

Surge withstand voltage:  
6kV  
1a/1c 30A power relays

## JT-V RELAYS



PCB type



TMP type

RoHS compliant

### FEATURES

- Surge withstand voltage: 6,000 V
- High switching capacity — 30 A for 1 Form A
- 2 contact arrangements — 1 Form A or 1 Form C
- “TMP” types available
- UL/C-UL recognized
- Class F type standard

### TYPICAL APPLICATIONS

- Oven
- Heating & ventilation
- Home appliance

## ORDERING INFORMATION

JTV  -  -  -

Contact arrangement

1a: 1 Form A

1: 1 Form C

Protective construction

S: Sealed type

G: Dust cover type

Mounting classification

TMP: TMP type

PA: PCB type

Nominal coil voltage, DC

12V, 18V, 24V, 48V

Notes: 1. Certified by UL/C-UL

2. 5 V, 6 V, 9 V DC types are also available. Please contact us for details.

## TYPES

### 1. 1 Form A Dust cover type

Nominal coil voltage	Part No.	
	PCB type	TMP type
12V DC	JTV1aG-PA-12V	JTV1aG-TMP-12V
18V DC	JTV1aG-PA-18V	JTV1aG-TMP-18V
24V DC	JTV1aG-PA-24V	JTV1aG-TMP-24V
48V DC	JTV1aG-PA-48V	JTV1aG-TMP-48V

Standard packing: PCB type: Carton: 50 pcs.; Case: 500 pcs.

TMP type: Carton: 50 pcs.; Case: 300 pcs.

### 2. 1 Form C Dust cover type

Nominal coil voltage	Part No.	
	PCB type	TMP type
12V DC	JTV1G-PA-12V	JTV1G-TMP-12V
18V DC	JTV1G-PA-18V	JTV1G-TMP-18V
24V DC	JTV1G-PA-24V	JTV1G-TMP-24V
48V DC	JTV1G-PA-48V	JTV1G-TMP-48V

Standard packing: PCB type: Carton: 50 pcs.; Case: 500 pcs.

TMP type: Carton: 50 pcs.; Case: 300 pcs.

**3. 1 Form A Sealed type**

Nominal coil voltage	Part No.	
	PCB type	TMP type
12V DC	JTV1aS-PA-12V	JTV1aS-TMP-12V
18V DC	JTV1aS-PA-18V	JTV1aS-TMP-18V
24V DC	JTV1aS-PA-24V	JTV1aS-TMP-24V
48V DC	JTV1aS-PA-48V	JTV1aS-TMP-48V

Standard packing: PCB type: Carton: 50 pcs.; Case: 500 pcs.  
TMP type: Carton: 50 pcs.; Case: 300 pcs.

**4. 1 Form C Sealed type**

Nominal coil voltage	Part No.	
	PCB type	TMP type
12V DC	JTV1S-PA-12V	JTV1S-TMP-12V
18V DC	JTV1S-PA-18V	JTV1S-TMP-18V
24V DC	JTV1S-PA-24V	JTV1S-TMP-24V
48V DC	JTV1S-PA-48V	JTV1S-TMP-48V

Standard packing: PCB type: Carton: 50 pcs.; Case: 500 pcs.  
TMP type: Carton: 50 pcs.; Case: 300 pcs.

**RATING**

**1. Coil data**

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal operating current [ $\pm 10\%$ ] (at 20°C 68°F)	Coil resistance [ $\pm 10\%$ ] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
12V DC	75%V or less of nominal voltage (Initial)	10%V or more of nominal voltage (Initial)	83.3mA	144 $\Omega$	1,000mW	120%V of nominal voltage
18V DC			55.6mA	324 $\Omega$		
24V DC			41.7mA	576 $\Omega$		
48V DC			20.8mA	2,304 $\Omega$		

**2. Specifications**

Characteristics	Item	Specifications	
Contact	Contact material	AgSnO <sub>2</sub> type	
	Arrangement	1 Form A          1 Form C	
	Contact resistance (Initial)	Max. 50 m $\Omega$ (By voltage drop 6 V DC 1A)	
Rating	Nominal switching capacity (resistive load)	20A 277V AC          N.C.: 10A 277V AC, N.O.: 20A 277V AC	
	Max. switching power (resistive load)	8,310VA (30A 277V AC)          N.C.: 2,770VA, N.O.: 5,540VA	
	Max. switching voltage	277V AC	
	Max. switching current	30A          N.C.: 10A, N.O.: 20A	
	Nominal operating power	Approx. 1,000mW	
	Min. switching capacity (reference value)*1	100mA, 5V DC	
Electrical characteristics	Insulation resistance (Initial)	Min. 100M $\Omega$ (at 500V DC) Measurement at same location as "Breakdown voltage" section.	
	Breakdown voltage (Initial)	Between open contacts	1,200 Vrms for 1 min. (Detection current: 10 mA)
		Between contact and coil	3,500 Vrms for 1 min. (Detection current: 10 mA)
	Surge breakdown voltage*2 (Between contact and coil) (Initial)	6,000 V	
	Operate time (at nominal voltage) (at 20°C 68°F)	Max. 15 ms (excluding contact bounce time.)	
Release time (at nominal voltage) (at 20°C 68°F)	Max. 10 ms (excluding contact bounce time) (Without diode)		
Mechanical characteristics	Shock resistance	Functional	Min. 98 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10 $\mu$ s.)
		Destructive	Min. 980 m/s <sup>2</sup> (Half-wave pulse of sine wave: 6 ms.)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.5 mm (Detection time: 10 $\mu$ s.)
		Destructive	10 to 55 Hz at double amplitude of 2 mm
Expected life	Mechanical	Min. 1 $\times 10^7$	
	Electrical (at 20 times/min.)*3	Min. 1 $\times 10^5$ (20A 277V AC at resistive load)          N.O.: Min. 1 $\times 10^5$ (20A 277V AC at resistive load)          N.C.: Min. 1 $\times 10^5$ (10A 277V AC at resistive load)	
Conditions	Conditions for operation, transport and storage*4	Ambient temperature: -55°C to +85°C -67°F to +185°F, Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
	Max. operating speed	20 times/min. (at nominal switching capacity)	
Unit weight		PCB type: Approx. 25 g .88 oz TMP type: Approx. 30 g 1.06 oz	

\* Specifications will vary with foreign standards certification ratings.

Notes: \*1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

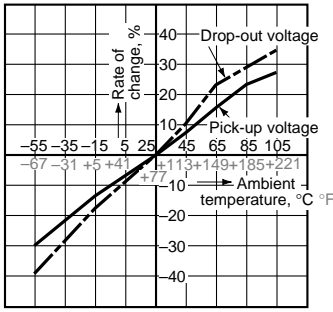
\*2. Wave is standard shock voltage of  $\pm 1.2 \times 50 \mu$ s according to JEC-212-1981

\*3. In order to obtain the full rated life cycles, the relay should be properly vented by removing the vent nib. More detail, please look at caution for NOTES.

\*4. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.

## REFERENCE DATA

1. Change of rate of pick-up and drop-out voltage (at 20°C 68°F)  
 Sample: JTV1S-TMP-24V (6 pcs.)



2. Operate/release time  
 Sample: JTV1S-TMP-24V



3. Operate/release time  
 Sample: JTV1aS-PA-24V



4. Distribution frequency of pick-up voltage (at 20°C 68°F)  
 Sample: JTV1S-TMP-12V (100 pcs.)



5. Distribution frequency of drop-out voltage (at 20°C 68°F)  
 Sample: JTV1S-TMP-12V (100 pcs.)



6.-(1) Coil temperature rise (TMP type)\*  
 Ambient temperature: 25°C 77°F  
 Sample: JTV1aS-TMP-12V (6 pcs.)



6.-(2) Coil temperature rise (TMP type)\*  
 Ambient temperature: 85°C 185°F  
 Sample: JTV1aS-TMP-12V (6 pcs.)



**DIMENSIONS** (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

**1. PCB type**

**CAD Data**



**CAD Data**



**2. TMP type**

**CAD Data**



**CAD Data**



**SAFETY STANDARDS**

Item	UL/C-UL (Recognized)	
	File No.	Contact rating
1 Form A	E43028	30A 277V AC, 30A 28V DC, 2HP 250V AC
1 Form C	N.O.	20A 277V AC, 20A 28V DC, 2HP 250V AC
	N.C.	10A 277V AC, 10A 28V DC, ½HP 250V AC

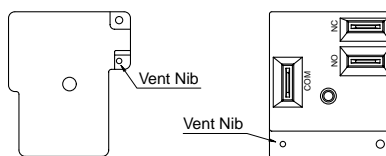
\* CSA standard: Certified by C-UL

**NOTES**

**1. Electrical life**

In order to obtain the full rated life cycles, the relay should be properly vented by removing the vent nib after the soldering/washing process.

- PCB type
- TMP type



**For Cautions for Use.**

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#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.