FUJITSU

POWER RELAY

1 POLE - 8A Medium Load Control

JS Series

■

- 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 (Please see page 6 for more information)

■ PARTNUMBERS

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

(a)	Relay type	JS : JS series
(b)	Coil Voltage	12 : 5....60VDC (Coil rating table at page 3)
(c)	Coil configuration	Nil : 1 form C (SPDT) M : 1 form A (SPST-NO)
(d)	Contact material	D : Silver nickel F : Gold flash silver nickel N : Gold flash silver tin oxide
(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 (-) or (*)
*: V3, V1 are marked at different position on the relay
E.g.: Ordering code: JS-12F actual marking: JS12F-K

■ Specifications

Item			JS-( ) F/N-K	JS-( )D -K	JS-( ) N-K-V1	JS-( ) N-K-V3	Remarks / conditions
Contact data	Configuration		1 form A (SPST-NO), 1 form C (SPDT)				
	Construction		Single				
	Plating		Au flash	-	1µm Au plated	3µm Au plated	
	Material		See partnumber information				
	Resistance		Max. 100mΩ		Max. 30mΩ		6VDC, 1A
	Contact rating		8A, 250VAC / 24VDC				Resistive
	Max. carrying current		10A				
	Max. switching voltage		400VAC / 300VDC				
	Max. switching power		2000VA / 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
Timing data	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		1000VAC (50/60Hz), 1 minute				
	Dielectric strength	Open contacts	Min. 1000MΩ at 500VDC				
		Coil contact	5000VAC (50/60Hz), 1 minute				
	Surge strength	Coil to contacts	10000V / 1.2 x 50µs standard wave				
	Clearance		8mm				
	Creepage		8mm				
	EN61810-1, VDE0435	Voltage	250V				
		Pollution	3				
		Material group	III a				
		Category	C / 250V (reference voltage) (VDE 01106)				
Other	Vibration resistance	Misoperation	10~55~10Hz single amplitude 0.825mm				
		Endurance	10~55~10Hz single amplitude 1.65mm				
	Shock resistance	Misoperation	Min. 100m/s² (11±1ms)				Direction X, Y, Z contact ON/OFF total 36 times
		Endurance	Min. 1,000m/s² (6±1ms)				Direction X, Y, Z contact OFF total 18 times
	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 ±10% (Ω)	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Rated Power (mW)
005	5	112	3.5	0.5	225
006	6	160	4.2	0.6	
009	9	360	6.3	0.9	
012	12	660	8.5	1.2	220
018	18	1,455	12.7	1.8	225
024	24	2,350	16.8	2.4	245
048	48	8,000	33.4	4.8	290
060	60	12,500	41.7	6.0	

Note: All values in the table are valid at 20°C and zero contact current, unless othersiwe 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>Type</th><th>Compliance</th><th colspan="3">Contact rating</th></tr>
<tr><td rowspan="2">UL</td><td rowspan="2">UL508

File No. E56140</td><td colspan="3">Flammability: UL94-V-0 (plastics)</td></tr>
<tr><td>Contact material:
Nil, E</td><td>N</td><td>D, F</td></tr>
<tr><td>CSA</td><td>C22.2 No. 14

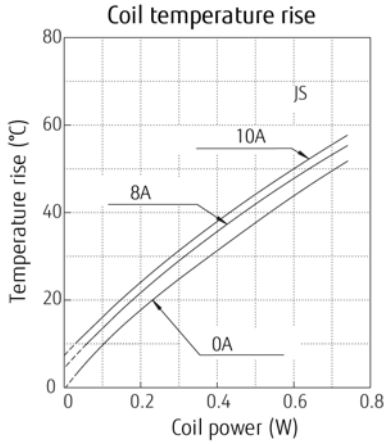
File No. LR35579</td><td>8A, 24VDC (resistive) 100k
8A, 250VAC (resistive) 100k
10A, 30VDC (resistive)
10A, 250VAC (resistive)
1/4HP, 125VAC/ 250VAC
1/3HP, 125VAC
1/2HP, 250VAC
Pilot duty: C150, B300
Pilot duty: 0.27A, 250VDC</td><td>8A, 24VDC (resistive) 100k
8A, 250VAC (resistive) 100k
10A, 30VDC (resistive)
10A, 250VAC (resistive)
1/4HP, 125VAC/ 250VAC
1/3HP, 125VAC
1/2HP, 250VAC
Pilot duty: A300, B300, C150, R300</td><td>8A, 24VDC (resistive)
8A, 250VAC (resistive)</td></tr>
<tr><td>VDE</td><td>IEC/EN61810
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 colspan="2">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, JS-( )MF-K:
8A, 240VAC (cosφ=1)
8A, 24VDC (L/R=0ms)</td></tr>
<tr><td>CQC</td><td>GB15092.1
File No. 17001162883</td><td colspan="3">10A, 30VDC/250VAC (except -V3 type)</td></tr>
</table>

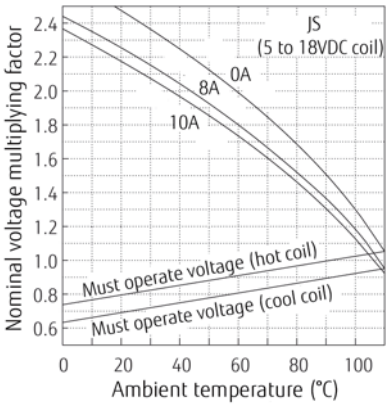
■ Characteristic Data (Reference)

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

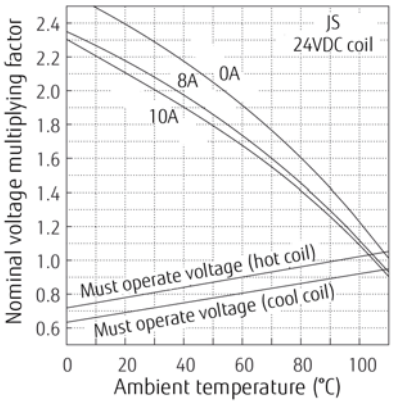
Coil temperature rise



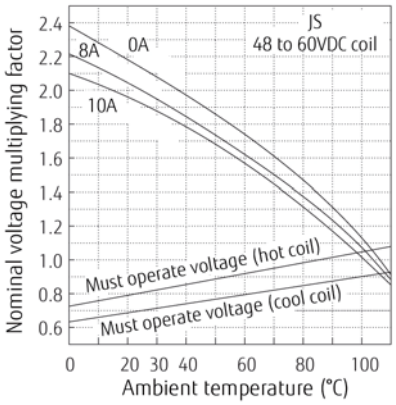
Operating range



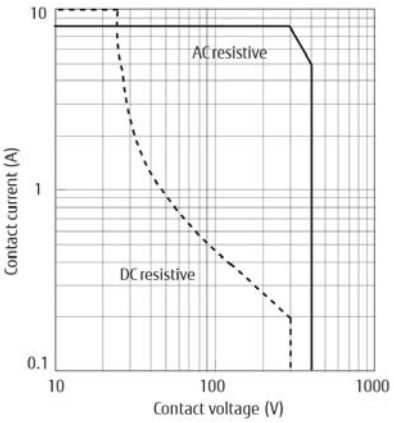
Operating range



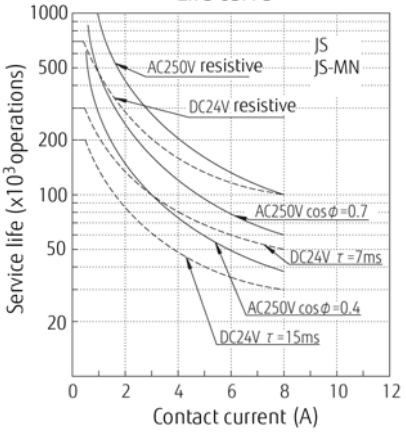
Operating range



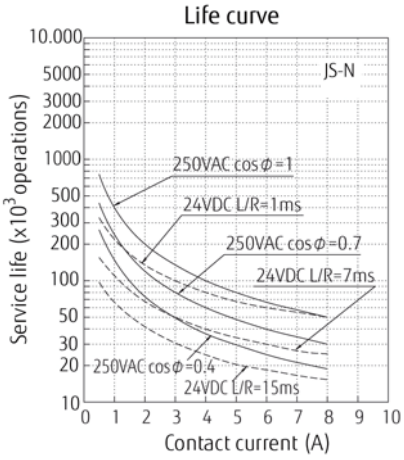
Maximum switching power



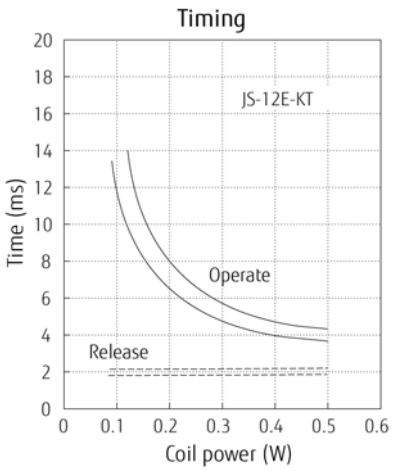
Life curve



Life curve



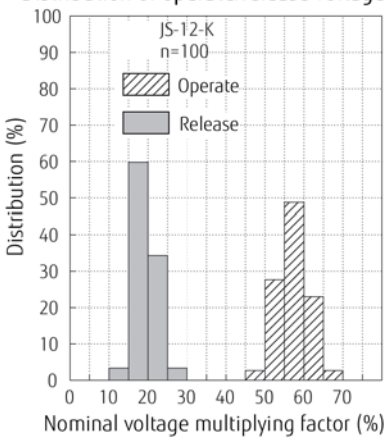
Timing



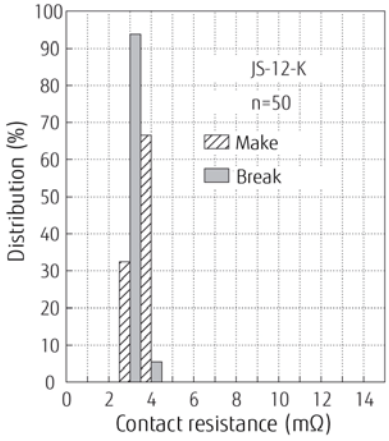
■ Characteristic Data (Reference)

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

Distribution of operate/release voltage



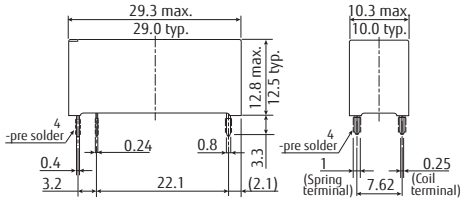
Distribution of contact resistance



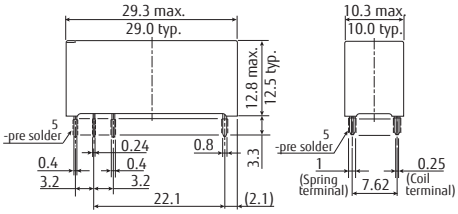
■ Dimensions

- Dimensions

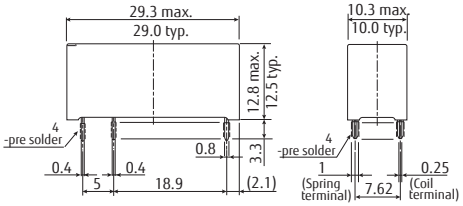
JS-M(-K)



JS(-K)



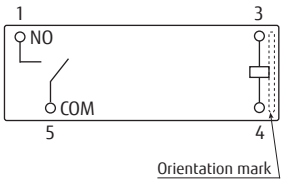
JS-MN-(K)T



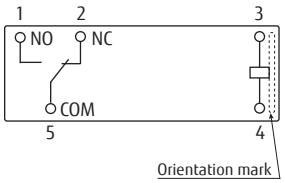
* Dimensions of the terminals do not include thickness of pre-solder.

- Schematics
  (BOTTOM VIEW)

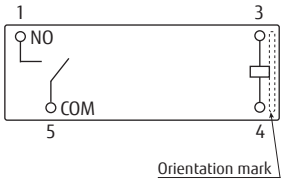
JS-M(-K)



JS(-K)

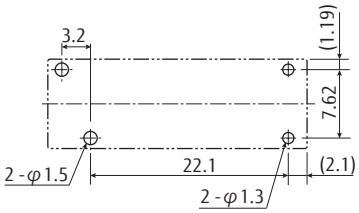


JS-MN-(K)T

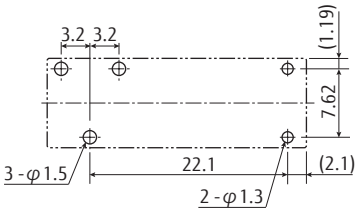


- PC Board Mounting Hole
  Layout (BOTTOM VIEW)

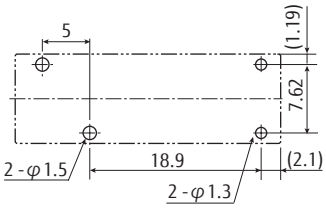
JS-M(-K)



JS(-K)



JS-MN-(K)T



* Tolerance of PC board mounting hole layout: ±0.1 unless otherwise specified.

( ): Reference value
Unit: mm

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 Fujitsu 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:	Eip 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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