PCB power relays

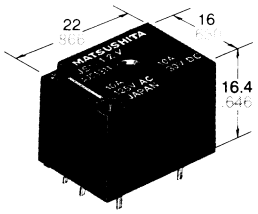
Order code	Manufacturer code	Description
60-4275	JS1-5	POWER RELAY SPCO 10A - 5V COIL
60-4280	JS1-6	POWER RELAY SPCO 10A - 6V COIL
60-4285	JS1-12	POWER RELAY SPCO 10A-12V COIL
60-4290	JS1-24	POWER RELAY SPCO 10A-24V COIL

Sales: 01206 751166 **Technical: 01206 835555** **Fax: 01206 7551188**
Sales@rapidelec.co.uk **Tech@rapidelec.co.uk** **www.rapidelectronics.co.uk**

NAiS

ULTRA-MINIATURE PC BOARD TYPE POWER RELAY

JS-RELAYS



mm inch

UL File No.: E43028 **TÜV File No.: 88121645537**
CSA File No.: LR26550 **VDE File No.: VDE-Reg.-Nr. 4065**

- **Ultra-miniature size with universal terminal footprint**
- **High contact capacity: 10 A**
- **Pick-up voltage: two types (70% and 80% of nominal voltage) available**
- **Sealed types available**
- **UL class B coil insulation type available**
- **TV-5 type available**
- **UL class C coil insulation type on special request**

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 125 V AC 6 A 277 V AC
Max. switching power	150 W / 1,660 VA
Max. switching voltage	277 V AC, 30 V DC
Max. switching current	10 A (AC), 5 A (DC)
UL/CSA rating	10 A 125, 6 A 277 V AC 1/8 HP 125, 277 V AC 5 A 30 V DC
TÜV rating	10 A 125 V AC (cosφ=1.0) 6 A 250 V AC (cosφ=1.0) 5 A 30 V DC (0 ms)
VDE rating	10 A 125 V ~ (cosφ=1.0) 5 A 30 V ⎓ (0 ms)
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

Coil

Nominal operating power	360 mW

Characteristics

Max. operating speed		20 cpm
Operate time (at nominal voltage)		Approx. 10 msec.
Release time (at nominal voltage)		Approx. 10 msec.
Initial insulation resistance		Min. 100 MΩ (at 500 V DC)
Initial breakdown voltage		
Between open contacts		750 Vrms for 1 min.
Between contacts and coil		1,500 Vrms for 1 min.
Temperature rise (max.) (at nominal voltage)		35 deg.
Ambient temperature		−40°C to +70°C −40 F to +158 F
Shock resistance	Functional	Min. 10 G
	Destruction	Min. 100 G
Vibration resistance	Functional	Approx. 10 G 10 to 55 Hz at double amplitude of 1.6 mm
	Destruction	Approx. 12 G 10 to 55 Hz at double amplitude of 2 mm
Unit weight		Approx. 12 g .423 oz

TYPICAL APPLICATION

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] [J] — [B] — [12V]

Contact arrangement	Protective construction	Pick-up voltage	Coil insulation class	Coil voltage (DC)
1: 1 Form C 1a: 1 Form A	Nil: Sealed type F: Flux-resistant type	Nil: 70% of nominal voltage J: 80% of nominal voltage	Nil: Class A insulation B: Class B insulation	5, 6, 9, 12, 24, 48 V

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

TYPES

1. Pick-up voltage: 70% of nominal voltage type

Contact arrangement	Coil voltage, V DC	Part No.	
		Sealed type	Flux-resistant type
1 Form A	5	JS1a-5V	JS1aF-5V
	6	JS1a-6V	JS1aF-6V
	9	JS1a-9V	JS1aF-9V
	12	JS1a-12V	JS1aF-12V
	24	JS1a-24V	JS1aF-24V
	48	JS1a-48V	JS1aF-48V
1 Form C	5	JS1-5V	JS1F-5V
	6	JS1-6V	JS1F-6V
	9	JS1-9V	JS1F-9V
	12	JS1-12V	JS1F-12V
	24	JS1-24V	JS1F-24V
	48	JS1-48V	JS1F-48V

2. Pick-up voltage: 80% of nominal voltage type

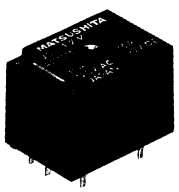
Contact arrangement	Coil voltage, V DC	Part No.	
		Sealed type	Flux-resistant type
1 Form A	5	JS1aJ-5V	JS1aFJ-5V
	6	JS1aJ-6V	JS1aFJ-6V
	9	JS1aJ-9V	JS1aFJ-9V
	12	JS1aJ-12V	JS1aFJ-12V
	24	JS1aJ-24V	JS1aFJ-24V
	48	JS1aJ-48V	JS1aFJ-48V
1 Form C	5	JS1J-5V	JS1FJ-5V
	6	JS1J-6V	JS1FJ-6V
	9	JS1J-9V	JS1FJ-9V
	12	JS1J-12V	JS1FJ-12V
	24	JS1J-24V	JS1FJ-24V
	48	JS1J-48V	JS1FJ-48V

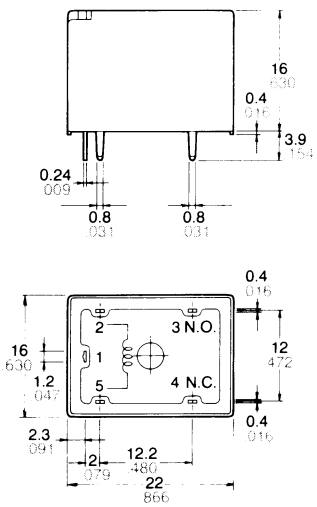
COIL DATA

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 60°C 140°F)
5	70(80)% of nominal voltage	10% of nominal voltage	69.4	72	360	130%V of nominal voltage
6			100	60		
9			225	40		
12			400	30		
24			1,600	15		
48			6,400	7.5		

DIMENSIONS

mm inch



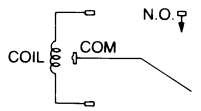


Note: Terminal No. 4 is only for 1 Form C type

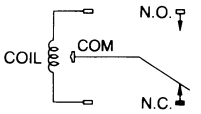
General tolerance: ±0.3 ±.012

Schematic (Bottom view)

1a

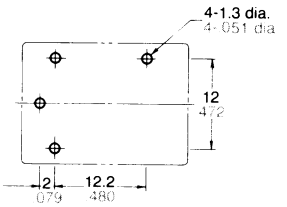


1c

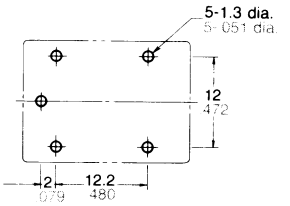


PC board pattern (Copper-side view)

1a



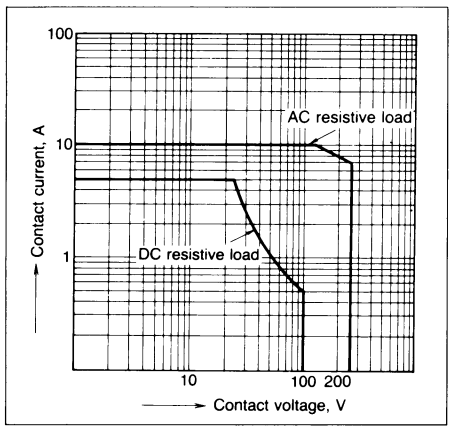
1c



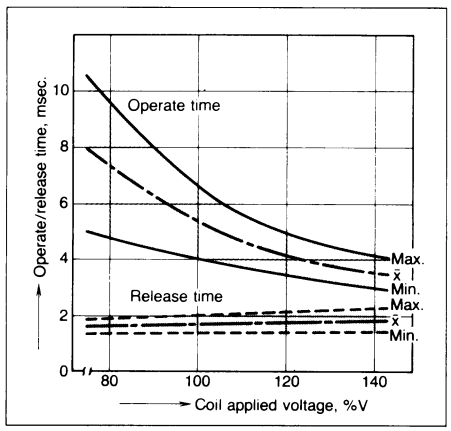
Tolerance: ±0.1 ±.004

DATA

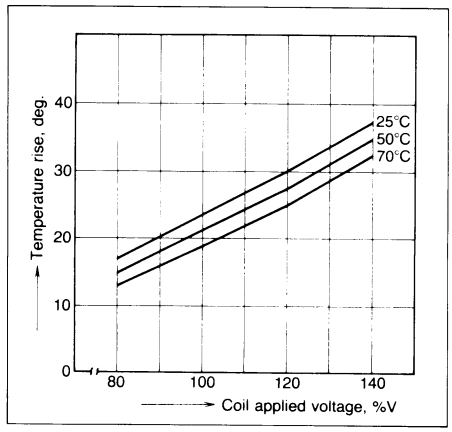
1. Maximum value for switching capacity



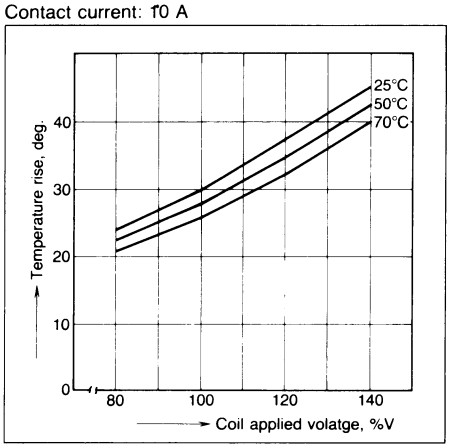
2. Operate/release time
Sample: 25 pcs., JS1-12V



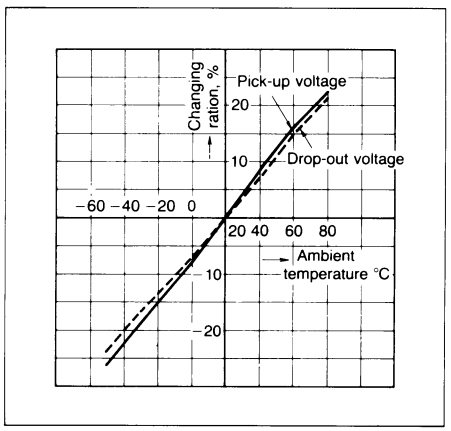
3-(1). Coil temperature rise
Sample: 5 pcs., JS1-12V
Measured portion: Inside the coil
Contact current: 5 A



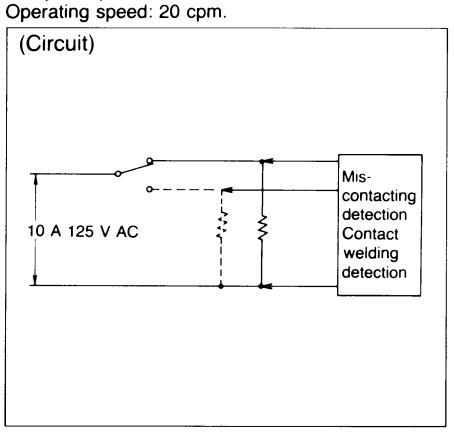
3-(2). Coil temperature rise
Sample: 5 pcs., JS1-12V
Measured portion: Inside the coil
Contact current: 10 A



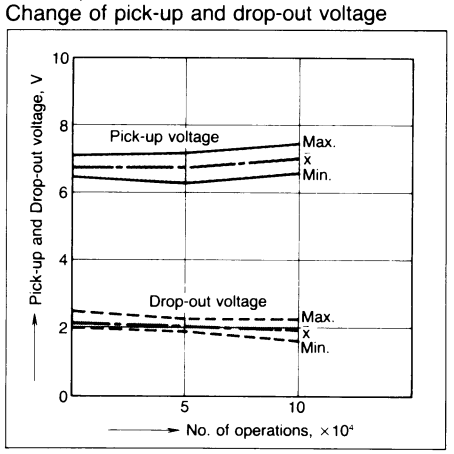
4. Ambient temperature characteristics
Sample: 6 pcs., JS1-12V



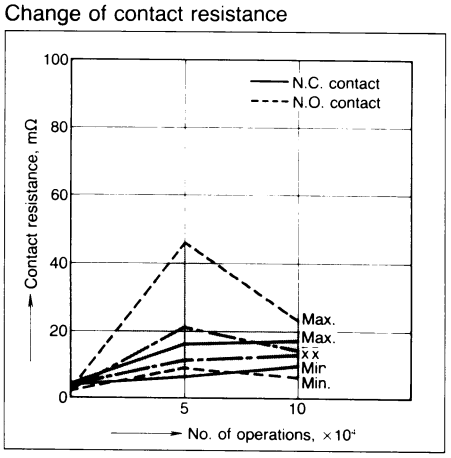
5. Electrical life test (10 A 125 V AC, resistive load)
Sample: 6 pcs., JS1F-12V
Operating speed: 20 cpm.



Change of pick-up and drop-out voltage



Change of contact resistance



NOTES

1. To maintain initial performance, care should be taken to avoid dropping or hitting the relay.
2. Avoid using in the location where there is excessive dust or organic gas such as SO_2 gas and H_2S gas. Note that switching contact in the silicon atmosphere may result in contact failure.
3. The voltage applied to coil should not exceed the max. switching voltage.
4. The voltage applied to coil should be nominal voltage with rectangular wave.
5. The switching voltage and current to the contact should not exceed the rated value.
6. The rated contact capacity and life are typical values. Since contact phenomena and life vary depending on kinds of load and other conditions, please examine them through actual conditions.
7. Relays should be used within the rated ambient temperature.
8. For automatic cleaning, use sealed types. It is recommended that fluorinated hydrocarbon or other alcholic solvent be used, and that the ultrasonic cleaning be avoided.
9. Avoid bending terminals, because it may cause malfunction.