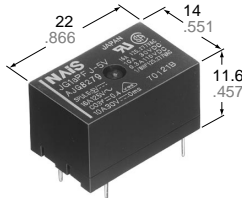


|               |                                   |                      |
|---------------|-----------------------------------|----------------------|
| <h1>NAIS</h1> | <h2>15 A POWER COMPACT RELAY</h2> | <h1>JG-P RELAYS</h1> |
|---------------|-----------------------------------|----------------------|

### FEATURES



mm inch

- **Compact & flat design:** 22 mm .866 inch (length) × 14 mm .551 inch (width) × 11.6 mm .457 inch (height)
- **High capacity:** 15 A nominal switching capacity
- **AMP receptacle type (Vertical & Horizontal type) is available**
- **High surge resistance:** Min. 10,000 V between contact and coil
- **VDE, TÜV also approved**

### SPECIFICATIONS

#### Contact

|  |  |  |
|--|--|--|
| Arrangement  |  | 1 Form A                                       |
| Initial contact resistance, max. (By voltage drop 6 V DC 1A) |  | 100 mΩ   |
| Contact material   |  | Silver alloy                                   |
| Rating (resistive load)                                      | Nominal switching capacity             | 15 A 125 V AC<br>10 A 250 V DC<br>10 A 30 V DC |
|  | Max. switching power                   | 2,500 VA, 300 W                                |
|  | Max. switching voltage                 | 250 V AC, 110 V DC (0.3 A)                     |
|  | Max. switching current                 | 15 A (AC), 10 A (DC)                           |
| Expected life (min. operations)                              | Mechanical (at 180 cpm)                | 5×10 <sup>6</sup>                              |
|  | Electrical (at 20 cpm) (at rated load) | 10 <sup>5</sup>                                |

#### Coil

|                         |        |
|-------------------------|--------|
| Nominal operating power | 400 mW |
|-------------------------|--------|

#### Remarks

- \* Specifications will vary with foreign standards certification ratings.
- \*<sub>1</sub> Measurement at same location as "Initial breakdown voltage" section
- \*<sub>2</sub> Detection current: 10 mA
- \*<sub>3</sub> Wave is standard shock voltage of ±1.2 × 50μs according to JEC-212-1981
- \*<sub>4</sub> Excluding contact bounce time
- \*<sub>5</sub> Half-wave pulse of sine wave: 11ms; detection time: 10μs
- \*<sub>6</sub> Half-wave pulse of sine wave: 6ms
- \*<sub>7</sub> Detection time: 10μs
- \*<sub>8</sub> Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 61).

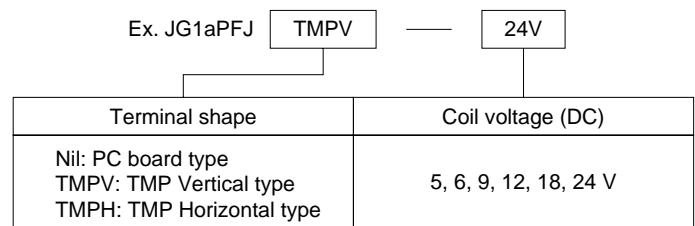
#### Characteristics

|  |                           |  |
|--|---------------------------|--|
| Max. operating speed   |                           | 20 cpm   |
| Initial insulation resistance* <sub>1</sub>  |                           | Min. 100 MΩ at 500 V DC  |
| Initial breakdown voltage* <sub>2</sub>  | Between open contacts     | 750 Vrms for 1 min.  |
|  | Between contacts and coil | 4,000 Vrms for 1 min.  |
| Surge voltage between contact and coil* <sub>3</sub>   |                           | Min. 10,000 V  |
| Operate time* <sub>4</sub> (at nominal voltage)  |                           | Approx. 6 ms   |
| Release time* <sub>4</sub> (without diode) (at nominal voltage)  |                           | Approx. 2 ms   |
| Temperature rise (ambient temperature: 70°C)   |                           | Max. 45°C with nominal coil voltage and at 15 A contact current        |
| Shock resistance   | Functional* <sub>5</sub>  | Min. 98 m/s <sup>2</sup> {10 G}  |
|  | Destructive* <sub>6</sub> | Min. 980 m/s <sup>2</sup> {100 G}                                      |
| Vibration resistance   | Functional* <sub>7</sub>  | 98 m/s <sup>2</sup> {10 G}, 10 to 55 Hz at double amplitude of 1.6 mm  |
|  | Destructive               | 117.6 m/s <sup>2</sup> {12 G}, 10 to 55 Hz at double amplitude of 2 mm |
| Conditions for operation, transport and storage* <sub>8</sub> (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  |                           | PC board type: Approx. 7 g .25 oz<br>TMP type: Approx. 8 g .28 oz      |

### TYPICAL APPLICATIONS

- Microwave ovens
- Small household appliances
- Water heaters
- Electric irons
- Coffee makers

### ORDERING INFORMATION



Note: Standard packing Carton: 100 pcs. Case: 500 pcs.  
UL/CSA, VDE approved type is standard.

# JG-P

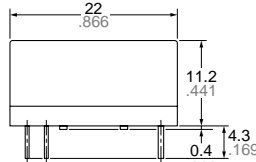
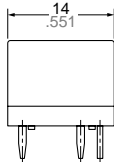
## TYPES AND COIL DATA

| Part No.      |                   |                     | 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, W (±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, V DC (at 70°C 158°F) |
|---------------|-------------------|---------------------|-----------------------|---|--|--|---|--|--|
| PC board type | TMP vertical type | TMP horizontal type |                       |   |  |  |   |  |  |
| JG1aPFJ-5V    | JG1aPFJ-TMPV-5V   | JG1aPFJ-TMPH-5V     | 5                     | 3.5   | 0.25   | 62.5                                     | 80  | 400  | 7.5  |
| JG1aPFJ-6V    | JG1aPFJ-TMPV-6V   | JG1aPFJ-TMPH-6V     | 6                     | 4.2   | 0.3  | 90                                       | 66.7  | 400  | 9  |
| JG1aPFJ-9V    | JG1aPFJ-TMPV-9V   | JG1aPFJ-TMPH-9V     | 9                     | 6.3   | 0.45   | 202                                      | 44.4  | 400  | 13.5   |
| JG1aPFJ-12V   | JG1aPFJ-TMPV-12V  | JG1aPFJ-TMPH-12V    | 12                    | 8.4   | 0.6  | 360                                      | 33.3  | 400  | 18   |
| JG1aPFJ-18V   | JG1aPFJ-TMPV-18V  | JG1aPFJ-TMPH-18V    | 18                    | 12.6  | 0.9  | 810                                      | 22.2  | 400  | 27   |
| JG1aPFJ-24V   | JG1aPFJ-TMPV-24V  | JG1aPFJ-TMPH-24V    | 24                    | 16.8  | 1.2  | 1,440                                    | 16.7  | 400  | 36   |

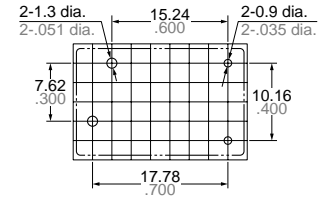
## DIMENSIONS

mm inch

### 1. PC board type



### PC board pattern (Copper-side view)



Tolerance:  $\pm 0.1 \pm 0.04$

#### Dimension:

Max. 1mm .039 inch:

1 to 5mm .039 to .118 inch:

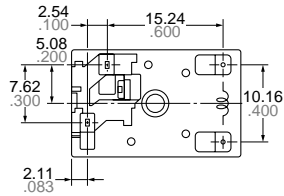
Min. 5mm .118 inch:

#### General tolerance

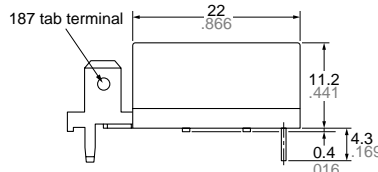
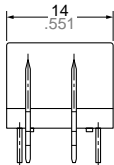
$\pm 0.2 \pm 0.08$

$\pm 0.3 \pm 0.12$

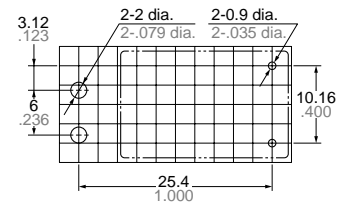
$\pm 0.4 \pm 0.16$



### 2. TMP vertical type



### PC board pattern (Copper-side view)



Tolerance:  $\pm 0.1 \pm 0.04$

#### Dimension:

Max. 1mm .039 inch:

1 to 5mm .039 to .118 inch:

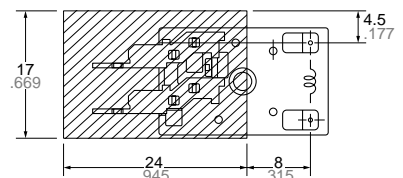
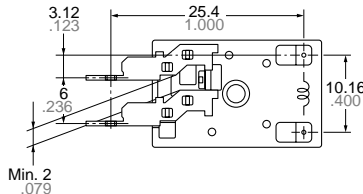
Min. 5mm .118 inch:

#### General tolerance

$\pm 0.2 \pm 0.08$

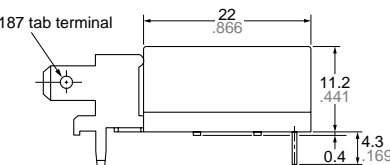
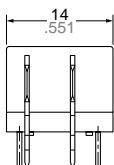
$\pm 0.3 \pm 0.12$

$\pm 0.4 \pm 0.16$

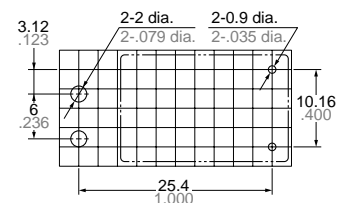


This product should only be used when there is no patterned metal surface (other than the terminal pattern) on the PC board facing the marked area .

### 3. TMP horizontal type



### PC board pattern (Copper-side view)



Tolerance:  $\pm 0.1 \pm 0.04$

#### Dimension:

Max. 1mm .039 inch:

1 to 5mm .039 to .118 inch:

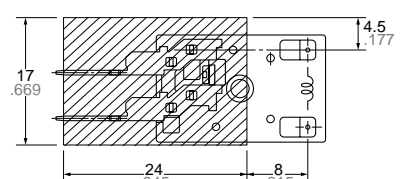
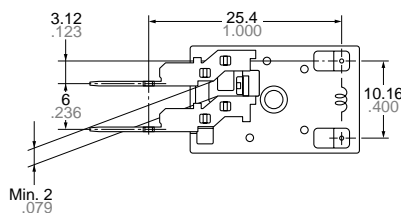
Min. 5mm .118 inch:

#### General tolerance

$\pm 0.2 \pm 0.08$

$\pm 0.3 \pm 0.12$

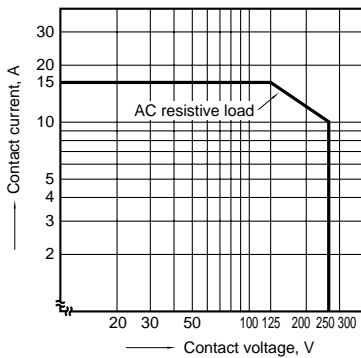
$\pm 0.4 \pm 0.16$



This product should only be used when there is no patterned metal surface (other than the terminal pattern) on the PC board facing the marked area .

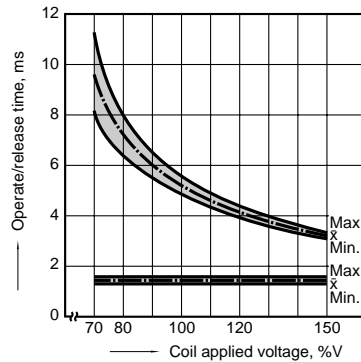
## REFERENCE DATA

### 1. Max. switching capacity



### 2. Operate/release time

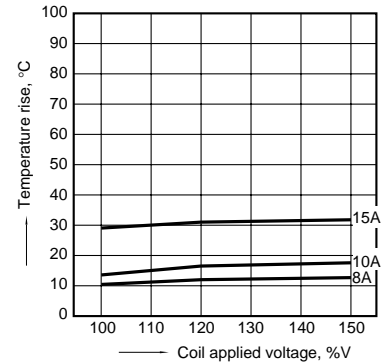
Sample: JG1aPFJ-12V, 25 pcs.



### 3.-(1) Temperature rise (at 20°C 68°F)

Sample: JG1aPFJ-24V, 25 pcs.

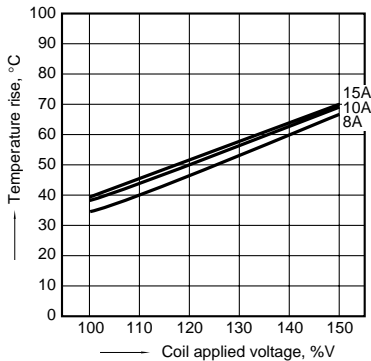
Point measured: Contact



### 3.-(2) Temperature rise (at 20°C 68°F)

Sample: JG1aPFJ-24V, 16 pcs.

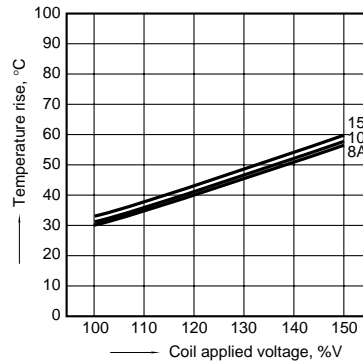
Point measured: Inside the coil



### 3.-(3) Temperature rise (at 60°C 140°F)

Sample: JG1aPFJ-24V, 6 pcs.

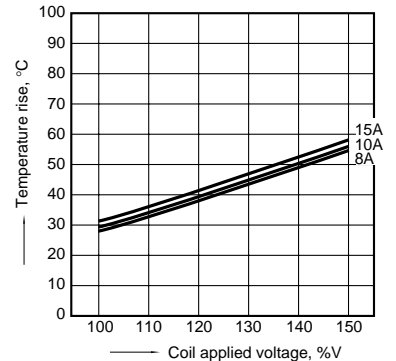
Point measured: Inside the coil



### 3.-(4) Temperature rise (at 80°C 176°F)

Sample: JG1aPFJ-24V, 6 pcs.

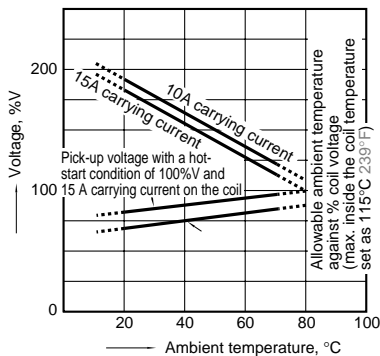
Point measured: Inside the coil



### 4. Ambient temperature characteristics

Sample: JG1aPFJ-24V

Contact current: 10A, 15A

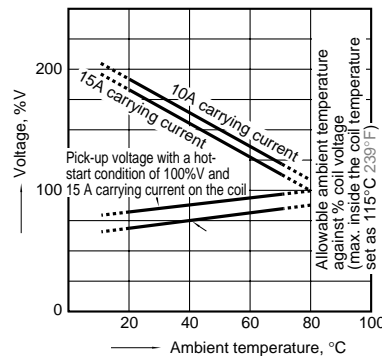


### 5. Life curve

Operation frequency: 20 times/min.

(ON/OFF = 1.5 s : 1.5 s)

Ambient temperature: Room temperature



### 6. Electrical life test

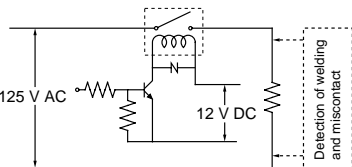
Sample: JG1aPFJ-12V, 6 pcs.

Load: 15 A 125 V AC resistive load

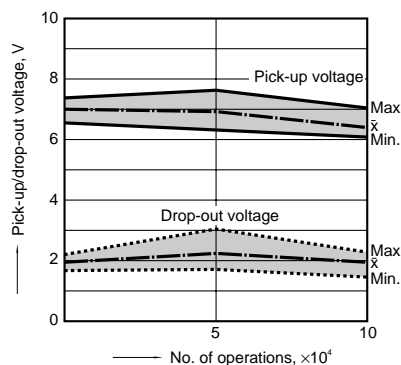
Operating frequency: 20 cpm

Ambient temperature: Room temperature

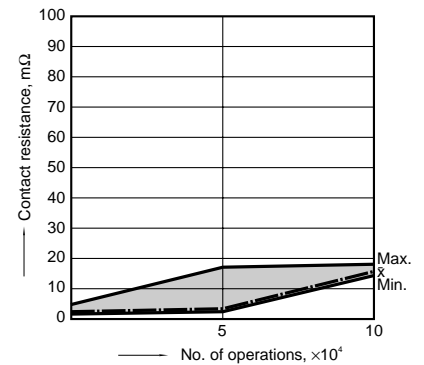
#### Circuit



### Change of pick-up and drop-out voltage



### Change of contact resistance



**For Cautions for Use, see Relay Technical Information (Page 48 to 76).**