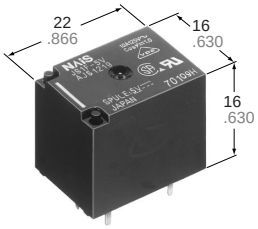
NAiS

ULTRA-MINIATURE PC BOARD TYPE POWER RELAY

JS RELAYS



mm inch

FEATURES

- **Ultra-miniature size with universal terminal footprint**
- **High contact capacity: 10 A**
- **Class B coil insulation type available**
- **TV-5 type available**
  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**

SPECIFICATIONS

Contact

Arrangement		1 Form A, 1 Form C
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
	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.ope.)	Mechanical (at 180 cpm)	10^7
	Electrical at 10 A 125 V AC, 6 A 277 V AC resistive (at 20 cpm)	10^5
	10 A 250 V AC resistive (at 20 cpm)	5×10^4 (No contact only)

Coil

Nominal operating power	360 mW

Remarks

* Specifications will vary with foreign standards certification ratings.
*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 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 24).
*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.

Characteristics

Max. operating speed		20 cpm
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
Shock resistance	Functional*3	Min. 98 m/s² {10 G}
	Destructive*4	Min. 980 m/s² {100 G}
Vibration resistance	Functional*5	Approx. 98 m/s² {10 G}, 10 to 55 Hz at double amplitude of 1.6 mm
	Destructive	Approx. 117.6 m/s² {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
	Humidity	5 to 85% R.H.
Unit weight		Approx.12 g .423 oz

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 1a: 1 Form A	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 approved type is standard.

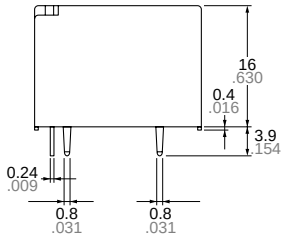
Notes: 1. Standard packing: Carton: 100 pcs. Case: 500 pcs.
2. When ordering TV rated (TV-5) types, add suffix -TV.

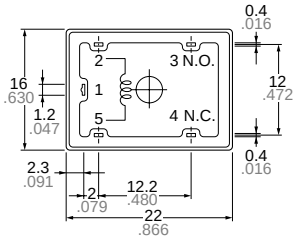
COIL DATA

Part No.				Nominal voltage, V DC	Pick-up voltage, V DC (max.) (at 20°C68°F)	Drop-out voltage, V DC (min.) (at 20°C68°F)	Coil resistance, Ω (±10%) (at 20°C68°F)	Nominal operating current, mA (±10%) (at 20°C68°F)	Nominal operating power, mW (at 20°C68°F)	Max. allowable voltage (at 85°C185°F)
Sealed type		Flux-resistant type								
1 Form A	1 Form C	1 Form A	1 Form C							
JS1a-5V	JS1-5V	JS1aF-5V	JS1F-5V	5	3.5	0.5	69.4	72	360	130%V of nominal voltage
JS1a-6V	JS1-6V	JS1aF-6V	JS1F-6V	6	4.2	0.6	100	60		
JS1a-9V	JS1-9V	JS1aF-9V	JS1F-9V	9	6.3	0.9	225	40		
JS1a-12V	JS1-12V	JS1aF-12V	JS1F-12V	12	8.4	1.2	400	30		
JS1a-18V	JS1-18V	JS1aF-18V	JS1F-18V	18	12.6	1.8	900	20		
JS1a-24V	JS1-24V	JS1aF-24V	JS1F-24V	24	16.8	2.4	1,600	15		
JS1a-48V	JS1-48V	JS1aF-48V	JS1F-48V	48	33.6	4.8	6,400	7.5		

DIMENSIONS

mm inch



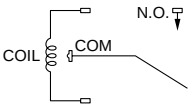


Note: Terminal No. 4 is only for 1 Form C type

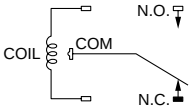
General tolerance: ±0.3 ±.012

Schematic (Bottom view)

1a

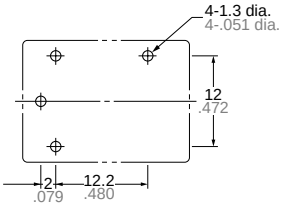


1c

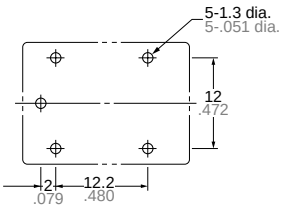


PC board pattern (Copper-side view)

1a



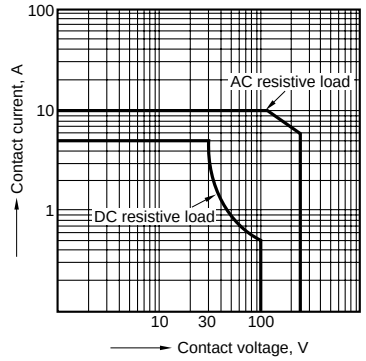
1c



Tolerance: ±0.1 ±.004

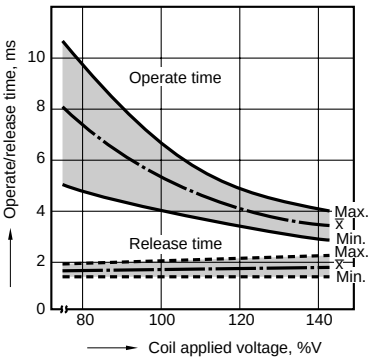
REFERENCE DATA

1. Maximum value for switching capacity



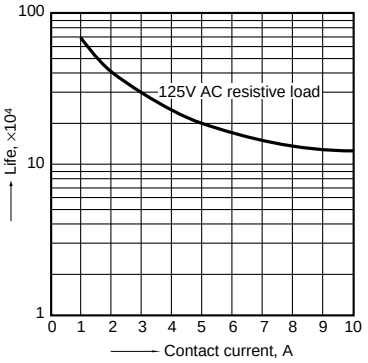
2. Operate/release time

Sample: 25 pcs., JS1-12V



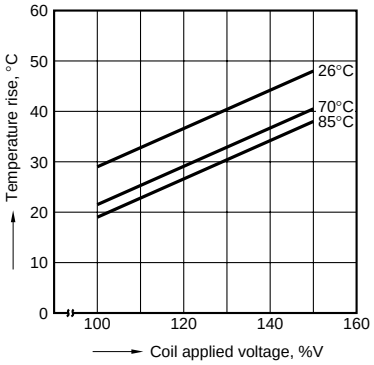
3. Life curve

Ambient temperature: Room temperature



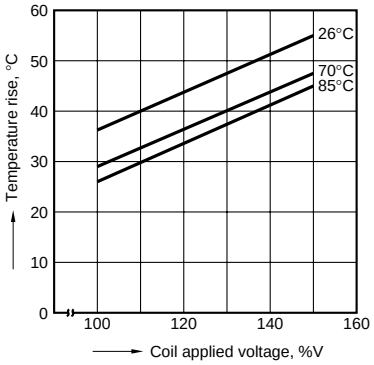
4-(1). Coil temperature rise

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



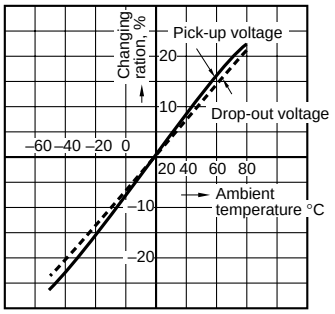
4-(2). Coil temperature rise

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



5. Ambient temperature characteristics

Sample: 6 pcs., JS1-12V

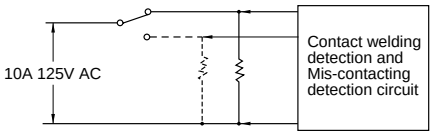


6. Electrical life test

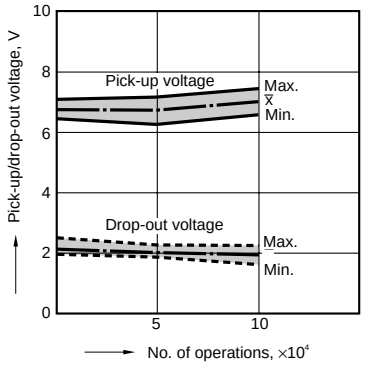
(10 A 125 V AC, resistive load)

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

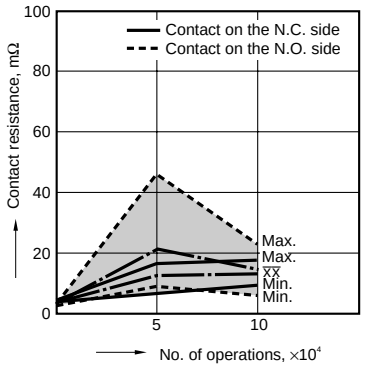
(Circuit)



Change of pick-up and drop-out voltage



Change of contact resistance



For Cautions for Use, see Relay Technical Information (Page 11 to 39).