

1a/1c 10A cubic type power relays

JS RELAYS



RoHS compliant

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

TYPICAL APPLICATIONS

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

ORDERING INFORMATION



Contact arrangement
 1: 1 Form C (Standard)
 1a: 1 Form A (Standard)
 1aP: 1 Form A (Long endurance type)

Protective construction
 Nil: Sealed type
 F: Flux-resistant type

Coil insulation class
 Nil: Class E insulation
 B: Class B insulation
 F: Class F insulation

Nominal coil voltage (DC)
 5V, 6V, 9V, 12V, 18V, 24V, 48V

Contact material
 F: AgSnO₂ type

Flame resistance and tracking resistance
 Nil: -
 T: EN60335-1 (Conform)

Surge voltage
 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. When ordering TV rated (TV-5) types, please consult us.
 2. Contact arrangement 1aP 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. EN60335-1 GWT compliant types available. When ordering, please add suffix "T".

Ex) JS1aF-B-12V-FT

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

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.

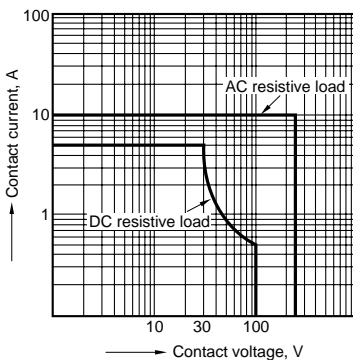
2. Specifications

| Characteristics | Item | Specifications | |
|----------------------------|---|--|--|
| Contact | Contact material | AgSnO ₂ 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) | |
| | Nominal operating power | 360mW | |
| | Min. switching capacity*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) |
| | Temperature rise (coil) | Max. 35°C 95°F (By resistive method, nominal coil voltage applied to the coil; contact carrying current: 10A, at 70°C 158°F) | |
| | 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 ² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.) |
| | | Destructive | 980 m/s ² (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 ⁷ | |
| | Electrical (resistive load) | 1×10 ⁵ [10A 125V AC, 6A 277V AC, 5A 30V DC] 5×10 ⁴ (NO contact only) [10A 250V AC] | 2×10 ⁵ [10A 277V AC] 1.5×10 ⁵ [10A 250V AC (at 20 times/min., 105°C 221°F)] 1×10 ⁵ [5A 30V DC] |
| 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) |
| | Max. operating speed | 20 times/min. (at nominal switching capacity) | |
| 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.

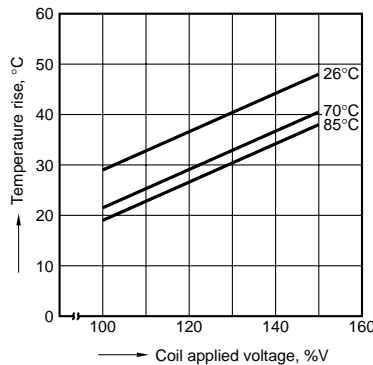
REFERENCE DATA

1. Maximum value for switching capacity



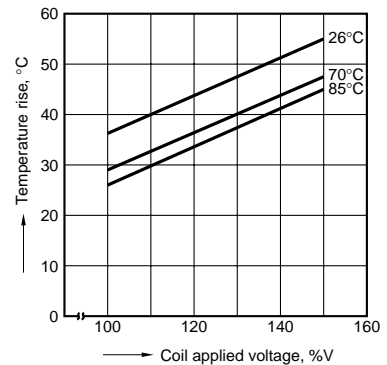
2.-(1) Coil temperature rise

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



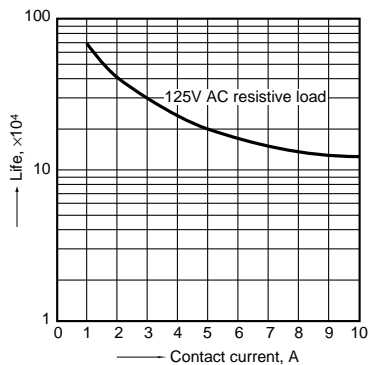
2.-(2) Coil temperature rise

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



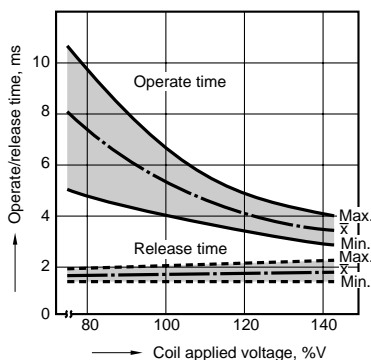
3. Life curve

Ambient temperature: Room temperature



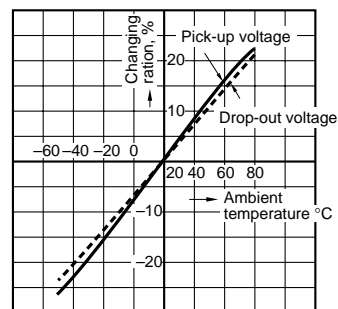
4. Operate/release time

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



5. Ambient temperature characteristics

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



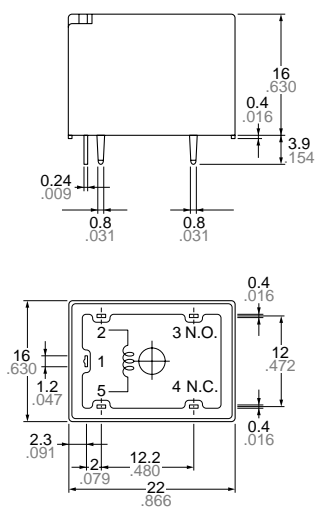
DIMENSIONS (mm inch)

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

CAD Data



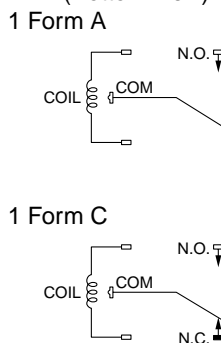
External dimensions



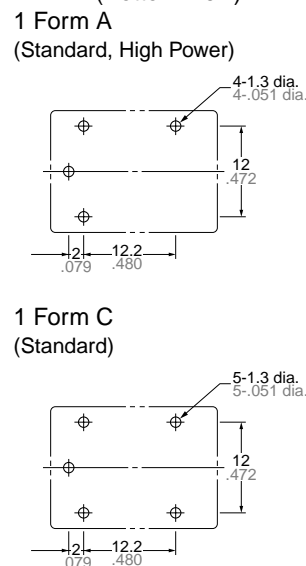
Note: Terminal No. 4 is only for Standard 1 Form C type

| | |
|--|--------------------------|
| Dimension: | General tolerance |
| Less than 1mm .039inch: | ±0.1 ±.004 |
| Min. 1mm .039inch less than 3mm .118 inch: | ±0.2 ±.008 |
| Min. 3mm .118 inch: | ±0.3 ±.012 |

Schematic (Bottom view)



PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

SAFETY STANDARDS

| UL/C-UL (Recognized) | | CSA (Certified) | | VDE (Certified) | | TV rating (UL/CSA) | | TÜV (Certified) | |
|----------------------|---|-----------------|--|-----------------|---|--------------------------------|---------------------------|----------------------|---|
| File No. | Contact rating | File No. | Contact rating | File No. | Contact rating | File No. | Rating | File No. | Rating |
| E43028 | 10A 125V AC, 6A 277V AC 5A 30V DC, 1/8HP 125V AC 1/8HP 277V AC 12A 125V AC 12A 277V AC 10A 125V AC (N.O., 85°C) 4FLA/4LRA125V AC 105°C (N.O.) 2FLA/4LRA125V AC 105°C (N.C.) 1/8HP 277V AC 75°C N.O. | LR26550 | 10A 125V AC 12A 125V AC 6A 277V AC 12A 277V AC 5A 30V DC 1/8HP 125V AC 1/8HP 277V AC | 40011475 | 10A 125V AC (cosφ=1.0) 6A 250V AC (cosφ=1.0) | UL E43028 CSA LR26550 | 1a→TV-5 1c→TV-5 (N.O.) | B 10 02 13461 271 | 10A 125V AC (cosφ=1.0) 6A 250V AC (cosφ=1.0) |

For Cautions for Use.

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[JS1-24V-Y2](#) [JS1-24V-Y3](#) [JS1-3V](#) [JS1-4V](#) [JS1-6V-TV](#) [JS1A-12V-TV](#) [JS1A-18V](#) [JS1A-18V-F](#) [JS1A-24V-TV](#) [JS1A-](#)
[24V-Y2](#) [JS1A-48V-Y2](#) [JS1A-6V](#) [JS1A-6V-F](#) [JS1A-9V](#) [JS1A-9V-F](#) [JS1A-B-12V](#) [JS1A-B-12V-F](#) [JS1A-B-12V-TV](#)
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