

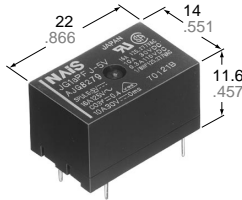
# NAIS

## 15 A POWER COMPACT RELAY

# JG-P RELAYS

### FEATURES

- 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



mm inch

### 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 10 A 250 V DC 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
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#### 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 ±1.2 × 50μs according to JEC-212-1981
- \*<sup>4</sup> Excluding contact bounce time
- \*<sup>5</sup> Half-wave pulse of sine wave: 11ms; detection time: 10μs
- \*<sup>6</sup> Half-wave pulse of sine wave: 6ms
- \*<sup>7</sup> Detection time: 10μs
- \*<sup>8</sup> Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 61).

#### 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 contacts and coil	4,000 Vrms for 1 min.
Surge voltage between contact and coil* <sup>3</sup>	Min. 10,000 V	
Operate time* <sup>4</sup> (at nominal voltage)	Approx. 6 ms	
Release time* <sup>4</sup> (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* <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>	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* <sup>8</sup> (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	PC board type: Approx. 7 g .25 oz TMP type: Approx. 8 g .28 oz	

### TYPICAL APPLICATIONS

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

### ORDERING INFORMATION

Ex. JG1aPFJ — TMPV — 24V

Terminal shape	Coil voltage (DC)
Nil: PC board type TMPV: TMP Vertical type TMPH: TMP Horizontal type	5, 6, 9, 12, 18, 24 V

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

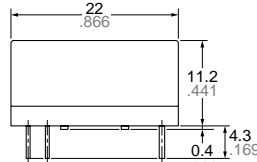
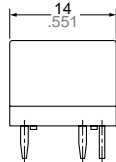
## TYPES AND COIL DATA

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

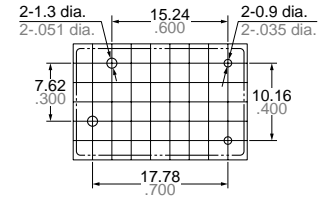
## DIMENSIONS

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:

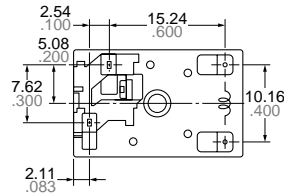
Min. 5mm .118 inch:

#### General tolerance

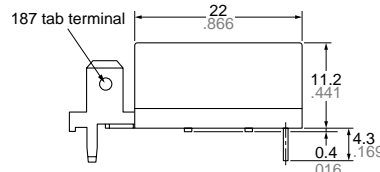
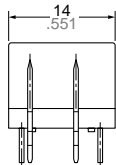
$\pm 0.2 \pm 0.08$

$\pm 0.3 \pm 0.12$

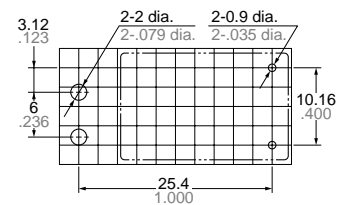
$\pm 0.4 \pm 0.16$



### 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:

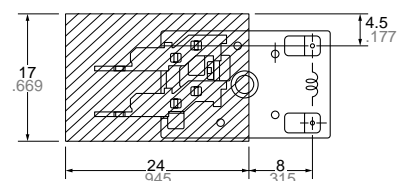
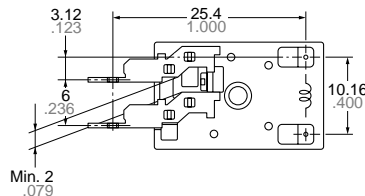
Min. 5mm .118 inch:

#### General tolerance

$\pm 0.2 \pm 0.08$

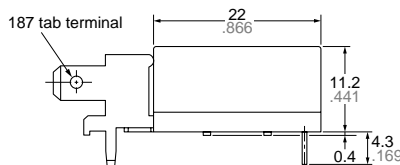
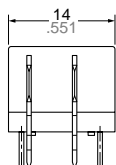
$\pm 0.3 \pm 0.12$

$\pm 0.4 \pm 0.16$

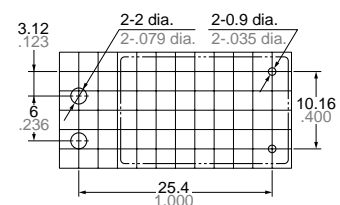


This product should only be used when there is no patterned metal surface (other than the terminal pattern) on the PC board facing the marked area .

### 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:

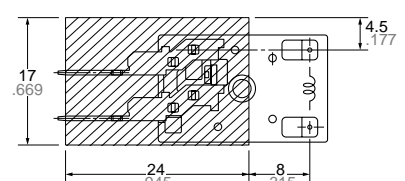
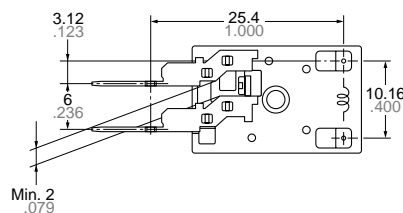
Min. 5mm .118 inch:

#### General tolerance

$\pm 0.2 \pm 0.08$

$\pm 0.3 \pm 0.12$

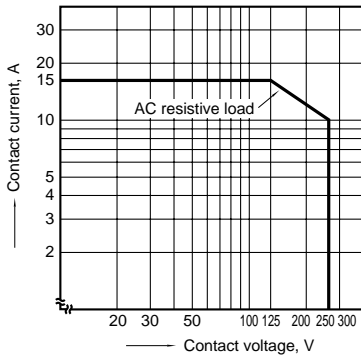
$\pm 0.4 \pm 0.16$



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 .

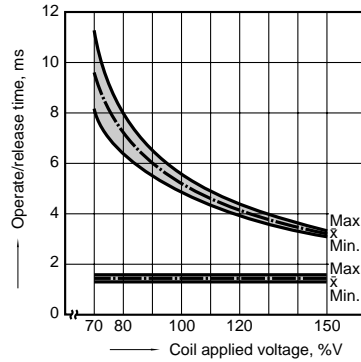
# REFERENCE DATA

## 1. Max. switching capacity



## 2. Operate/release time

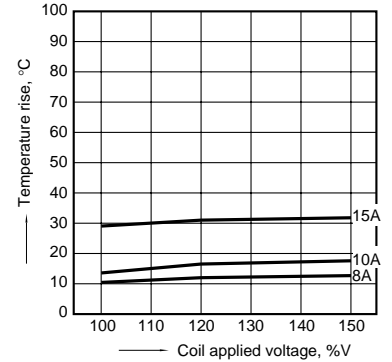
Sample: JG1aPFJ-12V, 25 pcs.



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

Sample: JG1aPFJ-24V, 25 pcs.

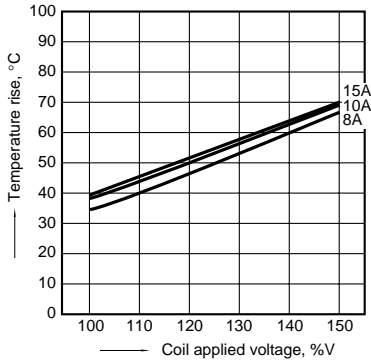
Point measured: Contact



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

Sample: JG1aPFJ-24V, 16 pcs.

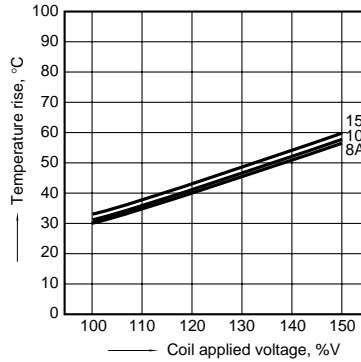
Point measured: Inside the coil



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

Sample: JG1aPFJ-24V, 6 pcs.

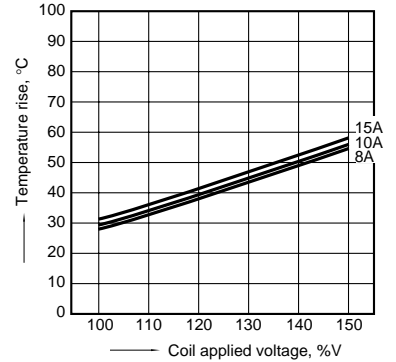
Point measured: Inside the coil



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

Sample: JG1aPFJ-24V, 6 pcs.

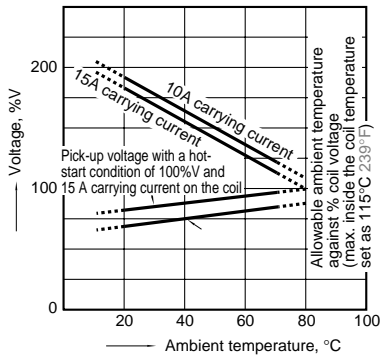
Point measured: Inside the coil



## 4. Ambient temperature characteristics

Sample: JG1aPFJ-24V

Contact current: 10A, 15A

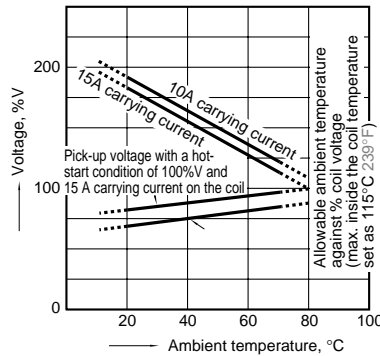


## 5. Life curve

Operation frequency: 20 times/min.

(ON/OFF = 1.5 s : 1.5 s)

Ambient temperature: Room temperature



## 6. Electrical life test

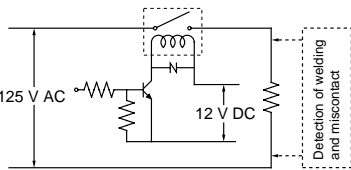
Sample: JG1aPFJ-12V, 6 pcs.

Load: 15 A 125 V AC resistive load

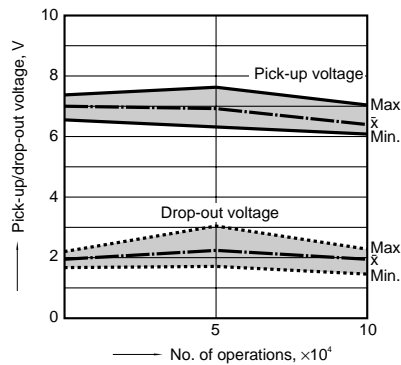
Operating frequency: 20 cpm

Ambient temperature: Room temperature

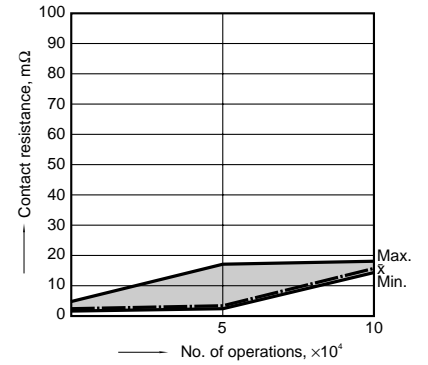
### Circuit



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



## Change of contact resistance



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