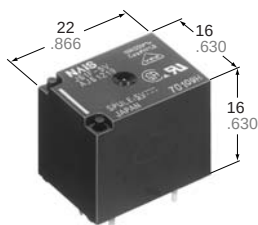


Panasonic
ideas for life

MINIATURE PC BOARD TYPE POWER RELAY

JS RELAYS



mm inch

FEATURES

- Miniature size with universal terminal footprint
- High contact capacity: 10 A
- Class B coil insulation type available
- 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)

SPECIFICATIONS

Contact

Types		Standard type	High power 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		Silver alloy	
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)	
Expected life (min. op.)	Mechanical (at 180 cpm)	10 ⁷	
	Electrical at 10 A 125 V AC, 6 A 277 V AC resistive (standard)	10 ⁵	2×10 ⁵
	10 A 277 V AC resistive (High power)		
	10 A 250 V AC resistive (Standard: at 20 cpm) (High power: at 20 cpm, 105°C 221°F)**	5 × 10 ⁴ (No contact only)	1.5 × 10 ⁵

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

Coil

Nominal operating power	360 mW
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Remarks

*1 Detection current: 10mA

*2 Excluding contact bounce time

*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 (see catalog).

Characteristics

Max. operating speed		20 cpm	
Types		Standard type	High power 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)		Approx. 10 ms	
Release time(without diode)*2 (at nominal voltage)		Approx. 10 ms	
Temperature rise (at nominal voltage)		Max. 35°C, resistive, nominal voltage applied to coil. Contact carrying current: 10A, at 85°C 185°F	
Shock resistance	Functional*3	Min. 98 m/s ² {10 G}	
	Destructive*4	Min. 980 m/s ² {100 G}	
Vibration resistance	Functional*5	Approx. 98 m/s ² {10 G}, 10 to 55 Hz at double amplitude of 1.6 mm	
	Destructive	Approx. 117.6 m/s ² {12 G}, 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	

*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

Contact arrangement	Protective construction	Coil insulation class	Coil voltage (DC)
1: 1 Form C (Standard) 1a: 1 Form A (Standard) 1aP: 1 Form A (High Power)	Nil: Sealed type F: Flux-resistant type	Nil: Class E insulation B: Class B insulation	5, 6, 9, 12, 18, 24, 48 V

UL/CSA, VDE, TÜV (Standard type only) approved type is standard.

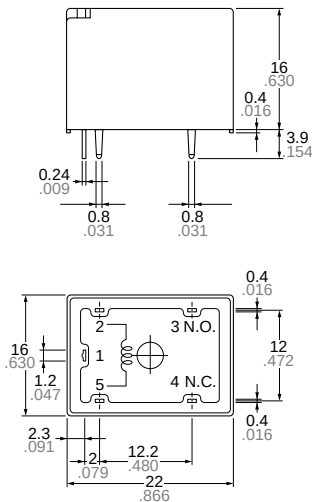
Notes: 1. Standard packing: Carton: 100 pcs. Case: 500 pcs.
2. When ordering TV rated (TV-5) types, add suffix -TV.
3. Contact arrangement 1aP type is Flux-resistant type only (class B or class F insulation). Please consult us for coil insulation class F.
4. For Cd free contact material type, add suffix "-F".

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				High Power 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	JS1-5V	JS1aF-5V	JS1F-5V	JS1aPF-B-5V	5	3.5	0.5	69.4	72	360	130%V of nominal voltage
JS1a-6V	JS1-6V	JS1aF-6V	JS1F-6V	JS1aPF-B-6V	6	4.2	0.6	100	60		
JS1a-9V	JS1-9V	JS1aF-9V	JS1F-9V	JS1aPF-B-9V	9	6.3	0.9	225	40		
JS1a-12V	JS1-12V	JS1aF-12V	JS1F-12V	JS1aPF-B-12V	12	8.4	1.2	400	30		
JS1a-18V	JS1-18V	JS1aF-18V	JS1F-18V	JS1aPF-B-18V	18	12.6	1.8	900	20		
JS1a-24V	JS1-24V	JS1aF-24V	JS1F-24V	JS1aPF-B-24V	24	16.8	2.4	1,600	15		
JS1a-48V	JS1-48V	JS1aF-48V	JS1F-48V	JS1aPF-B-48V	48	33.6	4.8	6,400	7.5		

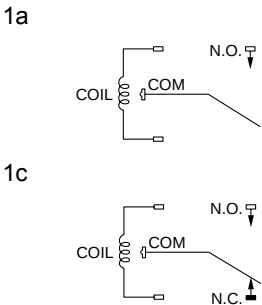
DIMENSIONS

mm inch

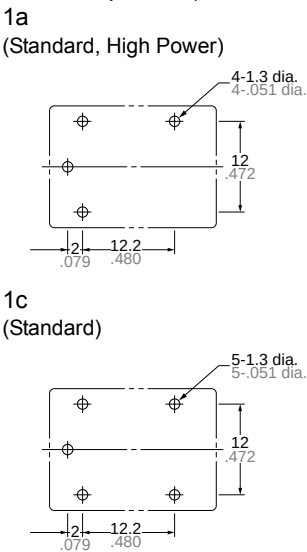


Note: Terminal No. 4 is only for Standard 1 Form C type
General tolerance: ±0.3 ±.012

Schematic (Bottom view)



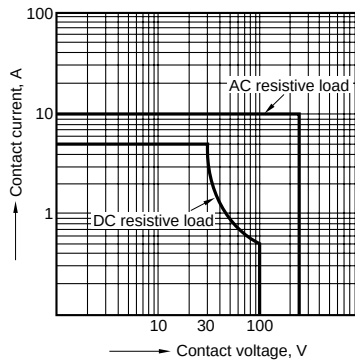
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

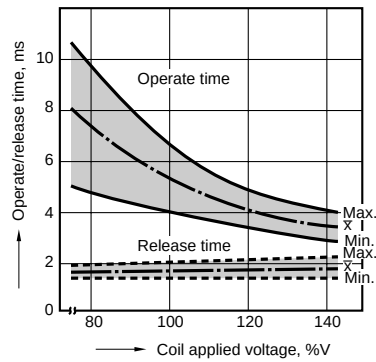
REFERENCE DATA

1. Maximum value for switching capacity



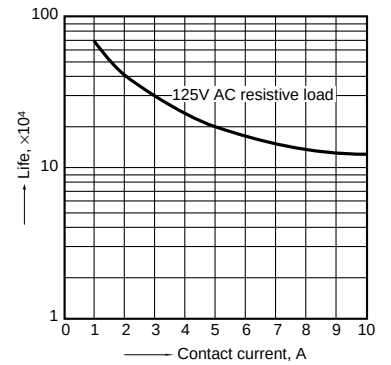
2. Operate/release time

Sample: 25 pcs., JS1-12V



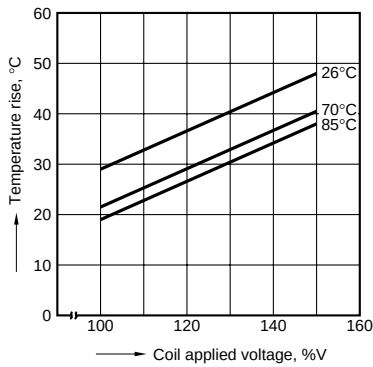
3. Life curve

Ambient temperature: Room temperature



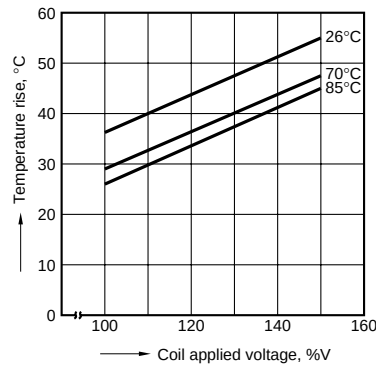
4-(1). Coil temperature rise

Sample: 5 pcs., JS1a-24V
Measured portion: Inside the coil
Contact current: 5 A



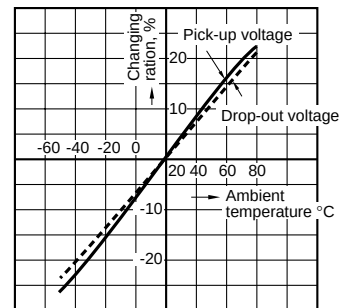
4-(2). Coil temperature rise

Sample: 5 pcs., JS1a-24V
Measured portion: Inside the coil
Contact current: 10 A



5. Ambient temperature characteristics

Sample: 6 pcs., JS1-12V

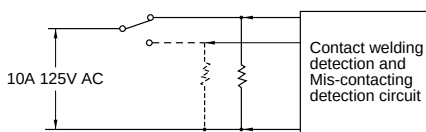


6. Electrical life test

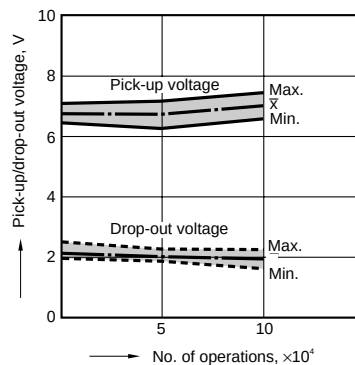
(10 A 125 V AC, resistive load)

Sample: 6 pcs., JS1-12V
Operating speed: 20 cpm
Ambient temperature: room temperature

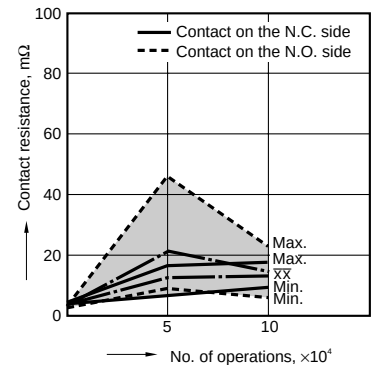
(Circuit)



Change of pick-up and drop-out voltage



Change of contact resistance



For Cautions for Use, see Relay Technical Information (see catalog).