



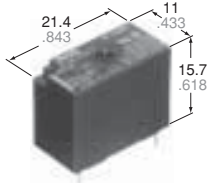
THE DATASHEET OF JK1AF-12V



Panasonic
ideas for life

SLIM TYPE POWER RELAY

JK RELAYS



mm inch

FEATURES

- **Compact & Slim design: 11.0 mm (length) × 21.4 mm (width) × 15.7 mm (height)**
(.433×.843×.618 inch)
- **High capacity type (8 A) available**
- **Surge resistance: Min. 8,000 V between contact and coil**
- **High sensitivity: 200 mW nominal operating power**
- **Sealed type available**
- **VDE, TÜV, SEMKO also approved**

SPECIFICATIONS

Contact

| Type | Standard type | High capacity type | |
|--|---|-----------------------------|-----------------------------|
| Arrangement | 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 | 3 A 30 V DC 3 A 125 V AC | 5 A 30 V DC 8 A 125 V AC |
| | Max. switching power | 90 W, 500 VA | 150 W, 1,250 V A |
| | Max. switching voltage | 250 V AC, 110 V DC (0.3 A) | |
| | Max. switching current | 3 A | 8 A |
| Expected life (min. operations) | Mechanical (at 180 cpm) | 5×10 ⁶ | |
| | Electrical (at 20 cpm) (at rated load) | 10 ⁵ | |

Coil

| Nominal operating power | Standard and high capacity type | 200 mW |
|-------------------------|---------------------------------|--------|
| | | |

Remarks

- * Specifications will vary with foreign standards certification ratings.
- *1 Measurement at same location as "Initial breakdown voltage" section
- *2 Detection current: 10 mA
- *3 Wave is standard shock voltage of $\pm 1.2 \times 50\mu\text{s}$ according to JEC-212-1981
- *4 Excluding contact bounce time
- *5 Half-wave pulse of sine wave: 11ms; detection time: 10 μs
- *6 Half-wave pulse of sine wave: 6ms
- *7 Detection time: 10 μs
- *8 Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.

Characteristics

| | | |
|---|--|---|
| Max. operating speed | 20 cpm | |
| Initial insulation resistance*1 | Min. 100 MΩ at 500 V DC | |
| Initial breakdown voltage*2 | Between open contacts | 750 Vrms for 1 min. |
| | Between contact and coil | 2,000 Vrms for 1 min. |
| Surge voltage between contact and coil*3 | Min. 8,000 V | |
| Operate time*4 (at nominal voltage) | Approx. 4 ms | |
| Release time*4 (at nominal voltage) (without diode) | Approx. 2 ms | |
| Temperature rise (ambient temperature: 70°C) | Max. 45°C with nominal coil voltage and at maximum allowable contact current | |
| Shock resistance | Functional*5 | Min. 98 m/s ² {10 G} |
| | Destructive*6 | Min. 980 m/s ² {100 G} |
| Vibration resistance | Functional*7 | 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*8 (Not freezing and condensing at low temperature) | Ambient temp. | -40°C to +70°C -40°F to +158°F |
| | Humidity | 5 to 85% R.H. |
| Unit weight | Approx. 7 g .25 oz | |

TYPICAL APPLICATIONS

- Home appliances
Microwave ovens, Air conditioners
- Office equipment
Photocopiers, Facsimiles
- Industrial machines
NC machines

ORDERING INFORMATION

Ex. JK 1a P F — 12 V

| Contact capacity | Protective construction | Coil voltage (DC) |
|---|--|---------------------------------|
| Nil: Standard 3 A P: High capacity 8A | Nil: Sealed type F: Flux-resistant type | 3, 5, 6, 9, 12, 18, 24, 48 V |

- Notes: 1. For TV-5 rated type, add suffix "-TV".
For detailed specifications, please consult us.
2. Standard packing: Carton: 100 pcs.; Case: 500 pcs.
UL/CSA, VDE approved type is standard.

TYPES

1. Standard type (3 A)

| Coil voltage, V DC | Part No. | |
|-----------------------|-------------|---------------------|
| | Sealed type | Flux-resistant type |
| 3 | JK1a-3V | JK1aF-3V |
| 5 | JK1a-5V | JK1aF-5V |
| 6 | JK1a-6V | JK1aF-6V |
| 9 | JK1a-9V | JK1aF-9V |
| 12 | JK1a-12V | JK1aF-12V |
| 18 | JK1a-18V | JK1aF-18V |
| 24 | JK1a-24V | JK1aF-24V |
| 48 | JK1a-48V | JK1aF-48V |

2. High capacity type (8 A)

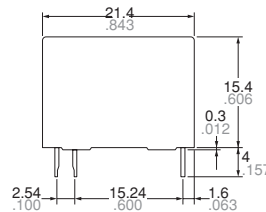
| Coil voltage, V DC | Part No. | |
|-----------------------|-------------|---------------------|
| | Sealed type | Flux-resistant type |
| 3 | JK1aP-3V | JK1aPF-3V |
| 5 | JK1aP-5V | JK1aPF-5V |
| 6 | JK1aP-6V | JK1aPF-6V |
| 9 | JK1aP-9V | JK1aPF-9V |
| 12 | JK1aP-12V | JK1aPF-12V |
| 18 | JK1aP-18V | JK1aPF-18V |
| 24 | JK1aP-24V | JK1aPF-24V |
| 48 | JK1aP-48V | JK1aPF-48V |

COIL DATA (at 20°C 68°F)

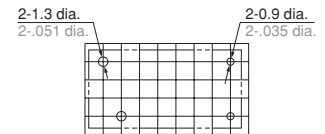
| Nominal voltage, V DC | Pick-up voltage V DC (max.) | Drop-out voltage, V DC (min.) | Coil resistance Ω ($\pm 10\%$) | Nominal operating current, mA ($\pm 10\%$) | Nominal operating power, mW | Max. allowable voltage at 70°C, V DC |
|--------------------------|--------------------------------|----------------------------------|--|--|-----------------------------------|--|
| 3 | 2.4 | 0.15 | 45 | 67 | 200 | 3.9 |
| 5 | 4.0 | 0.25 | 125 | 40 | 200 | 6.5 |
| 6 | 4.8 | 0.3 | 180 | 33 | 200 | 7.8 |
| 9 | 7.2 | 0.45 | 405 | 22 | 200 | 11.7 |
| 12 | 9.6 | 0.6 | 720 | 17 | 200 | 15.6 |
| 18 | 14.4 | 0.9 | 1,620 | 11 | 200 | 23.4 |
| 24 | 19.2 | 1.2 | 2,880 | 8.3 | 200 | 31.2 |
| 48 | 38.4 | 2.4 | 11,520 | 4.2 | 200 | 62.4 |

DIMENSIONS

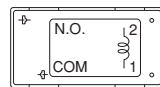
mm inch



PC board pattern (Bottom view)



Tolerance: $\pm 0.1 \pm 0.004$

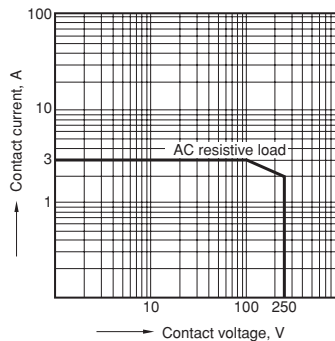


Dimension:
 Max. 1mm .039 inch
 1 to 5mm .039 to .197 inch
 Min. 5mm .197 inch

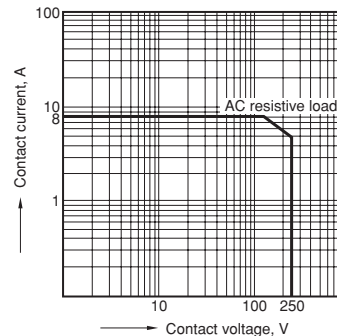
General tolerance
 $\pm 0.2 \pm 0.008$
 $\pm 0.3 \pm 0.012$
 $\pm 0.4 \pm 0.016$

REFERENCE DATA

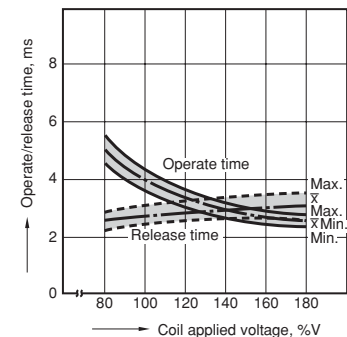
1-(1). Maximum value for switching capacity (Standard type)



1-(2). Maximum value for switching capacity (High capacity type)

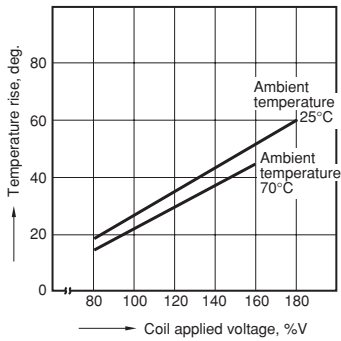


2. Operate/release time



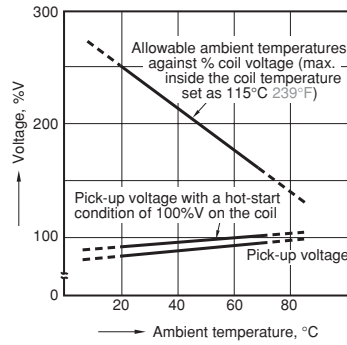
3. Coil temperature rise
(High capacity type)

Measured portion: Inside the coil
Contact current: 8 A



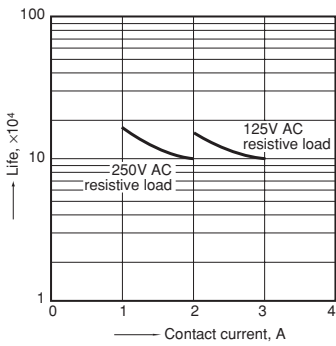
4. Ambient temperature characteristics
(High capacity type)

Contact current: 8 A



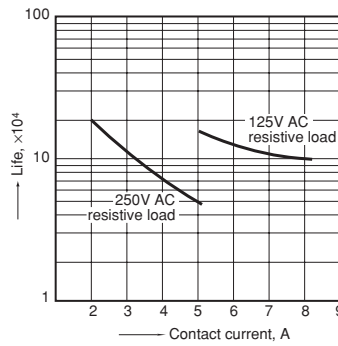
5.-(1) Life curve (Standard type)

Operation frequency: 20 times/min.
(ON/OFF = 1.5s:1.5s)
Ambient temperature: Room temperature



5.-(2) Life curve (High capacity type)

Operation frequency: 20 times/min.
(ON/OFF = 1.5s:1.5s)
Ambient temperature: Room temperature



For Cautions for Use, see Relay Technical Information.

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