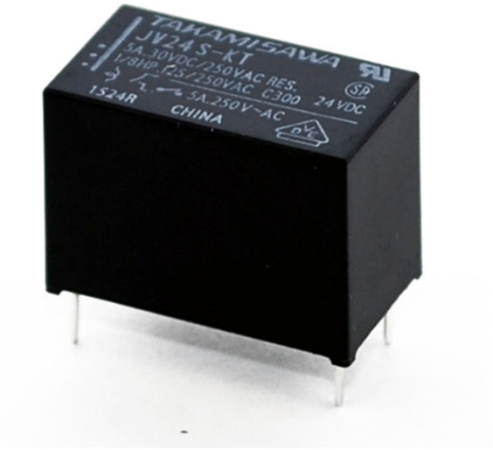
POWER RELAY

1 POLE – 5A Medium Load Control

JV Series

■ FEATURES



- UL, CSA, VDE, CQC recognized
- Low profile and space saving
  - Height: 12.5 mm
  - Mounting space: 175 mm^2
- High sensitivity in small package
  - Operating power: 0.113 to 0.13 W
  - Nominal power: 0.2 to 0.3 W
- High insulation with reinforced insulation system (between coil and contacts)
  - Insulation distance: 8 mm
  - Dielectric strength: 5,000 VAC
  - Surge strength: 10,000 V
- Plastic materials
  - UL94 flame class V-0
  - UL CTI level class 2
- Plastic sealed type, RTIII
- RoHS compliant

■ PARTNUMBER INFORMATION

[Example] JV - 12 S - K T

(a) (b) (c) (d) (e)

(a)	Relay type	JV	: JV Series
(b)	Coil rated voltage	12	: 3.....48VDC See coil rating table
(c)	Coil type	Nil S	: Standard type (300mW) : High sensitive type (200mW)
(d)	Enclosure	K	: Plastic sealed type, RTIII
(e)	Construction	T	: Insertion error preventing structure

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

■ SPECIFICATIONS

Item			Standard type JV-( )	High sensitive type JV-( )S
Contact data	Configuration		1 form A (SPST-NO)	
	Construction		Single	
	Material		Silver alloy	
	Resistance (initial)		Max. 70 mΩ at 6 VDC, 1 A	
	Contact rating		5A, 250VAC / 30VDC (resistive load)	
	Max. carrying current		5A	
	Max. switching voltage		250VAC / 150 VDC	
	Max. switching power		1,250VA / 150W	
	Max. switching current		5A	
	Min. switching load *		100 mA, 5 VDC	
Coil data	Rated power (at 20℃)		300mW	200mW
	Operate power (at 20℃)		130mW	113mW
	Operating temperature range		-40℃ to +70℃ (no frost)	
Timing data	Operate (at nominal voltage)		Max. 8 ms (without bounce)	
	Release (at nominal voltage)		Max. 4 ms (no diode)	
Life	Mechanical		Min. 5 x 10^6 operations	
	Electrical		Min. 100 x 10^3 operations	
Insulation	Resistance (initial)		Min 1,000MΩ at 500VDC	
	Dielectric strength	Open contacts	750VAC, 1 min.	
		Contacts to coil	5,000VAC, 1 min.	
	Surge strength	Contacts to coil	10,000V / 1.2 x 50μs standard wave	
Others	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.825 mm	
		Endurance	10 to 55Hz double amplitude 2.5 mm	
	Shock	Misoperation	Min. 100m/s² (11 ± 1ms)	
		Endurance	Min. 1,000m/s² (6 ± 1ms)	
	Weight		Approximately 4.3 g	
	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

Standard type (300mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance ±10% (Ω)	Must Operate Voltage * (VDC)	Must Release Voltage * (VDC)	Rated Power (mW)
3	3	30	1.98	0.15	300
5	5	83.3	3.3	0.25	
6	6	120	3.96	0.3	
9	9	270	5.94	0.45	
12	12	480	7.9	0.6	
18	18	1,080	11.9	0.9	
24	24	1,920	15.8	1.2	
48	48	7,680	31.7	2.4	

High sensitive type (200mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance ±10% (Ω)	Must Operate Voltage * (VDC)	Must Release Voltage * (VDC)	Rated Power (mW)
3	3	45	2.25	0.15	200
5	5	125	3.75	0.25	
6	6	180	4.5	0.3	
9	9	405	6.75	0.45	
12	12	720	9	0.6	
18	18	1,620	13.5	0.9	
24	24	2,880	18	1.2	

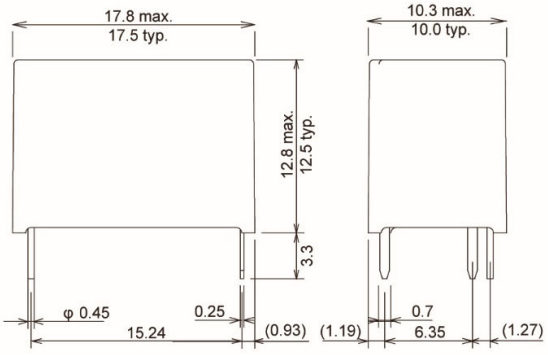
Note: All values in the tables are valid for 20° C and zero contact current.
* Specified operate values are valid for pulse wave voltage.
❗ Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

■ SAFETY STANDARDS

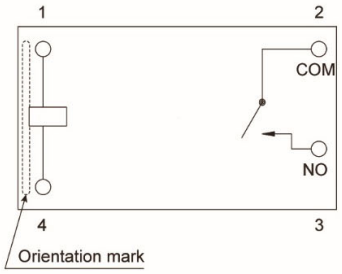
Type	Compliance	Contact rating
UL	UL 508, UL 873 E56140	Flammability: UL 94-V0 (plastics)
CSA	C22.2 No. 14 LR 35579	5A, 250 VAC / 30 VDC (resistive) 1/8 HP, 125VAC/250VAC Pilot duty: C300
VDE	IEC/EN61810-1 EN60335-1 clause 15.3; 16.3; 29.1; 29.2; 29.3 EN60730-1 clause 12.2; 13.2; 20.1; 20.2; 20.3	5A, 250VAC (cosφ=1)
CQC	GB/T21711.1, GB15092 170002164384	5A 250VAC (JV-( )S-KT)

■ DIMENSIONS

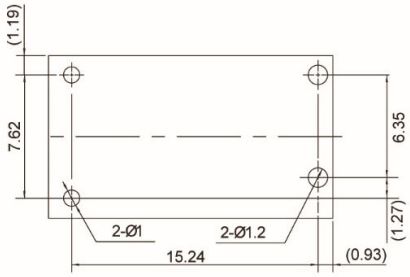
- Dimensions



- Schematics (BOTTOM VIEW)



- PC board mounting hole layout (BOTTOM VIEW)



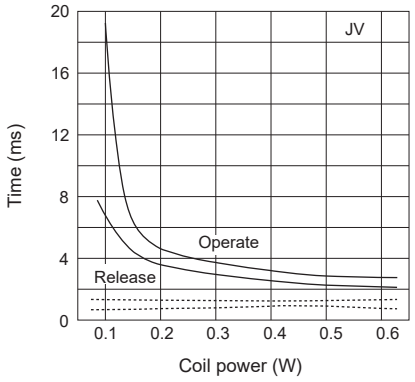
* Dimensions of the terminals do not include thickness of pre-solder.
* Dimensions do not include tolerances.
* Tolerance of PC board mounting hole layout : ±0.1 unless otherwise specified.

Unit: mm
( ): Reference

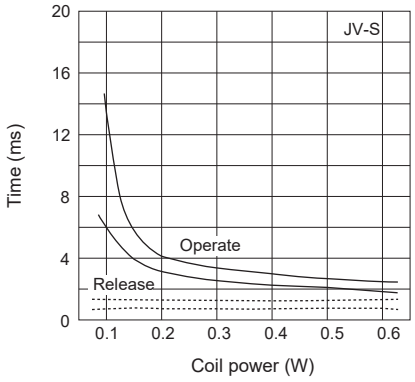
■ CHARACTERISTIC DATA

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

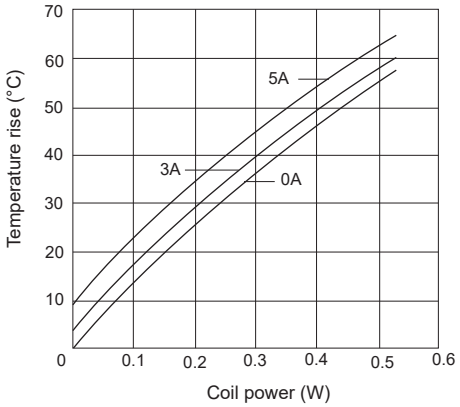
Timing (JV)



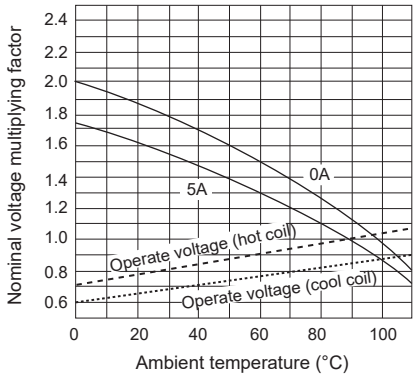
Timing (JV-S)



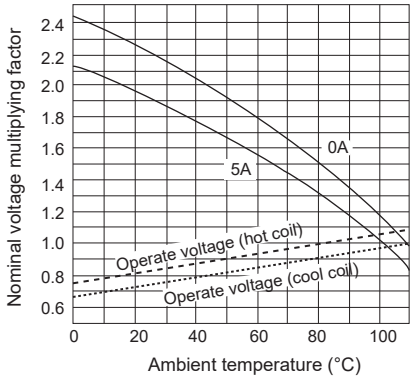
Coil temperature rise



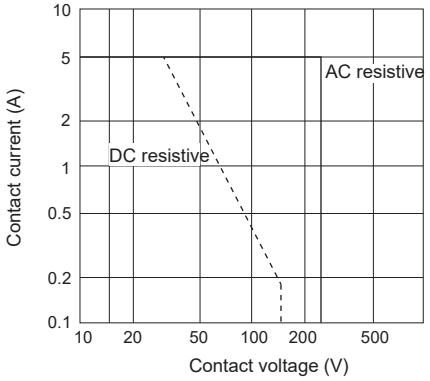
Operating range (JV)



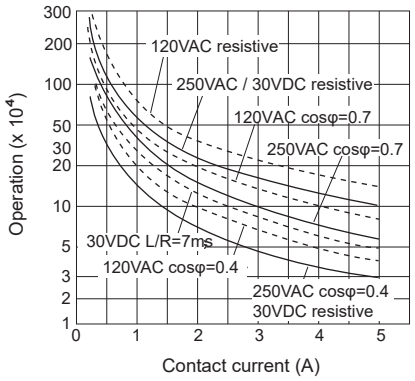
Operating range (JV-S)



Maximum switching power



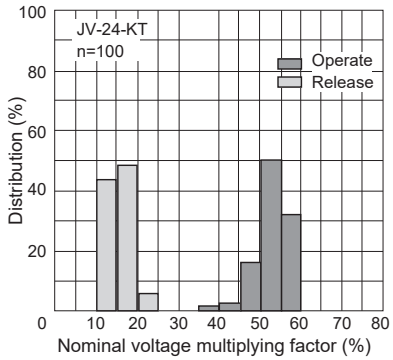
Life curves



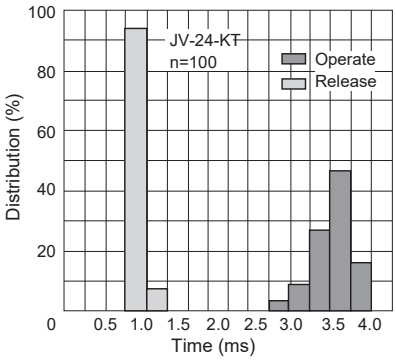
■ CHARACTERISTIC DATA

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

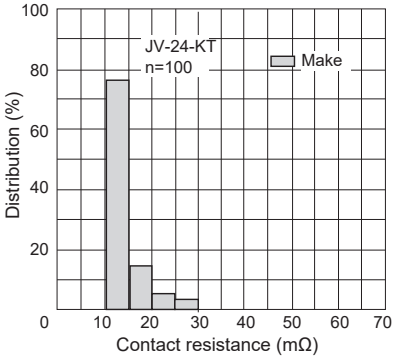
Distribution of operate/release voltage



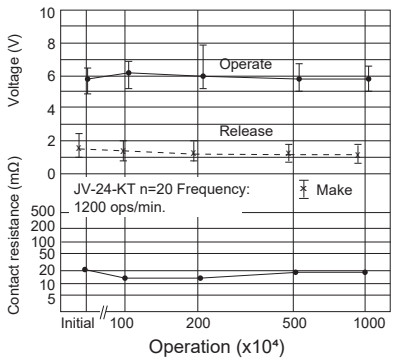
Distribution of operate/release time



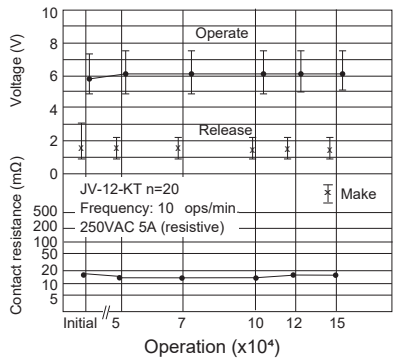
Distribution of contact resistance



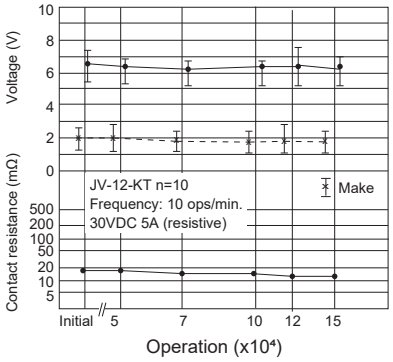
Mechanical life test



Electrical life test



Electrical life test



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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