
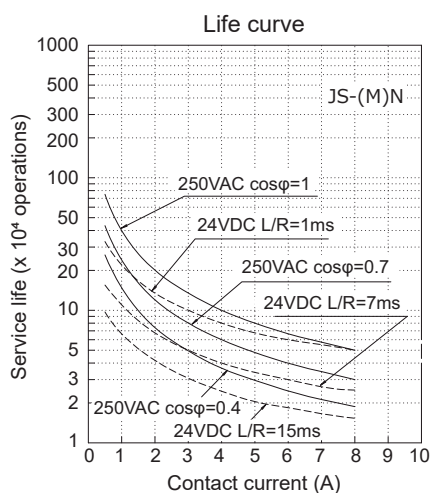
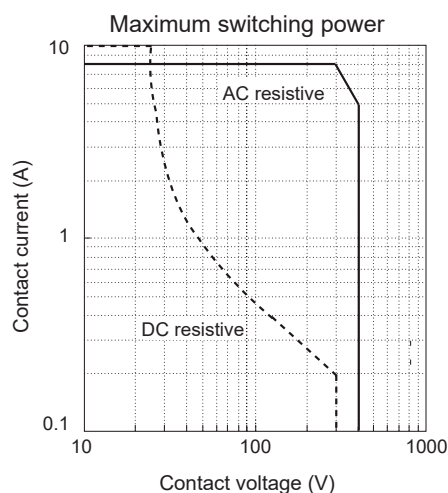
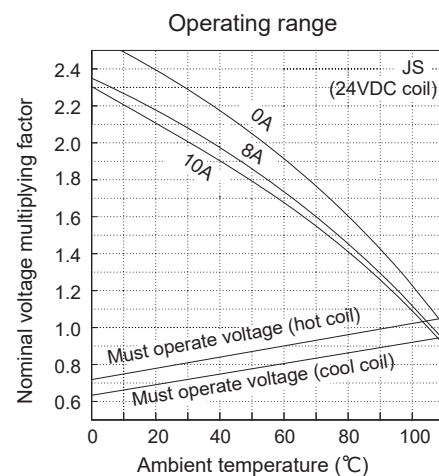
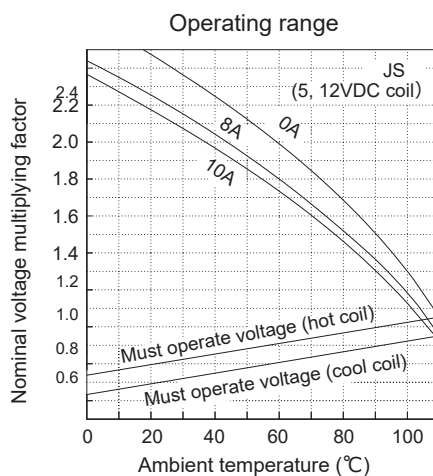
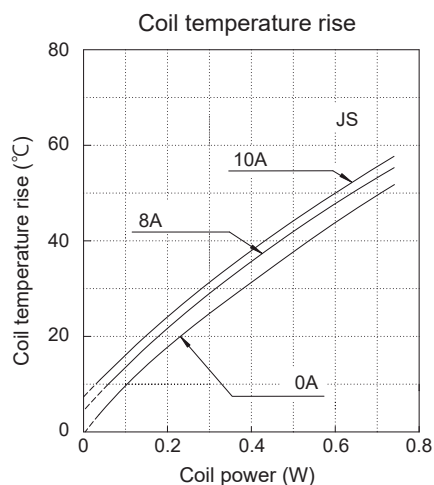
The part numbers on the safety standard certifications and the ordering part numbers may differ. Coil code in in ().

■ PART NUMBER LIST

Part number	Contact configuration	Contact material	Special type
JS-()N-K-B	1c (1 Form A, SPST-NO)	Gold flash silver tin oxide	ATEX compliant
JS-()N-K-EB			ATEX compliant, glow wire compliant
JS-()F-K-B		Gold flash silver nickel	ATEX compliant
JS-()F-K-EB			ATEX compliant, glow wire compliant
JS-()D-K-B		Silver nickel	ATEX compliant
JS-()D-K-EB			ATEX compliant, glow wire compliant
JS-()MN-K-B	1a (1 Form C, SPDT)	Gold flash silver tin oxide	ATEX compliant
JS-()MF-K-B		Gold flash silver nickel	ATEX compliant
JS-()MD-K-B		Silver nickel	ATEX compliant

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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