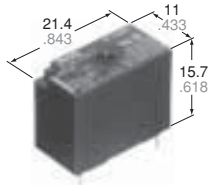


**Panasonic**  
ideas for life

## 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.<br>(By voltage drop 6 V DC 1 A) | 100 mΩ                                    |                             |
| Contact material                                                 | Silver alloy                              |                             |
| Rating<br>(resistive load)                                       | Nominal switching capacity                | 3 A 30 V DC<br>3 A 125 V AC |
|                                                                  | Max. switching power                      | 90 W,<br>500 VA             |
|                                                                  | Max. switching voltage                    | 250 V AC, 110 V DC (0.3 A)  |
|                                                                  | Max. switching current                    | 3 A                         |
| Expected life (min. operations)                                  | Mechanical (at 180 cpm)                   | 5×10 <sup>6</sup>           |
|                                                                  | Electrical (at 20 cpm)<br>(at rated load) | 10 <sup>5</sup>             |

### Coil

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

### Remarks

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

### Characteristics

|                                                                                                                   |                                                                              |                                           |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------|
| Max. operating speed                                                                                              | 20 cpm                                                                       |                                           |
| Initial insulation resistance* <sup>1</sup>                                                                       | Min. 100 MΩ at 500 V DC                                                      |                                           |
| Initial breakdown voltage* <sup>2</sup>                                                                           | Between open contacts                                                        | 750 Vrms for 1 min.                       |
|                                                                                                                   | Between contact and coil                                                     | 2,000 Vrms for 1 min.                     |
| Surge voltage between contact and coil* <sup>3</sup>                                                              | Min. 8,000 V                                                                 |                                           |
| Operate time* <sup>4</sup> (at nominal voltage)                                                                   | Approx. 4 ms                                                                 |                                           |
| Release time* <sup>4</sup> (at nominal voltage)<br>(without diode)                                                | Approx. 2 ms                                                                 |                                           |
| Temperature rise<br>(ambient temperature: 70°C)                                                                   | Max. 45°C with nominal coil voltage and at maximum allowable contact current |                                           |
| Shock resistance                                                                                                  | Functional* <sup>5</sup>                                                     | Min. 98 m/s <sup>2</sup> {10 G}           |
|                                                                                                                   | Destructive* <sup>6</sup>                                                    | Min. 980 m/s <sup>2</sup> {100 G}         |
| Vibration resistance                                                                                              | Functional* <sup>7</sup>                                                     | 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* <sup>8</sup><br>(Not freezing and condensing at low temperature) | Ambient temp.                                                                | −40°C to +70°C<br>−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 <span style="border: 1px solid black; padding: 0 5px;">P</span> <span style="border: 1px solid black; padding: 0 5px;">F</span> — <span style="border: 1px solid black; padding: 0 5px;">12 V</span> |                                                 |                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------|
| Contact capacity                                                                                                                                                                                               | Protective construction                         | Coil voltage (DC)               |
| Nil: Standard 3 A<br>P: High capacity 8 A                                                                                                                                                                      | Nil: Sealed type<br>F: Flux-resis-<br>tant type | 3, 5, 6, 9, 12, 18,<br>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,<br>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)

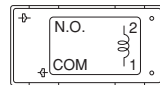
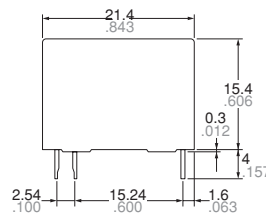
| Coil voltage,<br>V DC | Part No.    |                     |
|-----------------------|-------------|---------------------|
|                       | Sealed type | Flux-resistant type |
| 3                     | JK1aP-3V    | JK1aPF-3V           |
| 5                     | JK1aP-5V    | JK1aPF-5V           |
| 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,<br>V DC | Pick-up voltage<br>V DC (max.) | Drop-out voltage,<br>V DC (min.) | Coil resistance<br>$\Omega$ ( $\pm 10\%$ ) | Nominal operating<br>current,<br>mA ( $\pm 10\%$ ) | Nominal operating<br>power,<br>mW | Max. allowable<br>voltage at 70°C,<br>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



#### Dimension:

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

#### General tolerance

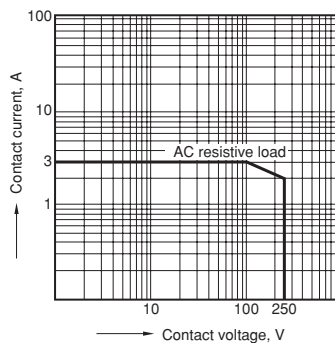
$\pm 0.2 \pm 0.08$   
 $\pm 0.3 \pm 0.12$   
 $\pm 0.4 \pm 0.16$

#### PC board pattern (Bottom view)

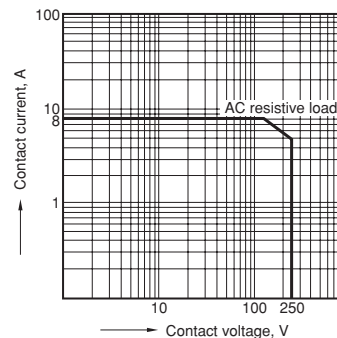
Tolerance:  $\pm 0.1 \pm 0.004$ 

## REFERENCE DATA

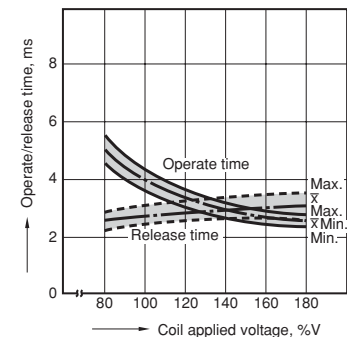
1-(1). Maximum value for switching capacity  
(Standard type)



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



2. Operate/release time

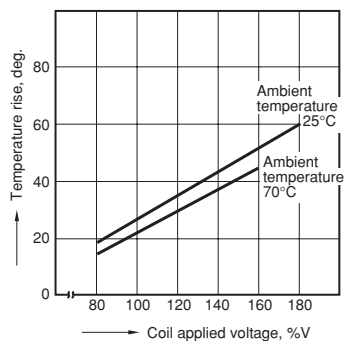


## 3. Coil temperature rise

(High capacity type)

Measured portion: Inside the coil

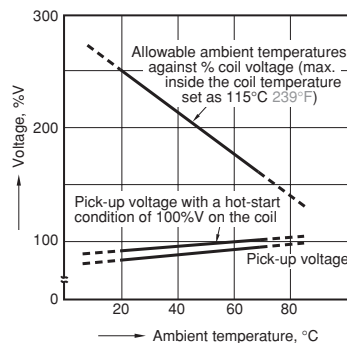
Contact current: 8 A



## 4. Ambient temperature characteristics

(High capacity type)

Contact current: 8 A

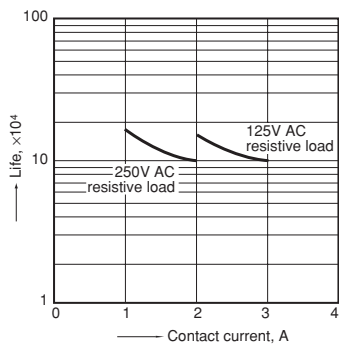


## 5.-(1) Life curve (Standard type)

Operation frequency: 20 times/min.

(ON/OFF = 1.5s:1.5s)

Ambient temperature: Room temperature

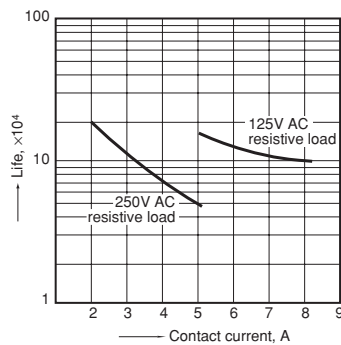


## 5.-(2) Life curve (High capacity type)

Operation frequency: 20 times/min.

(ON/OFF = 1.5s:1.5s)

Ambient temperature: Room temperature



**For Cautions for Use, see Relay Technical Information.**