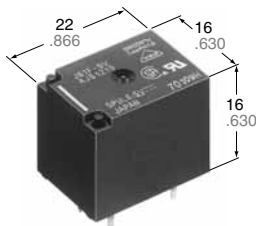


## MINIATURE PC BOARD TYPE POWER RELAY

## JS RELAYS



mm inch

### FEATURES

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

### About Cd-free contacts

We have introduced Cadmium free type products to reduce Environmental Hazardous Substances. (The suffix "F" should be added to the part number)  
Please replace parts containing Cadmium with Cadmium-free products and evaluate them with your actual application before use because the life of a relay depends on the contact material and load.

RoHS Directive compatibility information  
<http://www.nais-e.com/>

## SPECIFICATIONS

### Contact

Types		Standard type	Long endurance type
Arrangement		1 Form A, 1 Form C	1 Form A
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)		100 mΩ	
Contact material		AgSnO <sub>2</sub> type	
Rating (resistive load)	Nominal switching capacity	10 A 250 V AC 10 A 125 V AC 6 A 277 V AC	10 A 250 V AC 10 A 125 V AC 10 A 277 V AC
	Max. switching power	2,500 VA	
	Max. switching voltage	250 V AC, 100 V DC	
	Max. switching current	10 A (AC), 5 A (DC)	
Min. switching capacity <sup>#1</sup>		100 mA, 5 V DC	
Expected life (min. ope.)	Mechanical (at 180 cpm)	10 <sup>7</sup>	
	Electrical at 10 A 125 V AC, 6 A 277 V AC resistive (standard) 10 A 277 V AC resistive (High power)	1×10 <sup>5</sup>	2×10 <sup>5</sup>
	10 A 250 V AC resistive (Standard: at 20 cpm) (High power: at 20 cpm, 105°C 221°F)**	5 × 10 <sup>4</sup> (No contact only)	1.2 × 10 <sup>5</sup>

\*\* Holding voltage should be 60% V of nominal voltage

### Coil

Nominal operating power	360 mW
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<sup>#1</sup> 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.

### Remarks

\*1 Detection current: 10mA

\*2 Excluding contact bounce time

### Characteristics

Max. operating speed		20 cpm	
Types		Standard type	Long endurance type
Initial insulation resistance		Min. 100 MΩ (at 500 V DC)	
Initial breakdown voltage*1	Between open contacts	750 Vrms for 1 min.	
	Between contacts and coil	1,500 Vrms for 1 min.	
Operate time*2 (at nominal voltage)		Max. 10 ms	
Release time (without diode)*2 (at nominal voltage)		Max. 10 ms	
Temperature rise (at nominal voltage)		Max. 35°C, resistive, nominal voltage applied to coil. Contact carrying current: 10A, at 70°C 158°F	
Shock resistance	Functional*3	98 m/s <sup>2</sup> {10 G}	
	Destructive*4	980 m/s <sup>2</sup> {100 G}	
Vibration resistance	Functional*5	10 to 55 Hz at double amplitude of 1.6 mm	
	Destructive	10 to 55 Hz at double amplitude of 2 mm	
Conditions for operation, transport and storage*6 (Not freezing and condensing at low temperature)	Ambient temp.*7	-40°C to +85°C -40°F to +185°F	-40°C to +105°C -40°F to +221°F
	Humidity	5 to 85% R.H.	
Unit weight		Approx. 12 g .423 oz	

\*3 Half-wave pulse of sine wave: 11ms; detection time: 10μs

\*4 Half-wave pulse of sine wave: 6ms

\*5 Detection time: 10μs

\*6 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT

\*7 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 allowable voltage range.

## TYPICAL APPLICATIONS

1. Home appliances  
Air conditioner, heater, etc.
2. Automotive  
Power-window, car antenna, door-lock, etc.
3. Office machines  
PPC, facsimile, etc.
4. Vending machines

# ORDERING INFORMATION

Ex. JS 1a F B 12V F

Contact arrangement	Protective construction	Coil insulation class	Coil voltage (DC)	Contact material	Flame resistance and tracking resistance	Surge voltage
1: 1 Form C (Standard) 1a: 1 Form A (Standard) 1aP: 1 Form A (Long endurance type)	Nil: Sealed type F: Flux-resistant type	Nil: Class E insulation B: Class B insulation F: Class F insulation	5, 6, 9, 12, 18, 24, 48 V	F: AgSnO <sub>2</sub> type	Nil: — T: EN60335-1 (Conform)	6K: 6kV type

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

- Notes: 1. Standard packing: Carton: 100 pcs. Case: 500 pcs.  
2. When ordering TV rated (TV-5) types, please consult us.  
3. Contact arrangement 1aP type is Flux-resistant type only (Class B insulation only).  
4. Please inquire about the previous products (Cadmium containing parts).

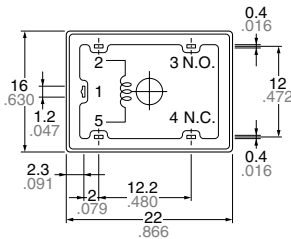
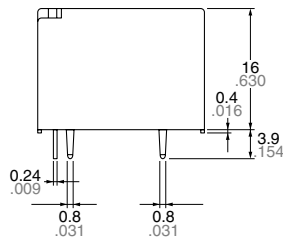
# COIL DATA

Part No.					Nominal voltage, V DC	Pick-up voltage, V DC (max.) (at 20°C 68°F)	Drop-out voltage, V DC (min.) (at 20°C 68°F)	Coil resistance, Ω (±10%) (at 20°C 68°F)	Nominal operating current, mA (±10%) (at 20°C 68°F)	Nominal operating power, mW (at 20°C 68°F)	Max. allowable voltage (at 85°C 185°F)
Standard type		Long endurance type									
Sealed type		Flux-resistant type		Flux-resistant type							
1 Form A	1 Form C	1 Form A	1 Form C	1 Form A							
JS1a-5V-F	JS1-5V-F	JS1aF-5V-F	JS1F-5V-F	JS1aPF-B-5V-F	5	3.5	0.5	69.4	72	360	130%V of nominal voltage
JS1a-6V-F	JS1-6V-F	JS1aF-6V-F	JS1F-6V-F	JS1aPF-B-6V-F	6	4.2	0.6	100	60		
JS1a-9V-F	JS1-9V-F	JS1aF-9V-F	JS1F-9V-F	JS1aPF-B-9V-F	9	6.3	0.9	225	40		
JS1a-12V-F	JS1-12V-F	JS1aF-12V-F	JS1F-12V-F	JS1aPF-B-12V-F	12	8.4	1.2	400	30		
JS1a-18V-F	JS1-18V-F	JS1aF-18V-F	JS1F-18V-F	JS1aPF-B-18V-F	18	12.6	1.8	900	20		
JS1a-24V-F	JS1-24V-F	JS1aF-24V-F	JS1F-24V-F	JS1aPF-B-24V-F	24	16.8	2.4	1,600	15		
JS1a-48V-F	JS1-48V-F	JS1aF-48V-F	JS1F-48V-F	JS1aPF-B-48V-F	48	33.6	4.8	6,400	7.5		

- Notes) 1. Class B and F coil insulation types available.  
Ex) JS1aF-B-12V-F  
JS1aF-F-12V-F  
2. EN60335-1 GWT compliant types available. When ordering, please add suffix "T".  
Ex) JS1aF-B-12V-F-T  
3. 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

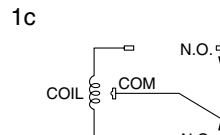
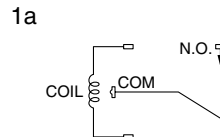
# DIMENSIONS

mm inch

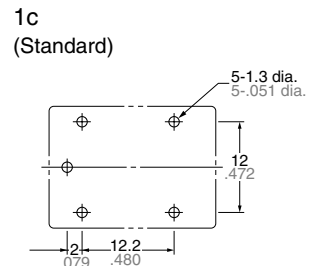
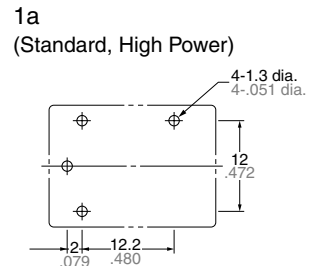


Note: Terminal No. 4 is only for Standard 1 Form C type  
General tolerance: ±0.3 ±.012

Schematic (Bottom view)



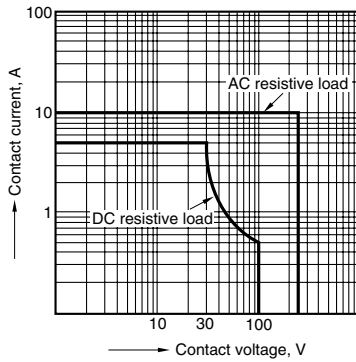
PC board pattern (Bottom view)



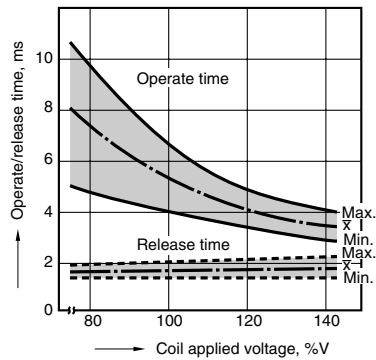
Tolerance: ±0.1 ±.004

REFERENCE DATA

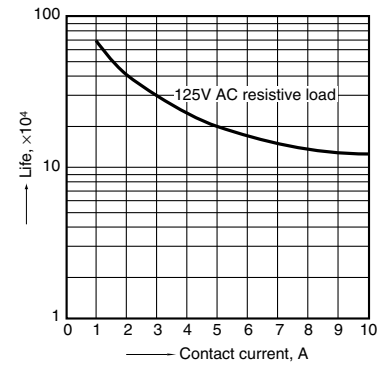
1. Maximum value for switching capacity



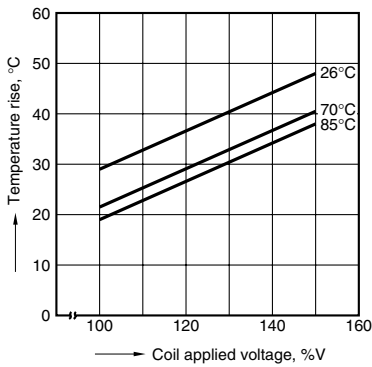
2. Operate/release time  
Sample: 25 pcs., JS1-12V-F



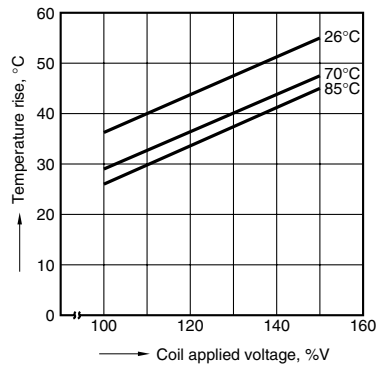
3. Life curve  
Ambient temperature: Room temperature



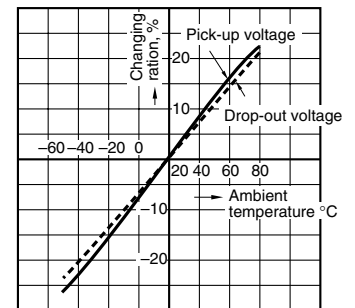
4-(1). Coil temperature rise  
Sample: 5 pcs., JS1a-24V-F  
Measured portion: Inside the coil  
Contact current: 5 A



4-(2). Coil temperature rise  
Sample: 5 pcs., JS1a-24V-F  
Measured portion: Inside the coil  
Contact current: 10 A



5. Ambient temperature characteristics  
Sample: 6 pcs., JS1-12V-F



For Cautions for Use, see Relay Technical Information