

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

# JT-V RELAYS



PCB type



TMP type

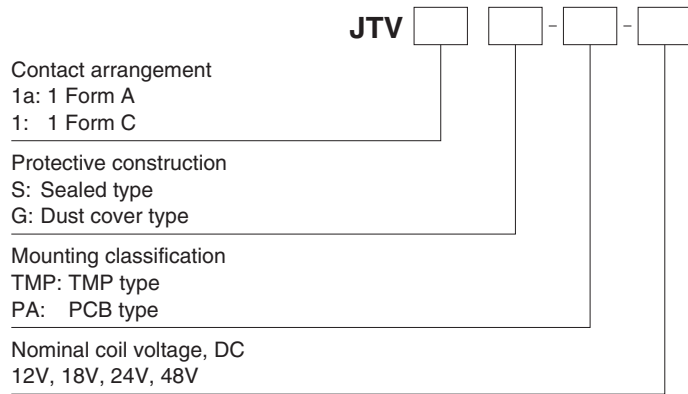
## FEATURES

- 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 types standard
- Clearance, contact to coil: min. 6.4mm
- Creepage, contact to coil: min. 9.5mm

## TYPICAL APPLICATIONS

- Oven
- Heating & ventilation
- Home appliance

## ORDERING INFORMATION



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.

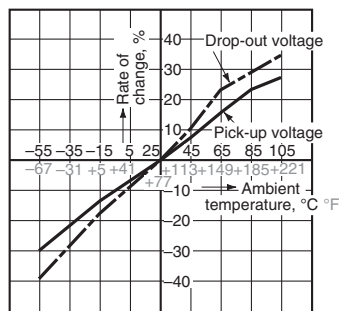
\*2. Wave is standard shock voltage of  $\pm 1.2 \times 50 \mu$ s according to JEC-212-1981

\*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.

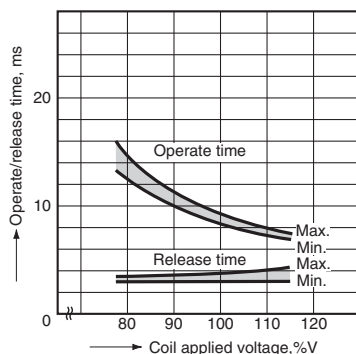
\*4. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to "6. Usage, Storage and Transport Conditions" in AMBIENT ENVIRONMENT section in Relay Technical Information.

## REFERENCE DATA

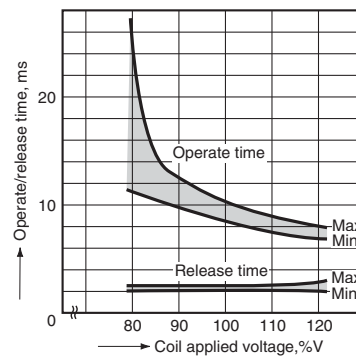
1. Change of rate of pick-up and drop-out voltage (at 20°C 68°F)  
 Sample: JTV1S-TMP-24V (6 pcs.)



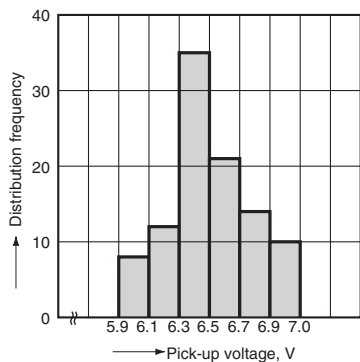
2. Operate/release time  
 Sample: JTV1S-TMP-24V



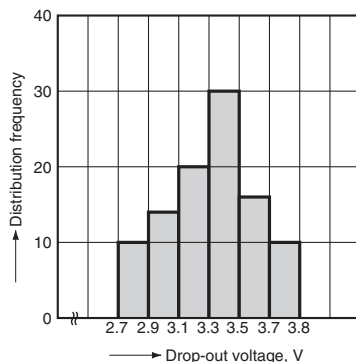
3. Operate/release time  
 Sample: JTV1aS-PA-24V



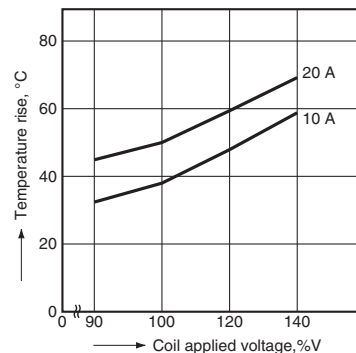
4. Distribution frequency of pick-up voltage (at 20°C 68°F)  
 Sample: JTV1S-TMP-12V (100 pcs.)



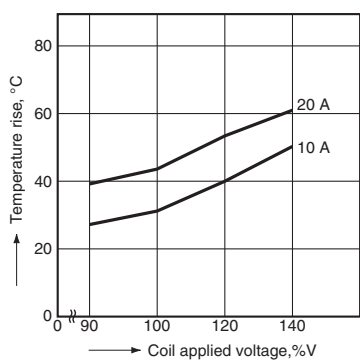
5. Distribution frequency of drop-out voltage (at 20°C 68°F)  
 Sample: JTV1S-TMP-12V (100 pcs.)



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.)

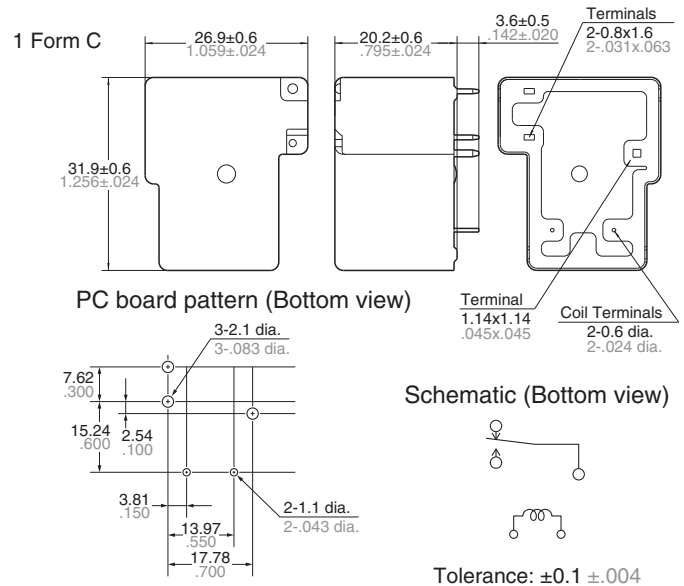
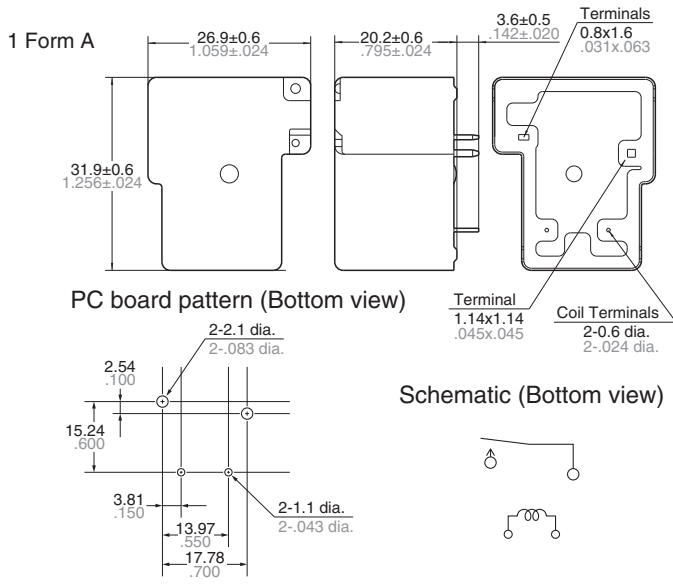


**DIMENSIONS** (mm inch)

Download [CAD Data](#) from our Web site.

**1. PCB type**

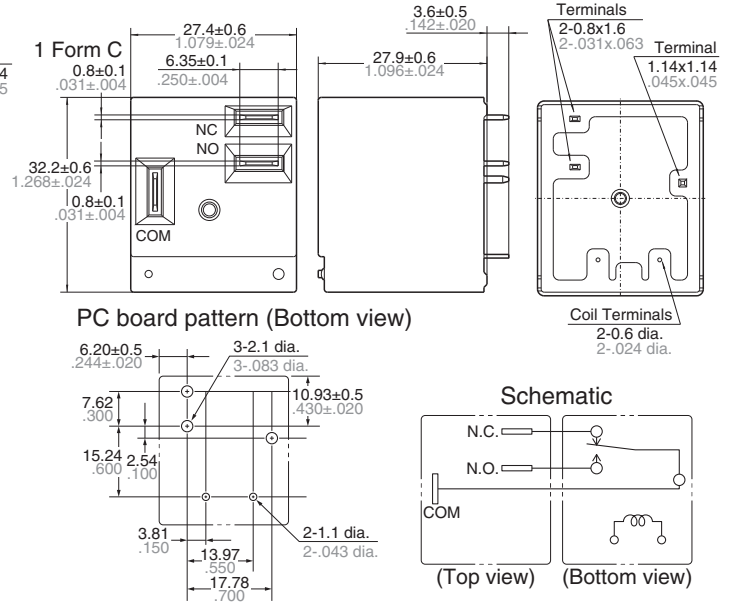
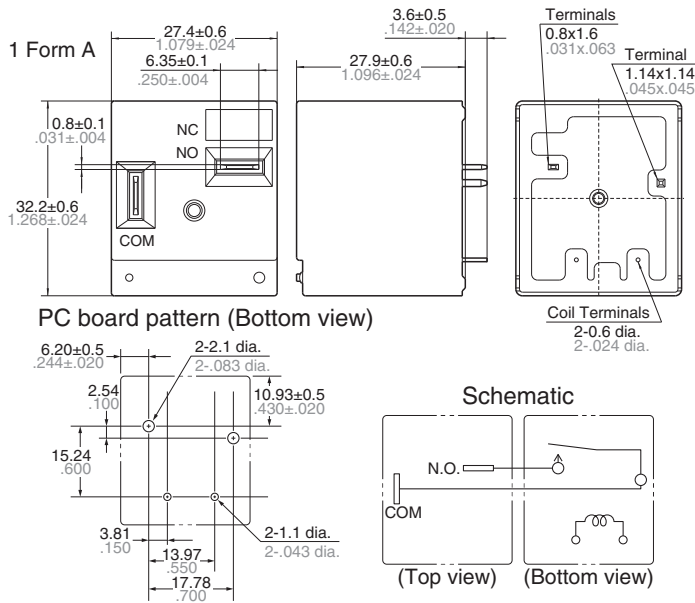
[CAD Data](#)



Tolerance: ±0.1 ±.004

**2. TMP type**

[CAD Data](#)



Tolerance: ±0.1 ±.004

**SAFETY STANDARDS**

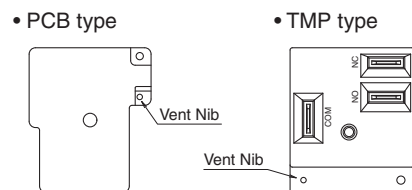
Item	UL/C-UL (Recognized)	
	File No.	Contact rating
1 Form A	E43028	30A 277V AC, 30A 28V DC, 2HP 250V AC
1 Form C	N.O.	E43028 20A 277V AC, 20A 28V DC, 2HP 250V AC
	N.C.	E43028 10A 277V AC, 10A 28V DC, 1/2HP 250V AC

\* 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.



For Cautions for Use, see [Relay Technical Information](#).