

# PRODUCT DATASHEET

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**Datasheet begins on next page.**

# POWER RELAY

## 1 POLE—5 A (MEDIUM LOAD CONTROL)

### JV SERIES

RoHS compliant



#### ■ FEATURES

- UL, CSA, VDE, SEMKO, CQC recognized
- UL class B (130°C) insulation
- Low profile and space saving
  - Height: 12.5 mm
  - Mounting space: 175 mm<sup>2</sup>
- High sensitivity in small package
  - Operating power: 0.112 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
- Cadmium free contacts
- RoHS compliant since date code: 0434R  
Please see page 5 for more information



#### ■ ORDERING INFORMATION

[Example]       $\frac{JV}{(a)}$  -  $\frac{12}{(*)}$   $\frac{S}{(b)}$  -  $\frac{K}{(c)}$   $\frac{T}{(d)}$   $\frac{T}{(e)}$

(a)	Series Name	JV : JV Series
(b)	Nominal Voltage	Refer to the COIL DATA CHART
(c)	Coil Type	Nil : Standard type (300mW) S : High sensitivity type (200mW)
(d)	Enclosure	K : Plastic sealed type
(e)	Mounting	T : High density mounting type (avoid reverse insertion)

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

# JV SERIES

## ■ COIL DATA CHART

	MODEL	Nominal voltage	Coil resistance (±10%)	Must operate voltage*	Must release voltage*	Nominal power
Standard Type	JV- 3-KT	3 VDC	30 Ω	+1.98 VDC	+0.15 VDC	300 mW
	JV- 5-KT	5 VDC	83.3Ω	+3.3 VDC	+0.25 VDC	300 mW
	JV- 6-KT	6 VDC	120 Ω	+3.96 VDC	+0.3 VDC	300 mW
	JV- 9-KT	9 VDC	270 Ω	+5.94 VDC	+0.45 VDC	300 mW
	JV-12-KT	12 VDC	480 Ω	+7.9 VDC	+0.6 VDC	300 mW
	JV-24-KT	24VDC	1,920 Ω	+15.8 VDC	+1.2 VDC	300 mW
	JV-48-KT	48 VDC	7,680 Ω	+31.7 VDC	+2.4 VDC	300 mW
High Sensitivity Type	JV- 3S-KT	3 VDC	45 Ω	+2.25 VDC	+0.15 VDC	200 mW
	JV- 5S-KT	5 VDC	125 Ω	+3.75 VDC	+0.25 VDC	200 mW
	JV- 6S-KT	6 VDC	180 Ω	+4.5 VDC	+0.3 VDC	200 mW
	JV- 9S-KT	9 VDC	405 Ω	+6.75 VDC	+0.45 VDC	200 mW
	JV-12S-KT	12 VDC	720 Ω	+9.0 VDC	+0.6 VDC	200 mW
	JV-18S-KT	18 VDC	1,620 Ω	+13.5 VDC	+0.9 VDC	200 mW
	JV-24S-KT	24 VDC	2,880 Ω	+18.0 VDC	+1.2 VDC	200 mW

Note : All values in the table are measured at 20°C.

\*: Pulse operate

## ■ SPECIFICATIONS

Item		Standard Type		High Sensitivity Type	
		JV-( )		JV-( ) S	
Contact	Arrangement	1 form A (SPST-NO)			
	Material	Silver alloy			
	Configuration	Single type			
	Resistance (initial)	Maximum 70 mΩ (at 1 A 6 VDC)			
	Rating	5 A 250 VAC or 5 A 30 VDC (resistive load)			
	Maximum Carrying Current	5 A			
	Maximum Switching Power	1,250 VA, 150 W			
	Maximum Switching Voltage	250 VAC, 150 VDC			
	Maximum Switching Current	5 A			
	Minimum Switching Load*1	100 mA 5 VDC			
Coil	Nominal Power (at 20°C)	300 mW		200 mW	
	Operate Power (at 20°C)	130 mW		113 mW	
	Operating Temperature	-40°C to +70°C (no frost)			
Time Value	Operate (at nominal voltage)	Maximum 8 ms			
	Release (at nominal voltage)	Maximum 4 ms			
Life	Mechanical	5 × 10 <sup>6</sup> operations minimum			
	Electrical	1 × 10 <sup>5</sup> operations minimum (at contact rating)			
Other	Vibration	Misoperation	10 to 55 Hz (double amplitude of 1.65 mm)		
	Resistance	Endurance	10 to 55 Hz (double amplitude of 5.0 mm)		
	Shock	Misoperation	100 m/s <sup>2</sup> (11 ±1 ms)		
	Resistance	Endurance	1,000 m/s <sup>2</sup> (6 ±1 ms)		
	Weight	Approximately 4.3 g			

\*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 and expected reliability levels.

## ■ INSULATION

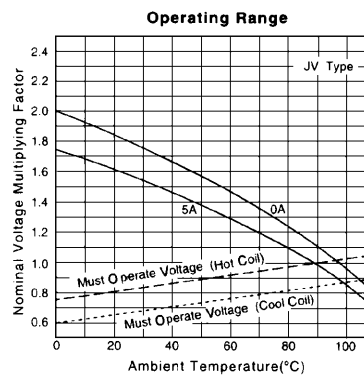
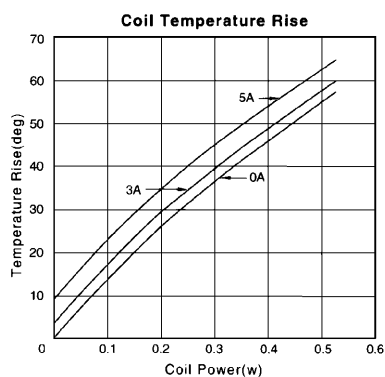
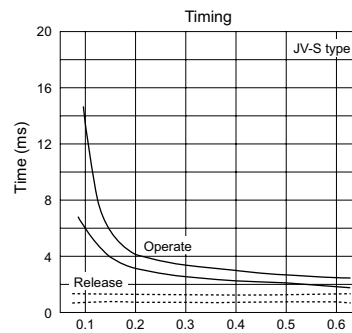
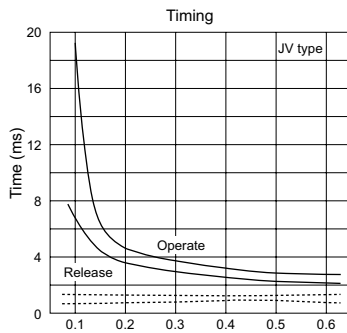
Item		Standard type	High sensitivity type
Resistance (500VDC)		Min. 1,000 MΩ	
Dielectric strength	open contacts	750 VAC 1min.	
	coil and contacts	5,000 VAC 1 min.	
Surge voltage		10,000V 1.2 x 50μs standard wave	

## ■ SAFETY STANDARD AND FILE NUMBERS

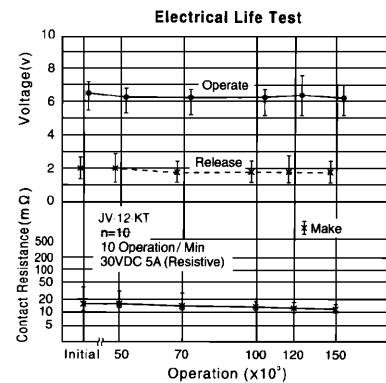
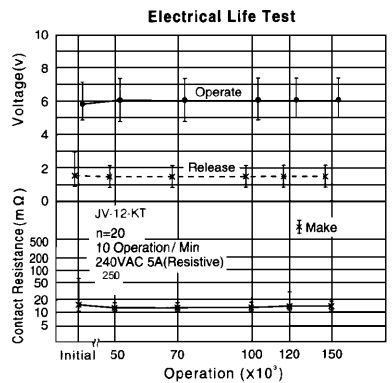
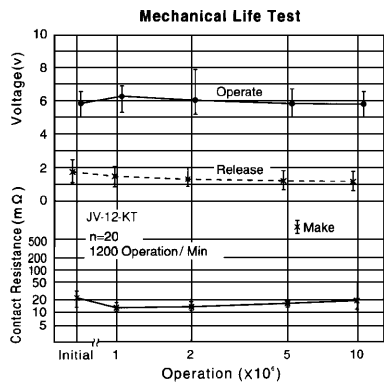
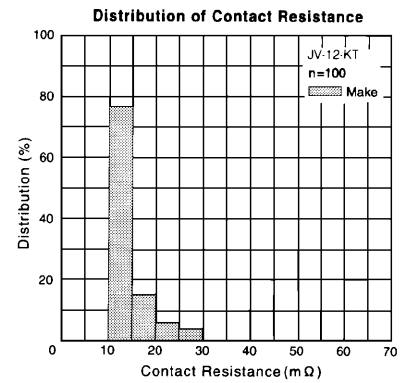
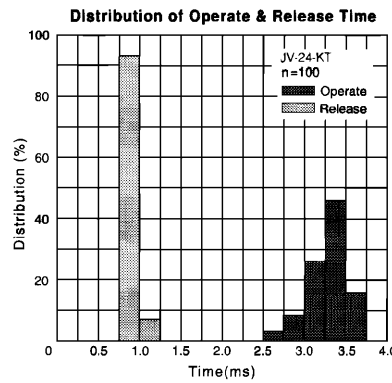
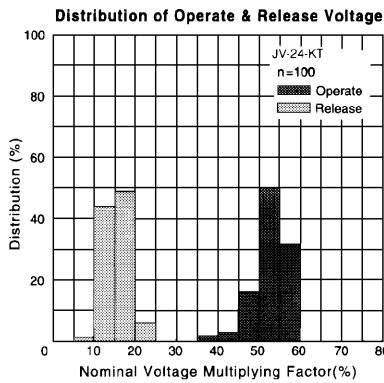
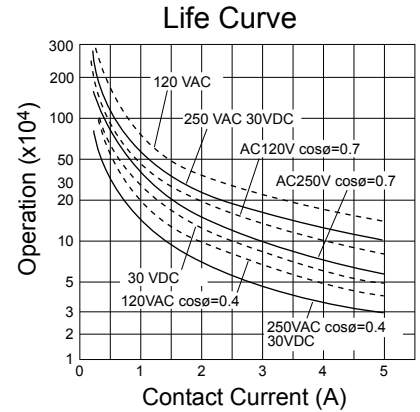
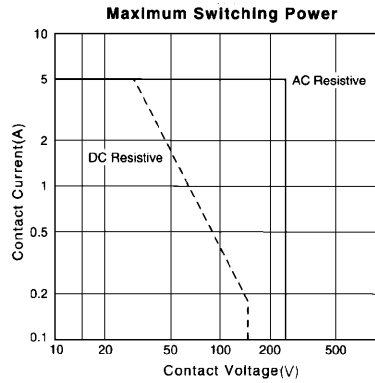
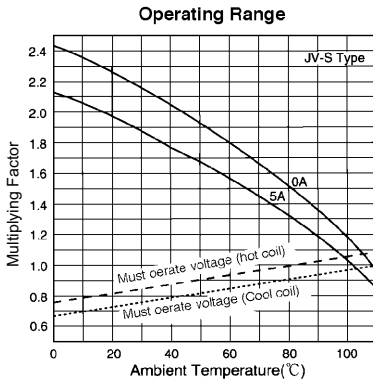
Type	Compliance	Contact rating
UL	UL 508, UL 873, E56140	Flammability: UL94V-0 (plastics) 5A, 250 VAC / 30 VDC (resistive) 1/8 HP, 125VAC/250VAC Pilot duty: C300
CSA	C22.2 No. 14, LR35579	
VDE	0435, 0631, 0700	

Also complies with SEMKO, CQC. Please contact sales office when SEMKO, CQC logo marking is necessary on the cover.

## ■ REFERENCE DATA



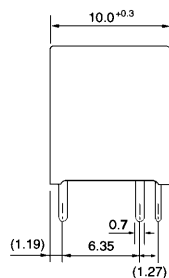
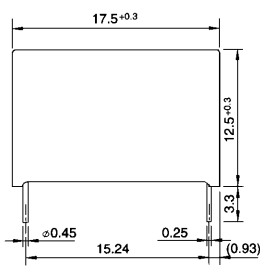
# JV SERIES



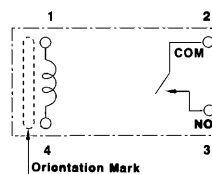
## DIMENSIONS

- Dimensions

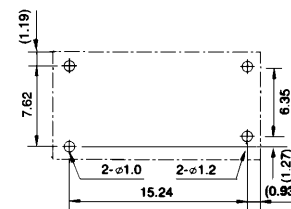
JV-KT type



- 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 IROHS-compliant now. 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. As of February 2005, Sn-3.0CuNi will be used for FTR-B3 and FTR-B4 series relays.
- Relays that are RoHS compliant do not contain the hazardous materials that are restricted by the RoHS directive. Hazardous materials are cadmium, lead, mercury, chromium VI, PBB, PBDE including pentaBDE and octaBDE (with a concentration level <0.1%).  
Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)
- It has been verified that using lead-free relays in leaded assembly processes will not cause any problems (compatible).
- "JEDEC STANDARD" and "LF" is marked on each outer and inner carton. (No marking on individual relays. Please refer to Lead Free Label Info).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.

### 2. Recommended Lead Free Solder Profile

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

#### Reflow Solder condition

**Flow Solder condition:**

Pre-heating: maximum 120°C  
Soldering: 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.

### 4. Tin Whisker

- SnAgCu and SnCuNi solder have a low risk of tin whisker. No considerable length whisker was found by our in-house tests.

### 5. Solid State Relays

- Each lead terminal will be changed from solder plating to Sn plating and Nickel plating. A layer of Nickel plating is between the terminal and Sn plating to avoid whisker.

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