

POWER RELAY 1 POLE - 8A Medium Load Control

JS Series

■ 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: 12.5 mm Mounting space: 290 mm²
- High sensitivity in small package
- Operating power 110 to 140 mW
- Nominal power 220 to 290 mW
- High insulation in small package
 - Insulation distance : 8.0 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. Please see page 7 for more information



PARTNUMBER INFORMATION

(a)	Relay type	JS	: JS Series
(b)	Coil rated voltage	12	: 560 VDC Coil rating table at page 3
(c)	Contact configuration	Nil M	: 1 form C (SPDT) : 1 form A (SPST-NO)
(d)	Contact material	Nil D E F N	Gold plate silver cadmium oxide Silver nickel Silver cadmium oxide Gold plate silver nickel Gold plate silver tin oxide
(e)	Enclosure	К	: Plastic sealed type
(f)	Construction	Nil T	: 3.2mm : 5.0mm (only JS-MN, MD, MF)
(g)	Gold plating	Nil V3	: 0.3µ gold overlay (available with Nil, N and F contact) : 3.0µ gold overlay for lower current applications (available with Nil and N) (not available for T , 5.0mm type)

Note: Actual marking omits the hyphen (-) or (*) *: V3 is marked at different position on the relay

E.g.: Ordering code: JS-12E-K Actual marking: JS12E-K

■ SPECIFICATION

Sa - () - K Sa - () D/E/F/N - K Sa - () N - K N - () N - N N	Item			Non V3 type	V3 type	
Data Construction Single Material (see part number information) 0.3 μ Ag plated 3 μ Ag plated Resistance (initial) ≤ 100 mΩ at 6VDC, 1A ≤ 30 mΩ at 6VDC, 1A Contact rating Max. carrying current 10A Max. switching voltage 400VAC / 150VDC Max. switching power 2,000VA / 192W Min. switching load * 100 mA, 5VDC 10mA, 5VDC 20mB 10mB 10mB						
Material (see part number information) 0.3µ Ag plated 3µ Ag plated	Contact	Configuration				
Resistance (initial)	Data	Construction		Single		
Contact rating		Material (see part num	ber information)	0.3µ Ag plated 3µ Ag plated		
Max. carrying current Max. switching voltage 400VAC / 150VDC		Resistance (initial)		≤ 100 mΩ at 6VDC, 1A	≤ 30 mΩ at 6VDC, 1A	
Max. switching voltage		Contact rating		8A, 250VAC / 24VDC		
Max. switching power 2,000VA / 192W		Max. carrying current		10A		
Min. switching load *		Max. switching voltage	;	400VAC / 150VDC		
Life Mechanical 20 x 10 ⁶ operations minimum Electrical AC contact rating DC contact rating DC contact rating (JS-() N-K 50 x 10³ operations minimum (JS-() N-K 50 x 10³ operations minimum (JS-() N-K 50 x 10³ operations minimum) Coil Data Rated power (at 20 °C) 220 - 290mW Operate power (at 20 °C) 110 - 140mW Operating temperature range -40 °C to +85 °C (no frost) Timing Data Release (at nominal voltage) ≤ 10ms (no bounce) Release (at nominal voltage) ≤ 5ms (no diode, no bounce) Release (initial) ≥ 1,000MΩ at 500VDC Dielectric strength Open contacts 1,000VAC (50/60Hz) 1min Surge strength Coil to contacts 10,000V / 1.2 x 50µs standard wave Clearance 8 mm Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us Min. 100m/s² (11 ± 1ms)		Max. switching power		2,000VA / 192W		
Electrical AC contact rating 100 x 10³ operations minimum (JS-() N-K 50 x 10³ operations minimum)		Min. switching load *		100mA, 5VDC	10mA, 5VDC	
Electrical AC contact rating (JS-() N-K 50 x 10³ operations minimum)	Life	Mechanical		20 x 10 ⁶ operations minimum		
DC contact rating 100 x 10° operations minimum (JS-() N-K 50 x 10³ operations minimum)		Floatrical	AC contact rating			
Operate power (at 20 °C) 110 - 140mW Operating temperature range -40 °C to +85 °C (no frost) Timing Data Operate (at nominal voltage) ≤ 10ms (no bounce) Release (at nominal voltage) ≤ 5ms (no diode, no bounce) Resistance (initial) ≥ 1,000MΩ at 500VDC Dielectric strength Open contacts 1,000VAC (50/60Hz) 1min Contacts to coil 5,000VAC (50/60Hz) 1min Surge strength Coil to contacts 10,000V / 1.2 x 50μs standard wave Clearance 8 mm Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Shock Misoperation>1us Min. 100m/s² (11 ± 1ms)		Electrical	DC contact rating			
Operating temperature range	Coil Data	Rated power (at 20 °C)	220 - 290mW		
Timing Data Operate (at nominal voltage) ≤ 10ms (no bounce) Release (at nominal voltage) ≤ 5ms (no diode, no bounce) Insulation Resistance (initial) ≥ 1,000MΩ at 500VDC Dielectric strength Open contacts 1,000VAC (50/60Hz) 1min Surge strength Coil to contacts 10,000V / 1.2 x 50µs standard wave Clearance 8 mm Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		Operate power (at 20	°C)	110 - 140mW		
Release (at nominal voltage) ≤ 5ms (no diode, no bounce) Insulation Resistance (initial) ≥ 1,000MΩ at 500VDC Dielectric strength Open contacts 1,000VAC (50/60Hz) 1min Contacts to coil 5,000VAC (50/60Hz) 1min Surge strength Coil to contacts 10,000V / 1.2 x 50µs standard wave Clearance Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		Operating temperature	range	-40 °C to +85 °C (no frost)		
Resistance (initial) ≥ 1,000MΩ at 500VDC Dielectric strength Open contacts 1,000VAC (50/60Hz) 1min Contacts to coil 5,000VAC (50/60Hz) 1min Surge strength Coil to contacts 10,000V / 1.2 x 50μs standard wave Clearance 8 mm Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)	Timing Data	Operate (at nominal vo	oltage)	≤ 10ms (no bounce)		
Dielectric strength Open contacts 1,000VAC (50/60Hz) 1min Contacts to coil 5,000VAC (50/60Hz) 1min Surge strength Coil to contacts 10,000V / 1.2 x 50μs standard wave Clearance 8 mm Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		Release (at nominal ve	oltage)	≤ 5ms (no diode, no bounce)		
Contacts to coil 5,000VAC (50/60Hz) 1min Surge strength Coil to contacts 10,000V / 1.2 x 50µs standard wave Clearance 8 mm Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)	Insulation	Resistance (initial)		≥ 1,000MΩ at 500VDC		
Surge strength Coil to contacts 10,000V / 1.2 x 50µs standard wave Clearance 8 mm Creepage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1min		
Clearance			Contacts to coil	5,000VAC (50/60Hz) 1min		
Creepage 8 mm EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		Surge strength	Coil to contacts	10,000V / 1.2 x 50µs standard wave		
EN61810-1, VDE0435 Voltage 250V Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		Clearance		8 mm		
Pollution degree 3 Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		Creepage		8 mm		
Material group III a Category C / 250V (reference voltage) (VDE 01106) Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)		EN61810-1, VDE0435	Voltage	250V		
Other Vibration resistance Category C / 250V (reference voltage) (VDE 01106) Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)			Pollution degree	3		
Other Vibration resistance Misoperation>1us 10 to 55Hz double amplitude 1.65mm Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)			Material group	III a		
Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)			Category	C / 250V (reference voltage) (VDE 01106)		
Endurance 10 to 55Hz double amplitude 3.3mm Misoperation>1us Min. 100m/s² (11 ± 1ms)	Other	Vibration registance	Misoperation>1us	10 to 55Hz double amplitude 1.65mm		
Shock		vibration resistance	Endurance	10 to 55Hz double amplitude 3.3mm		
Findurance Min 1.000m/s² (6 + 1ms)		Shock	Misoperation>1us	Min. 100m/s² (11 ± 1ms)		
Will. 1,000H/3 (0 ± 1H3)		SHOCK	Endurance	Min. 1,000m/s² (6 ± 1ms)		
Weight Approximately 8.0 g	İ	Weight		Approximately 8.0 g		

^{*} 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 contions and expected reliability levels.

■ COIL RATING

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release- Voltage (VDC) *	Max. Coil Voltage (VDC)	Rated Power (mW)
5	5	112	3.5	0.5	11.8	
6	6	160	4.2	0.6	14.1	225
9	9	360	6.3	0.9	21.2	
12	12	660	8.5	1.2	28.3	220
18	18	1,455	12.7	1.8	42.4	225
24	24	2,350	16.8	2.4	56.6	245
48	48	8,000	33.4	4.8	105.6	000
60	60	12,500	41.7	6.0	132.0	290

Note: All values in the table are valid for 20°C and zero contact current.

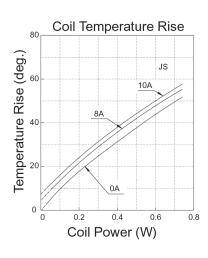
■ SAFETY STANDARDS

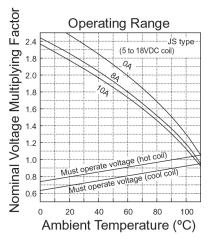
Туре	Compliance	Contact rating		
UL	UL 508	Flammability: UL 94-V0 (plastics)		
		Contact material: Nil, E	N	
CSA	E 56140 C22.2 No. 14 LR 35579	8A 24VDC (resistive) 100k 8A, 250VAC (resistive) 100k 10A, 30VDC (resistive) 10A, 250VAC (resistive) 1/4HP, 125VAC / 250VAC 1/3HP, 125VAC 1/2HP, 250VAC Pilot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

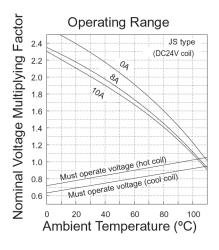
Also complies with SEV, ÖVE, FIMKO, BSI, CQC, NEMKO, DEMKO

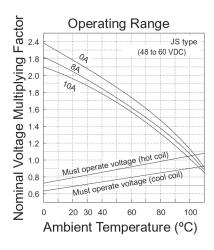
^{*} Specified operate values are valid for pulse wave voltage.

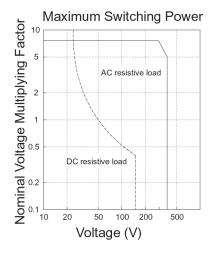
■ CHARACTERISTIC DATA

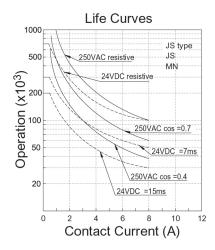




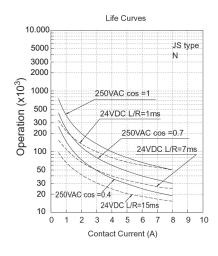


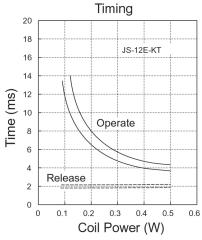


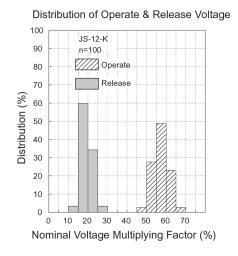


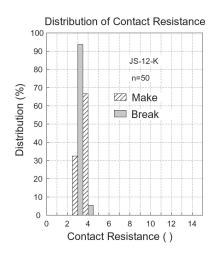


■ REFERENCE DATA





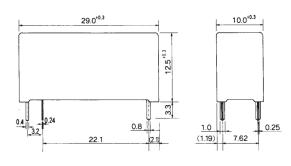




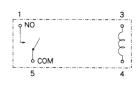
■ DIMENSIONS

Dimensions

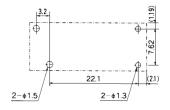
JS-MK type



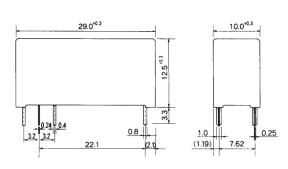
• Schematics (BOTTOM VIEW)

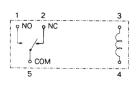


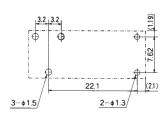
 PC board mounting hole layout (BOTTOM VIEW)



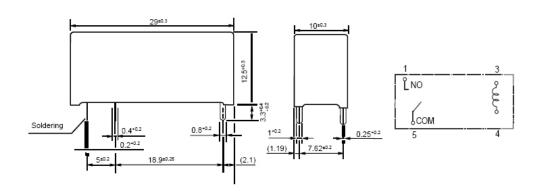
JS-K type

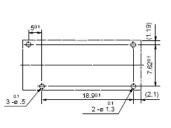






JS-MN()-KT type





Unit: mm

RoHS Compliance and Lead Free Information

1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005.
 (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf
- 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.

2. Recommended Lead Free Solder Profile

Recommended solder Sn-3.0Ag-0.5Cu.

Flow Solder condition:

Pre-heating: maximum 120°C 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 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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