FUJITSU

POWER RELAY

1 POLE - 3, 5A Medium Load Control (AgNi contacts)

JY Series

■ FEATURES

- Small and good for high density mounting
  Mounting space 202mm^2, height 12.8mm
- UL, CSA recognized
- High sensitivity and low power consumption
  Operate power consumption 98mW, rated power consumption 200mW
- Wide operating range
- Plastic sealed type
- Socket mounting type and socket available
- Pin compatible with solid state relays type SJ
- Through hole
- Plastic materials: UL flammability 94V-0
- RoHS compliant.

■ Applications

- Sequencer, FA equipment etc.

■ Part Numbers

[Example] JY - 12 G - K P - UL
(a) (b) (c) (d) (e) (f)

(a)	Relay type	JY : JY series
(b)	Coil rated voltage	12 : 4.5...48VDC
(c)	Contact rating / material / construction	W : 3A, gold overlay silver nickel, bifurcated contact G : 3A, gold flash silver nickel, single contact R : 3A, silver nickel, single contact HG : 5A, gold flash silver nickel, single contact HR : 5A, silver nickel, single contact
(d)	Enclosure	K : Plastic sealed type
(e)	Terminal type	Nil : PC board mounting type P : Socket mounting type (without JY-W)
(f)	Safety approval	Nil : Without safety standard UL : UL, CSA recognized type

Note: Actual marking omits the hyphen (-) and suffix P and UL

■ Specifications

Item			JY - ( ) W	JY - ( ) G	JY - ( ) R	JY - ( ) HG	JY - ( ) HR	
			3A type			5A type		Remarks / conditions
Contact data	Configuration		1a (1 form A (SPST-NO))					
	Construction		Bifurcated (cross bar)	Single				
	Material		Gold over-lay silver nickel	Gold flash silver nickel	Silver nickel	Gold flash silver nickel	Silver nickel	
	Resistance		Max. 30 mΩ		Max. 100 mΩ	Max. 30 mΩ	Max. 100 mΩ	Initial (at 6 VDC, 1A)
	Contact rating		3A, 250VAC / 30VDC			5A, 250VAC / 30VDC		
	Max. carrying current		5A					
	Max. switching voltage		250VAC / 150 VDC					
	Max. switching power		750VA, 90W			1,250VA, 150W		
	Max. switching current		3A			5A (socket 3A)		
	Min. switching load *		0.01mA 100 mVDC	10mA 5VDC	100mA 5VDC	10mA 5VDC	100mA 5VDC	
Coil	Rated power consumption		200 mW (48V type: 360 mW)					At 20°C
	Operate power consumption		100 mW (48V type: 170 mW)					At 20°C
	Operating temperature range		-40°C ~ +90°C (48V type: +80 °C)					No frost
Timing data	Operate		Max. 6 ms					At nominal voltage (without diode, without bounce)
	Release		Max. 3 ms					At nominal voltage (without diode, without bounce)
Life	Mechanical		Min. 20 x 10^6 operations					
	Electrical		Min. 100 x 10^3 operations					Contact rating
Insulation	Insulation resistance		Min. 1,000MΩ at 500VDC					Initial
	Dielectric strength	Open contacts	750VAC, 1 minute					
		Coil contact	2,000VAC, 1 minute					
	Surge strength	Coil to contacts	4,000V (1.2 x 50μs standard wave)					
Other	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.75 mm					
		Endurance	10 to 55 to 10Hz single amplitude 0.75 mm					
	Shock resistance	Misoperation	Min. 100m/s² (11 ± 1ms)					
		Endurance	Min. 1,000m/s² (6 ± 1ms)					
	Dimensions / weight		9.8×20.0×12.8 mm / approx. 5g					
	Sealing		Plastic sealed, RTIII					

*: 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)
4.5	4.5	100	3.1	0.23	200
5	5	125	3.5	0.25	
6	6	180	4.2	0.3	
9	9	405	6.3	0.45	
12	12	720	8.4	0.6	
18	18	1,620	12.6	0.9	
24	24	2,880	16.8	1.2	
48	48	6,400	32.6	2.4	360

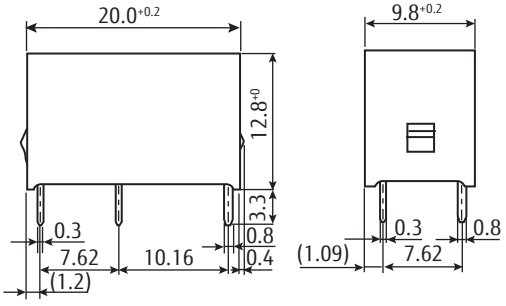
Note: All values in the table are valid for 20°C and zero contact current unless otherwise specified.
Note: Care shall be taken on the heat generated on PC board when maximum carrying current exceeds 10A.
Please perform the confirmation test with actual conditions
*: Specified operated values are valid for pulse wave voltage.

■ Safety Standards

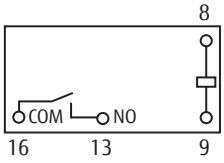
Type	Compliance	Contact Rating		
		JY-( )HG-K, JY-( )HR-K	JY-( )G-K, JY-( )R-K	JY-( )W-K
UL	UL 508 E56140	5A 250VAC / 30VDC resistive 1/8HP, 125VAC / 250VAC Pilot duty C150, C300	3A 250VAC / 30VDC resistive 1/10HP, 125VAC / 250VAC Pilot duty D150	5A 250VAC / 30VDC resistive 1/8HP, 125VAC /250VAC Pilot duty C300
CSA	C22.2 No. 14 LR 35579			

■ Dimensions

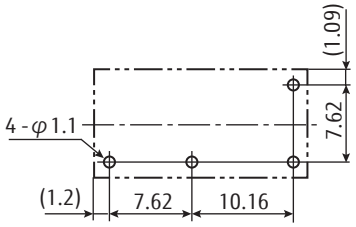
- Dimensions



- Schematics
(BOTTOM VIEW)

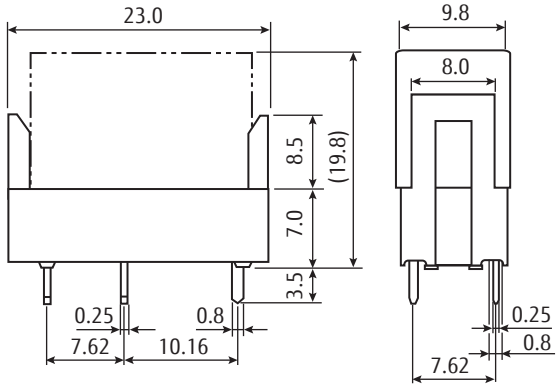


- PC Board Mouting Hole Layout
  (BOTTOM VIEW)

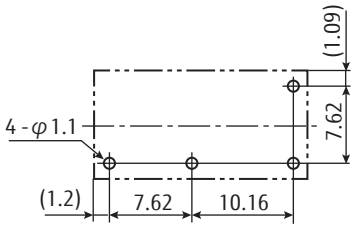


Tolerance of PC board mounting hole layout: ±0.1 unless otherwise specified.
( ): Reference value
Unit: mm

■ Socket Dimensions



- PC Board Mouting Hole Layout
  (BOTTOM VIEW)

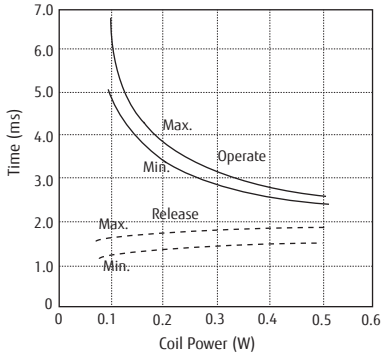


Tolerance of PC board mounting hole layout: ±0.1 unless otherwise specified.
( ): Reference value
Unit: mm

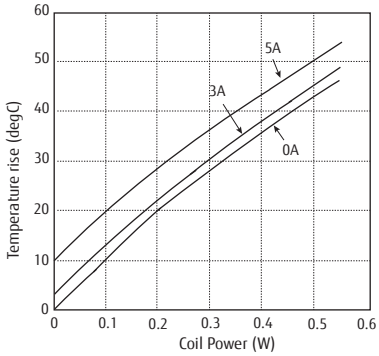
Note:
1: Socket ordering code: JK-4N
2: Standard IC socket is not recommended. Please use socket "JK-4N"

■ Characteristic Data

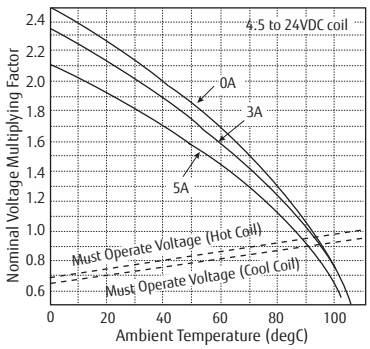
Timing



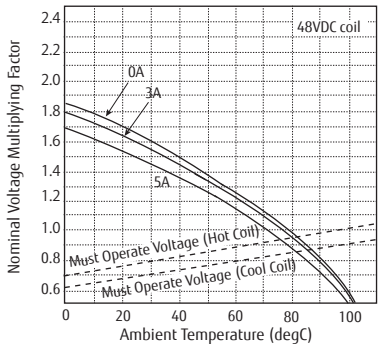
Coil Temperature Rise



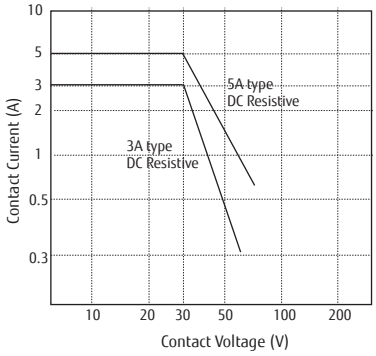
Operating Range (4.5 to 24VDC coil)



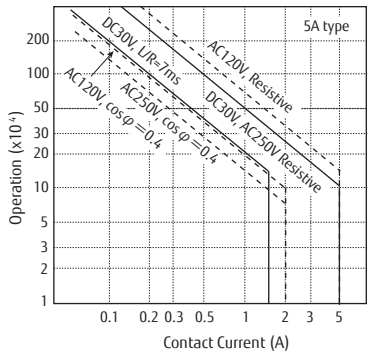
Operating Range (48VDC coil)



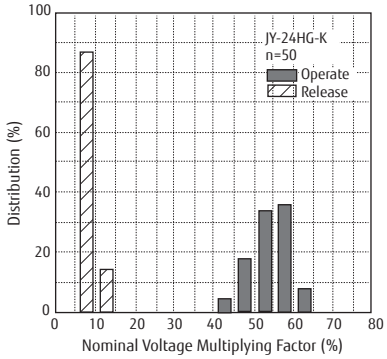
Maximum Switching Power



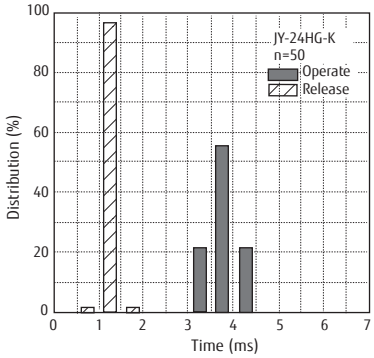
Life Curves



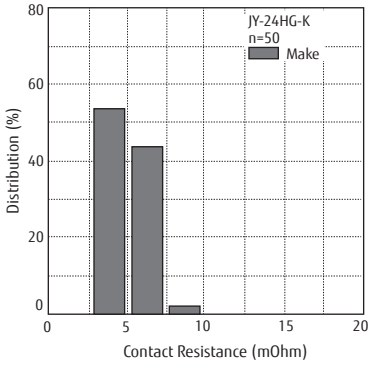
Distribution of Operate & Release Voltage



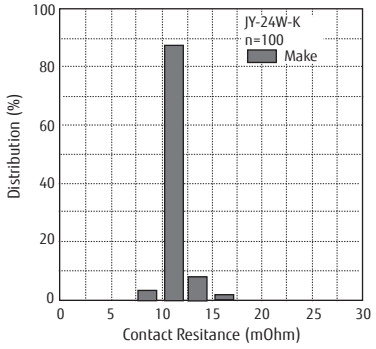
Distribution of Operate & Release Time



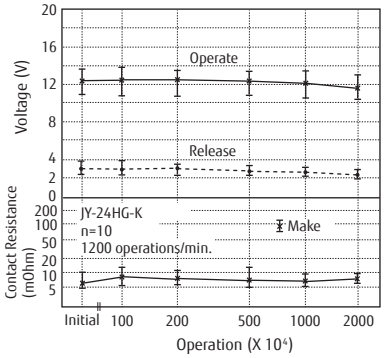
Distribution of Contact Resistance



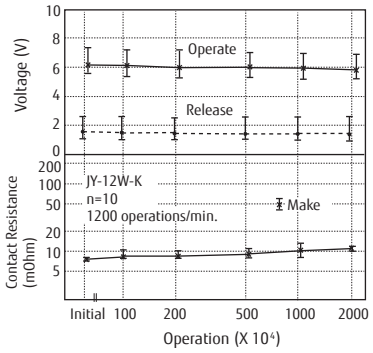
Distribution of Contact Resistance



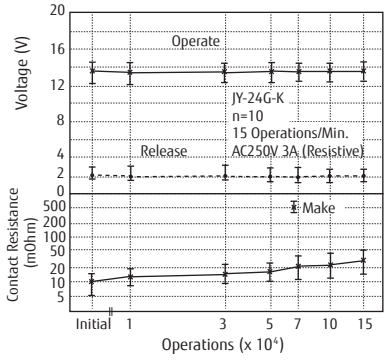
Mechanical Life Test



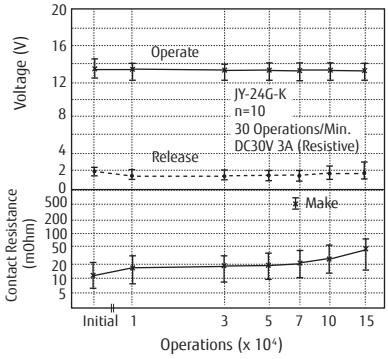
Mechanical Life Test



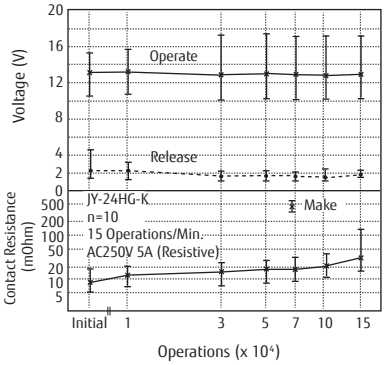
Electrical Life Test



Electrical Life Test



Electrical Life Test



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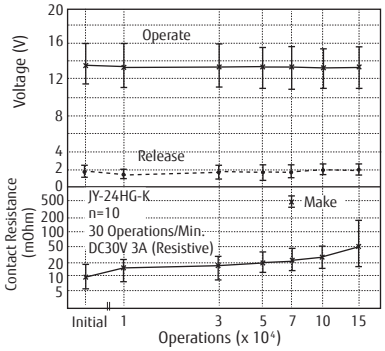

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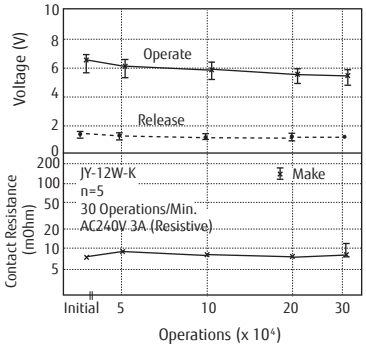

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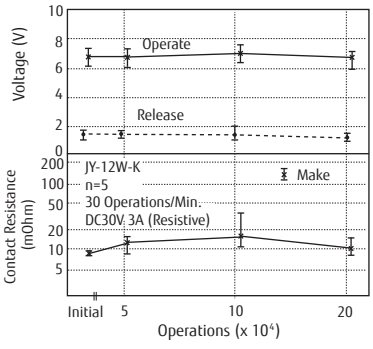

GENERAL INFORMATION

1. ROHS Compliance

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Use of Cadmium in electrical contacts is exempted as per Annex III of the RoHS directive 2001/65/EU. Please consider expiry date of exemption. Relays with Cadmium containing contacts are not to be used for new designs.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/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 for assembly: Sn-3.0Ag-0.5Cu.

Solder by Soldering Iron:

Soldering Iron	30-60W
Temperature:	maximum 350-360˚C
Duration:	maximum 3 sec.

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

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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