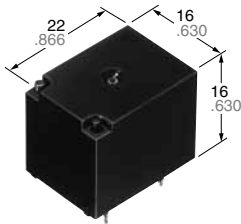




### Cubic type 1a/1c 10A power relays

# JS RELAYS



**RoHS compliant**

Protective construction: Flux-resistant type/Sealed type

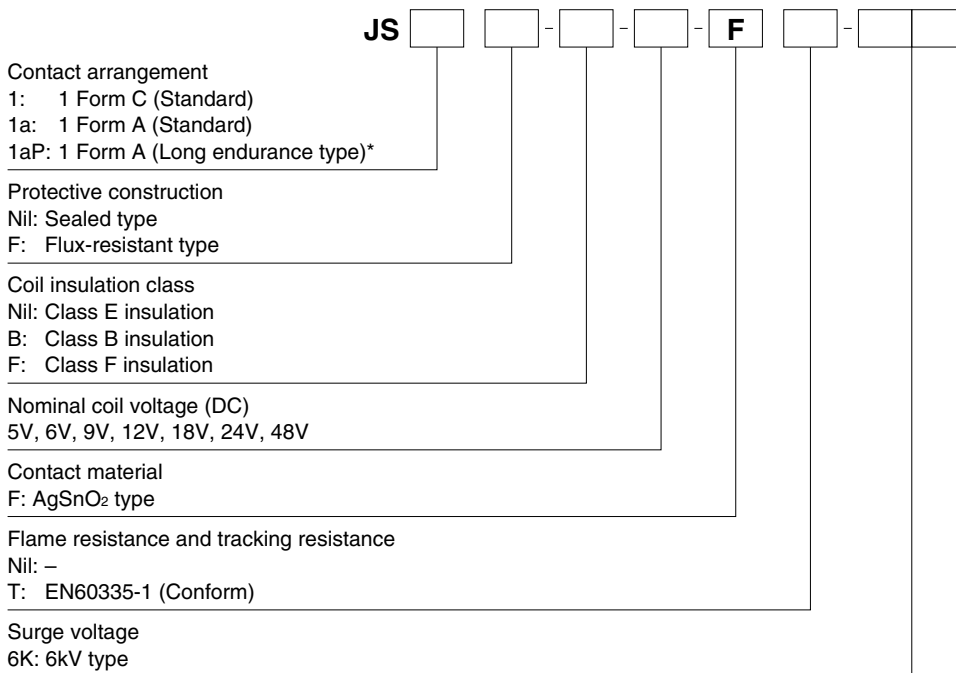
### FEATURES

1. Miniature size with universal terminal footprint
2. High contact capacity: 10 A
3. TV-5 type available (Standard type)  
1 Form A type → TV-5  
1 Form C type → TV-5 (N.O. side only)
4. VDE, TÜV also approved
5. Sealed construction for automatic cleaning (Standard type)
6. Class B and F coil insulation type also available
7. EN60335-1 GWT compliant (Tested by VDE) type available
8. Surge voltage 6 kV type also available

### TYPICAL APPLICATIONS

1. Home appliances  
Air conditioner, heater, etc.
2. Office machines  
PPC, facsimile, etc.
3. Vending machines

### ORDERING INFORMATION



\* 1 Form A long endurance type is Flux-resistant type only (Class B insulation only).

## TYPES

Contact arrangement	Nominal coil voltage	Sealed type	Flux-resistant type
		Part No.	Part No.
1 Form A (Standard)	5V DC	JS1a-5V-F	JS1aF-5V-F
	6V DC	JS1a-6V-F	JS1aF-6V-F
	9V DC	JS1a-9V-F	JS1aF-9V-F
	12V DC	JS1a-12V-F	JS1aF-12V-F
	18V DC	JS1a-18V-F	JS1aF-18V-F
	24V DC	JS1a-24V-F	JS1aF-24V-F
	48V DC	JS1a-48V-F	JS1aF-48V-F
1 Form A Long endurance type	5V DC	–	JS1aPF-B-5V-F
	6V DC	–	JS1aPF-B-6V-F
	9V DC	–	JS1aPF-B-9V-F
	12V DC	–	JS1aPF-B-12V-F
	18V DC	–	JS1aPF-B-18V-F
	24V DC	–	JS1aPF-B-24V-F
	48V DC	–	JS1aPF-B-48V-F
1 Form C (Standard)	5V DC	JS1-5V-F	JS1F-5V-F
	6V DC	JS1-6V-F	JS1F-6V-F
	9V DC	JS1-9V-F	JS1F-9V-F
	12V DC	JS1-12V-F	JS1F-12V-F
	18V DC	JS1-18V-F	JS1F-18V-F
	24V DC	JS1-24V-F	JS1F-24V-F
	48V DC	JS1-48V-F	JS1F-48V-F

Standard packing Carton: 100 pcs. Case: 500 pcs.

Notes: 1. Class B and F coil insulation types available.

Ex) JS1aF-B-12V-F, JS1aF-F-12V-F

2. 1 Form A long endurance type is Flux-resistant type only (Class B insulation only).

3. EN60335-1 GWT compliant types available. When ordering, please add suffix "T".

Ex) JS1aF-B-12V-F-T

4. Surge voltage 6kV types available. When ordering, please add suffix "6K" (except for Long endurance type and EN60335-1 GWT compliant type).

Ex) JS1aF-B-12V-F-6K

## 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 [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power (at 20°C 68°F)	Max. applied voltage (at 70°C 158°F)
5V DC	70%V or less of nominal voltage (Initial)	10%V or more of nominal voltage (Initial)	72 mA	69.4Ω	360mW	130%V of nominal voltage [When using relays at 85°C 185°F, see Note*]
6V DC			60 mA	100 Ω		
9V DC			40 mA	225 Ω		
12V DC			30 mA	400 Ω		
18V DC			20 mA	900 Ω		
24V DC			15 mA	1,600 Ω		
48V DC			7.5mA	6,400 Ω		

Note: \* When using relays in a high ambient temperature, consider the pick-up voltage rise due to the high temperature (a rise of approx. 0.4% V for each 1°C 33.8°F with 20°C 68°F as a reference) and use a coil impressed voltage that is within the maximum applied voltage range.

**2. Specifications**

Characteristics	Item	Specifications	
Contact	Contact material	AgSnO <sub>2</sub> type	
	Contact resistance (Initial)	Max. 100 mΩ (By voltage drop 6 V DC 1A)	
	Arrangement	1 Form A, 1 Form C 1 Form A Long endurance type	
Rating	Nominal switching capacity (resistive load)	10 A 250 V AC (NO), 10 A 125 V AC, 6 A 277 V AC, 5 A 30 V DC 10 A 250 V AC, 10 A 277 V AC, 5 A 30 V DC	
	Max. switching power (resistive load)	2,500VA 150W (NO), 1,662VA 150W (NC) 2,770VA 150W	
	Max. switching voltage	250V AC, 100V DC (0.5A)	
	Max. switching current	10A (AC), 5A (DC)	
	Min. switching capacity (reference value)*1	100mA, 5V DC	
Electrical characteristics	Insulation resistance (Initial)	Min. 100MΩ (at 500V DC) Measurement at same location as "Breakdown voltage" section.	
	Breakdown voltage (Initial)	Between open contacts	750 Vrms for 1 min. (Detection current: 10 mA)
		Between contact and coil	1,500 Vrms for 1 min. (Detection current: 10 mA)
	Operate time (at nominal voltage) (at 20°C 68°F)	Max. 10 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	98 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)
		Destructive	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 1.6 mm (Detection time: 10μs.)
		Destructive	10 to 55 Hz at double amplitude of 2 mm
Expected life	Mechanical (at 180 times/min.)	Min. 10 <sup>7</sup>	
Conditions	Conditions for operation, transport and storage*2	-40°C to +70°C -40°F to +158°F (Class E insulation) -40°C to +85°C -40°F to +185°F (Class B insulation)*3 -40°C to +105°C -40°F to +221°F (Class F insulation)*3 Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	-40°C to +105°C -40°F to +221°F*3; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)
Unit weight		Approx. 12 g .423 oz	

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. 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.  
 \*3. When using relays in a high ambient temperature, consider the pick-up voltage rise due to the high temperature (a rise of approx. 0.4% V for each 1°C 33.8°F with 20°C 68°F as a reference) and use a coil impressed voltage that is within the maximum applied voltage range.

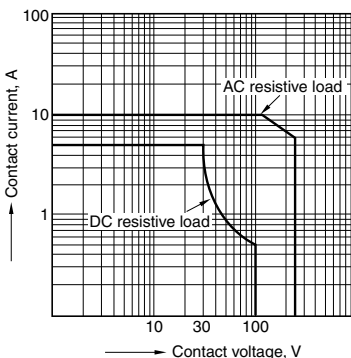
**3. Electrical life**

Condition: Resistive load, at 20°C 68°F, at 20 times/min.

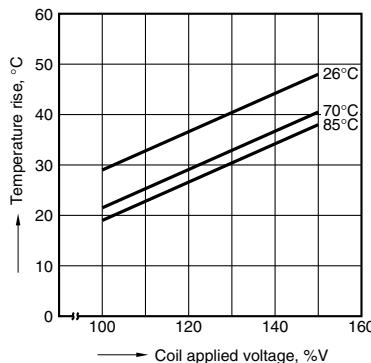
Type	Switching capacity	No. of operations
1 Form A, 1 Form C	10A 125V AC	min. 1×10 <sup>5</sup>
	6A 277V AC	
	5A 30V DC	
N.O.	10A 250V AC	min. 5×10 <sup>4</sup>
1 Form A Long endurance type	10A 277V AC	min. 2×10 <sup>5</sup>
	10A 277V AC	min. 1.5×10 <sup>5</sup> (at 105°C 221°F)
	5A 30V DC	min. 1×10 <sup>5</sup>

**REFERENCE DATA**

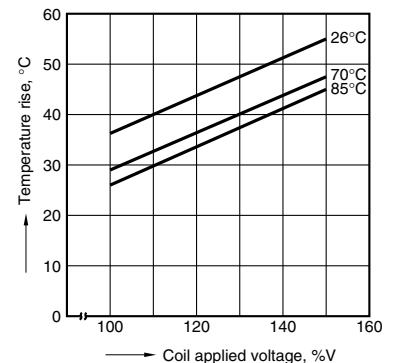
1. Maximum value for switching capacity



2.-(1) Coil temperature rise  
 Sample: JS1a-24V-F  
 Measured portion: Inside the coil  
 Contact current: 5 A

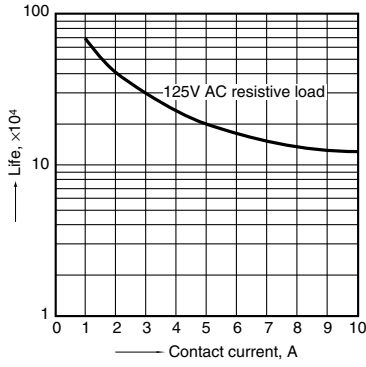


2.-(2) Coil temperature rise  
 Sample: JS1a-24V-F  
 Measured portion: Inside the coil  
 Contact current: 10 A



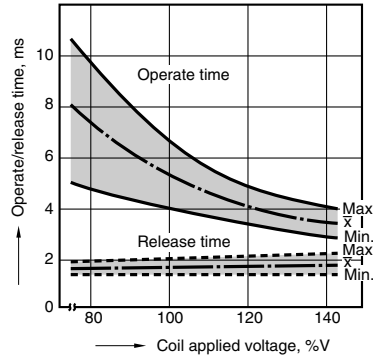
3. Life curve

Ambient temperature: Room temperature



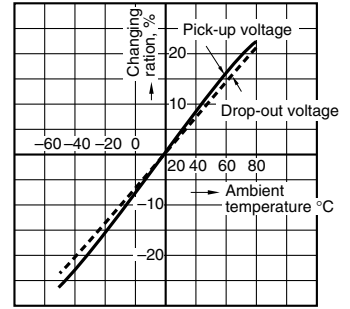
4. Operate/release time

Sample: JS1-12V-F, 25 pcs.



5. Ambient temperature characteristics

Sample: JS1-12V-F, 6 pcs.



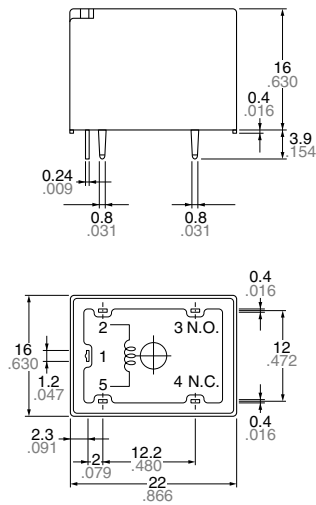
**DIMENSIONS** (mm inch)

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

**CAD Data**



External dimensions



Note: Terminal No. 4 is only for Standard 1 Form C type

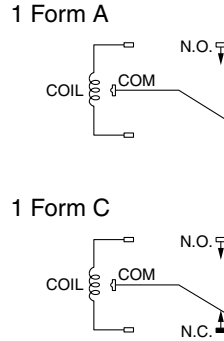
Dimension:

Less than 1mm .039inch:  
 Min. 1mm .039inch less than 3mm .118 inch:  
 Min. 3mm .118 inch:

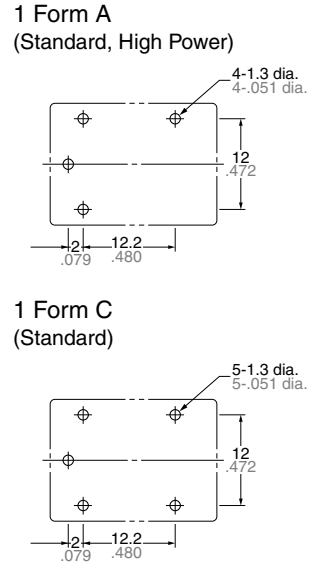
General tolerance

±0.1 ±.004  
 ±0.2 ±.008  
 ±0.3 ±.012

Schematic (Bottom view)



PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

## SAFETY STANDARDS

Type	UL/C-UL (Recognized)				CSA (Certified)		
	File No.	Contact rating	Tempreture	Cycles	File No.	Contact rating	Cycles
Standard type	E43028	10A 125V AC (N.C.)	–	–	LR26550	10A 125V AC	10 <sup>5</sup>
		6A 277V AC	–	10 <sup>5</sup>		12A 125V AC	10 <sup>5</sup>
		5A 30V DC	–	10 <sup>5</sup>		6A 277V AC	10 <sup>5</sup>
		1/8HP 125V AC	–	10 <sup>5</sup>		5A 30V DC	10 <sup>5</sup>
		1/8HP 277V AC	–	10 <sup>4</sup>		1/8HP 125V AC	10 <sup>5</sup>
		12A 125V AC	70°C 158°F	10 <sup>5</sup>		1/8HP 277V AC	10 <sup>5</sup>
		10A 125V AC (N.O.)	85°C 185°F	10 <sup>5</sup>		–	–
		4FLA/4LRA 240V AC (N.O.)	105°C 221°F	10 <sup>5</sup>		–	–
		2FLA/4LRA 240V AC (N.C.)	105°C 221°F	3×10 <sup>4</sup>		–	–
		1/3HP 277V AC (N.O.)	75°C 167°F	10 <sup>5</sup>		–	–

Type	VDE (Certified)				TUV (Certified)		
	File No.	Contact rating	Tempreture	Cycles	File No.	Contact rating	Cycles
Standard type	40011475	10A 125V AC (cosφ=1.0)	70°C 158°F	10 <sup>4</sup>	B 12 09	10A 125V AC (cosφ=1.0)	10 <sup>5</sup>
		6A 250V AC (cosφ=1.0)	70°C 158°F	10 <sup>5</sup>	13461 336	6A 250V AC (cosφ=1.0)	10 <sup>5</sup>

\* Standard: UL, CSA, VDE (Long endurance type and EN60335-1 GWT compliant type)  
 UL, CSA (Surge voltage 6kV type)

## NOTES

1. For cautions for use, please read “GENERAL APPLICATION GUIDELINES”.

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Please contact .....

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