FUJITSU THE POSSIBILITIES ARE INFINITE

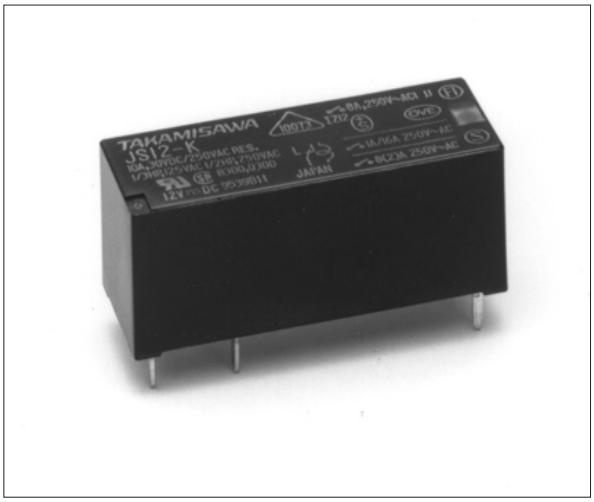
POWER RELAY

1 POLE—8 A (MEDIUM LOAD CONTROL)

JS SERIES

RoHS compliant

■ FEATURES



- UL, CSA, VDE, SEV, SEMKO, FIMKO, ÖVE, BSI recognized
- UL class B (130°C) insulation
- 1 form A (SPST-NO) or 1 form C (SPDT) contact
- Low profile and space saving—Height: 12.5 mm
  —Mounting space: 290 mm^2
- High sensitivity in small package
  —Operating power ..... 0.11 to 0.14 W
  —Nominal power..... 0.22 to 0.29 W
- High isolation in small package
  —Insulation distance : 8 mm
  —Dielectric strength : 5,000 VAC (between coil and contacts)
  —Surge strength : 10,000 V
- Plastic materials —UL 94 flame class V-0
  —UL CTI level class 2
- Plastic sealed type
- RoHS compliant since date code: 0438B9, 0434R - Please see page 6 for more information

■ ORDERING INFORMATION

[Example] JS (a) – (*) 12 (b) M (c) E (d) – K (e) T (f) – V3 (j)

(a)	Series Name	JS : JS Series
(b)	Nominal Voltage	Refer to the COIL DATA CHART
(c)	Contact Arrangement	Nil : 1 form C (SPDT) M : 1 form A (SPST-NO)
(d)	Contact Material	Nil : Gold plate silver cadmium oxide D : Silver nickel E : Silver cadmium oxide F : Silver nickel gold overlay N : Silver tin oxide gold overlay
(e)	Enclosure	K : Plastic sealed type
(f)	Construction	Nil: 3.2 mm T : 5.0 mm (only JS-MN, MD, MF)
(j)	For low current application	Nil: 0.3μ gold overlay (available with Nil, N and F contact) V3: 3μ gold overlay for lower current applications (available with Nil, N and F contact)

Note: Actual marking omits the hyphen (-) of (*)

■ SAFETY STANDARD AND FILE NUMBERS

UL508, 873 (File No. E56140, E108658)
C22.2 No. 14 (File No. LR35579)
VDE 0435, 0631, 0700 (File No. 11039-4940-1010)

Nominal voltage	Contact rating
5 to 60 VDC	1/3 HP 125 VAC, 1/2 HP 250 VAC 10A 30VDC/250 VAC, resistive 3A 250 VAC inductive (PF = 0.4) Pilot duty B 300, C150

■ SPECIFICATIONS

1 - Contact material Silver Cadmium Oxide (AgCdO) type: Nil, E type

Item			JS ( )-K	JS ( )E-K	JS ( )M-K	JS ( )ME-K
Contact	Arrangement		1 Form C (SPDT)		1 Form A (SPST-NO)	
	Material		Au+AgCdO	AgCdO	Au+AgCdO	AgCdO
	Resistance (initial)		30m Ohms (Au 3μm), 100m Ohms (Au 0.3μm) 1A 6 VDC			
	Rating		8A 250 VAC / 24 VDC			
	Max. carrying current		10A			
	Max. switching power		2,000VA/192W			
	Max. switching voltage		150VDC/400VAC			
	Min. switching load		10mA 5VDC			
	Max. switching current		10A			
Coil	Operating temperature		-40˚ C to +85˚ C (no frost)			
Time value	Operate		Max. 10ms (at nominal voltage, without bounce)			
	Release (without diode)		Max. 5ms (at nominal voltage, without bounce)			
Insulation	Resistance (at 500VDC)		Min. 1,000 Mohms			
	Dielectric Strength	B/T contacts	1,000VAC, 1 minute			
		B/T coil and contacts	4,000VAC, 1 minute			
	Surge strength		10,000V (at1.2x50 μsec.)			
Life	Mechanical		$20x10^6$ operations minimum			
	Electrical (resistive load)		$100x10^3$ operations min.			
Vibration resistance	Misoperation		10 to 55 Hz at double amplitude of 1.65mm			
	Endurance		10 to 55 Hz at double amplitude of 3.3mm			
Shock resistance	Misoperation		Min. 200m/s^2 (11±1ms)			
	Endurance		Min. 1,000m/s^2 (6±1ms)			
Weight			Approx. 8g			

2 - Contact material Silver Tin Oxide ($AgSnO_2$) type: N type

Item			JS ( )N-K	JS ( )MN-K	JS ( )MN-KT
Contact	Arrangement		1 Form C	1 Form A	
	Material		Au+$AgSnO_2$		
	Resistance (initial)		Max. 100 mohms (at 1A 6 VDC)		
	Rating		8A 250 VAC / 24 VDC		
	Max. carrying current		10A		
	Max. switching power		2,000VA/192W		
	Max. switching voltage		150VDC/400VAC		
	Min. switching load		10mA 5VDC		
	Max. switching current		10A		
Coil	Operating temperature		-40° C to +85° C (no frost)		
Time value	Operate		Max. 10ms (at nominal voltage, without bounce)		
	Release (without diode)		Max. 5ms (at nominal voltage, without bounce)		
Insulation	Resistance (at 500VDC)		Min. 1,000 Mohms		
	Dielectric Strength	B/T contacts	1,000VAC, 1 minute		
		B/T coil and contacts	4,000VAC, 1 minute		
	Surge strength		10,000V (at1.2x50 μsec.)		
Life	Mechanical		$20x10^6$ operations minimum		
	Electrical (resistive load)		$50x10^3$ ops. min.	$100x10^3$ ops. min.	
Vibration resistance	Misoperation		10 to 55 Hz at double amplitude of 1.65mm		
	Endurance		10 to 55 Hz at double amplitude of 3.3mm		
Shock resistance	Misoperation		Min. 200m/s^2 (11±1ms)		
	Endurance		Min. 1,000m/s^2 (6±1ms)		
Weight			Approx. 8g		

3 - Contact material Silver Nickel (AgNi) type: D, F type

Item			JS ( )F-K	JS ( )D-K	JS ( )MF-K JS ( )MF-KT	JS ( )MD-K JS ( )MD-KT
Contact	Arrangement		1 Form C		1 Form A	
	Material		Au+AgNi	AgNi	Au+AgNi	AgNi
	Resistance (initial)		30m Ohms (Au 3μm), 100m Ohms (Au 0.3μm) 1A 6 VDC			
	Rating		8A 250 VAC / 24 VDC			
	Max. carrying current		10A			
	Max. switching power		2,000VA/192W			
	Max. switching voltage		150VDC/400VAC			
	Min. switching load		10mA 5VDC			
	Max. switching current		10A			
Coil	Operating temperature		-40˚ C to +85˚ C (no frost)			
Time value	Operate		Max. 10ms (at nominal voltage, without bounce)			
	Release (without diode)		Max. 5ms (at nominal voltage, without bounce)			
Insulation	Resistance (at 500VDC)		Min. 1,000 Mohms			
	Dielectric Strength	B/T contacts	1,000VAC, 1 minute			
		B/T coil and contacts	4,000VAC, 1 minute			
	Surge strength		10,000V (at1.2x50 μsec.)			
Life	Mechanical		$20x10^6$ operations minimum			
	Electrical (resistive load)		$20x10^3$ operations min.			
Vibration resistance	Misoperation		10 to 55 Hz at double amplitude of 1.65mm			
	Endurance		10 to 55 Hz at double amplitude of 3.3mm			
Shock resistance	Misoperation		Min. $200m/s^2$ (11±1ms)			
	Endurance		Min. $1,000m/s^2$ (6±1ms)			
Weight			Approx. 8g			

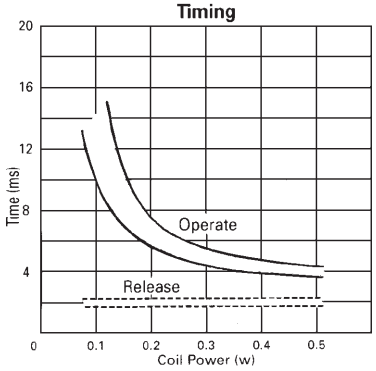
*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions

■ COIL DATA CHART

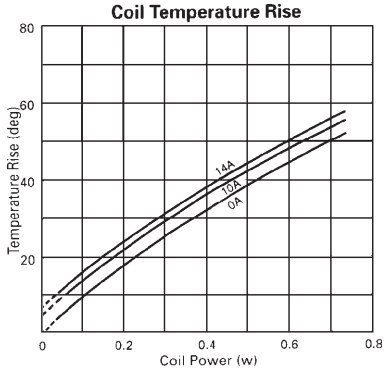
MODEL	Nominal voltage	Coil resistance (±10%)	Must operate voltage	Must release voltage	Nominal power
JS- 5(M)(NIL,E,N,D,F)-K(T)	5 VDC	112Ω	3.5 VDC	0.5 VDC	225 mW
JS- 6(M)(NIL,E,N,D,F)-K(T)	6 VDC	160Ω	4.2 VDC	0.6 VDC	225 mW
JS- 9(M)(NIL,E,N,D,F)-K(T)	9 VDC	360Ω	6.3 VDC	0.9 VDC	225 mW
JS-12(M)(NIL,E,N,D,F)-K(T)	12 VDC	660Ω	8.5 VDC	1.2 VDC	220 mW
JS-18(M)(NIL,E,N,D,F)-K(T)	18 VDC	1,455Ω	12.7 VDC	1.8 VDC	225 mW
JS-24(M)(NIL,E,N,D,F)-K(T)	24 VDC	2,350Ω	16.8 VDC	2.4 VDC	245 mW
JS-48(M)(NIL,E,N,D,F)-K(T)	48 VDC	8,000Ω	33.4 VDC	4.8 VDC	290 mW
JS-60(M)(NIL,E,N,D,F)-K(T)	60 VDC	12,500Ω	41.7 VDC	6.0 VDC	290 mW

■ CHARACTERISTIC DATA

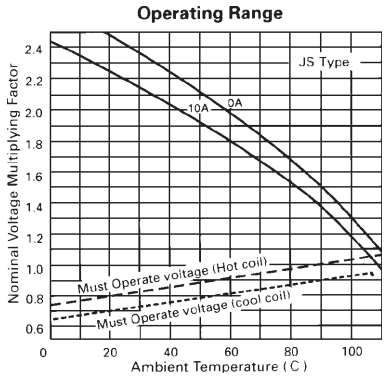
Timing



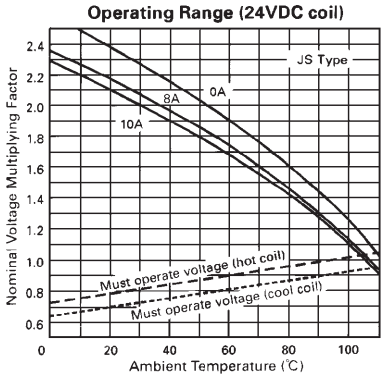
Coil Temperature Rise



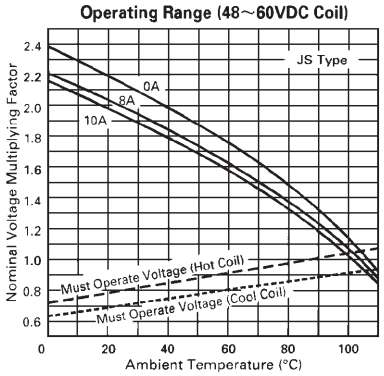
Operating Range



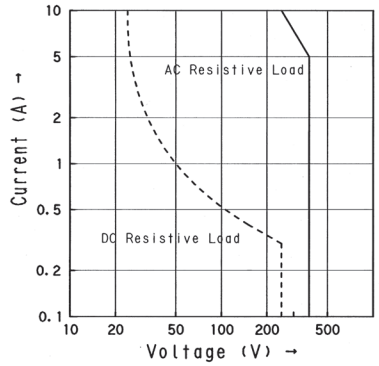
Operating Range (24VDC coil)



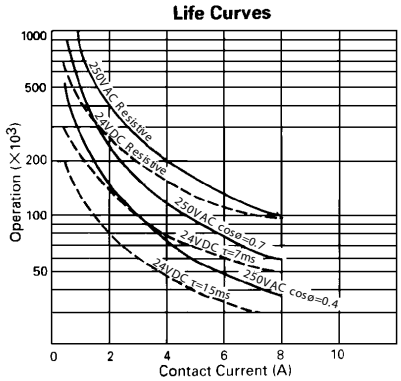
Operating Range (48～60VDC Coil)



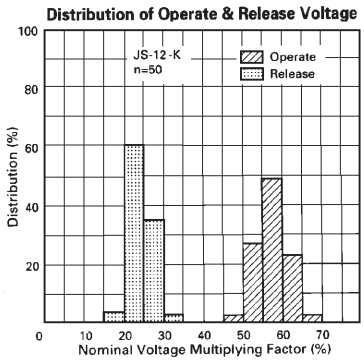
Maximum Switching Power

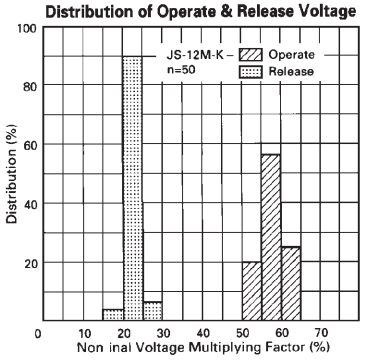


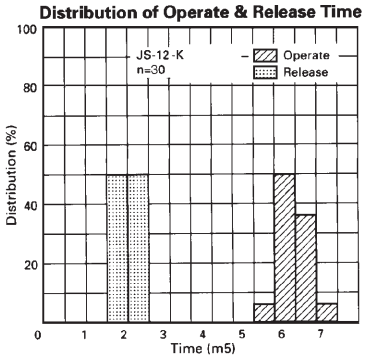
Life Curves

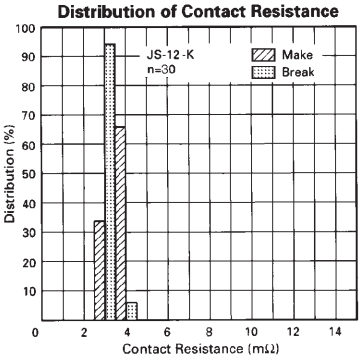


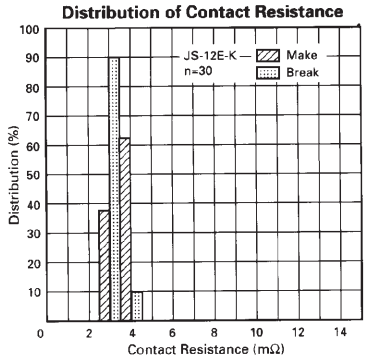
■ REFERENCE DATA

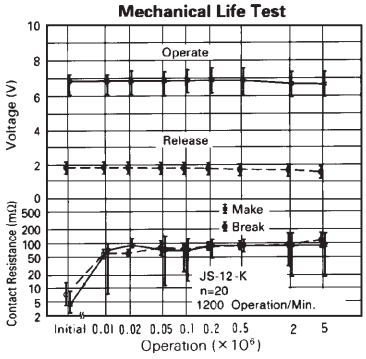


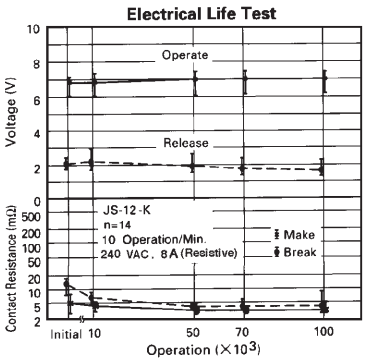


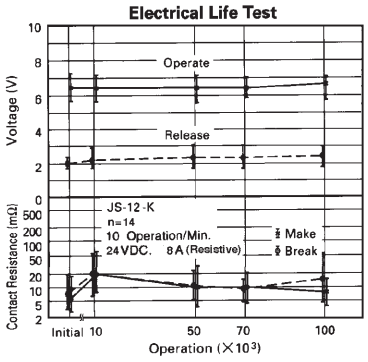








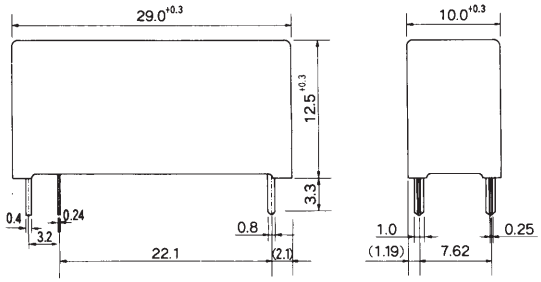




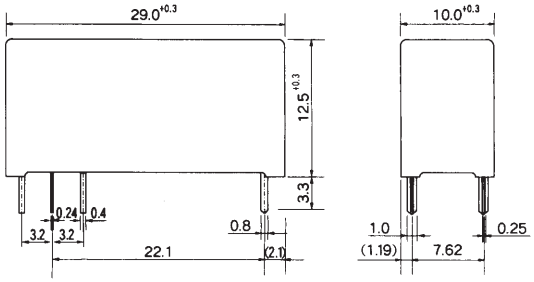
■ DIMENSIONS

- **Dimensions**

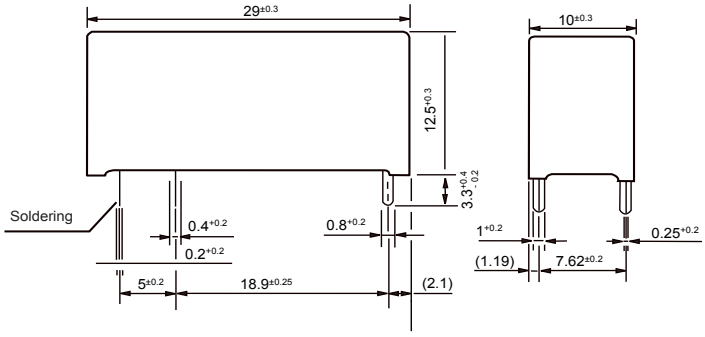
JS-MK type



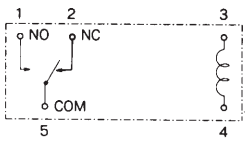
JS-K type

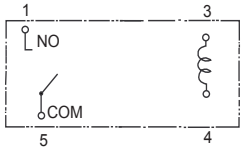


JS-M( )-KT type

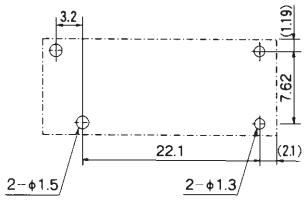


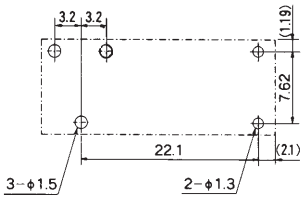
- **Schematics** (BOTTOM VIEW)

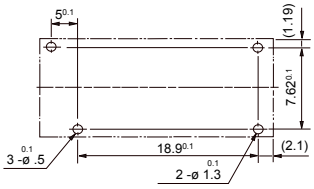




- **PC board mounting hole layout** (BOTTOM VIEW)







Unit: mm

RoHS Compliance and Lead Free Relay Information

1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. Most of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and most power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
- We will ship leaded relays as long as the leaded relay inventory exists.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu.

Reflow Solder condtion

Flow Solder condtion:	
Pre-heating:	maximum 120˚C
Soldering:	dip within 5 sec. at 260˚C soler 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 realys.

4. Tin Whisker

- Dipped SnAgCu solder is known as low risk tin whisker. No considerable length whisker was found by our in house test.

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