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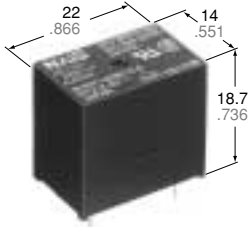
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**Panasonic**  
ideas for life

**COMPACT ECONOMICAL  
POWER RELAYS**

**JE-X  
RELAYS**



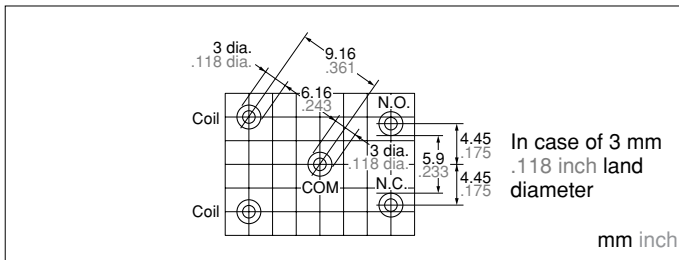
mm inch

## FEATURES

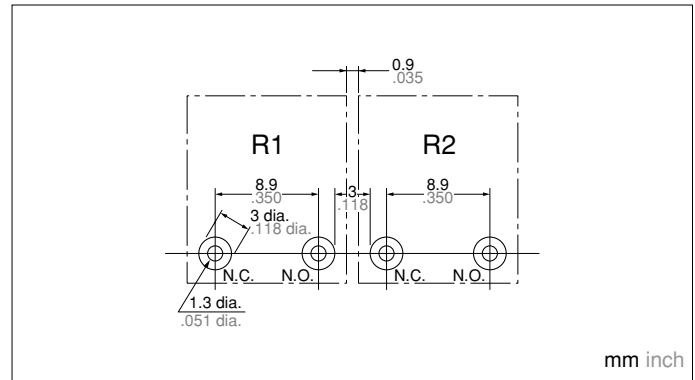
- Compact size - Height Max. 18.7 mm (.736 inch) lower than JY relay (22.5 mm) (.886 inch)
- High contact capacity — 5A 125 V AC
- Safety-oriented between coil and contact terminals
- All plastic materials: UL flame retardance 94V-0
- VDE, TÜV also approved

## TERMINAL LAYOUT

Distance of 9.16 mm (.360 inch) between common and coil terminals and 8.9 mm (.350 inch) between contacts give room to the land diameter width when the relay is mounted on PC board, and allow design of patterns with insulation distances of 6 mm (.236 inch) between common and coil and 5.9 mm (.232 inch) between contacts.



- 3 mm (.118 inch) or more insulation distance for close mounting can be kept easily with JE-X relays.



## SPECIFICATIONS

### Contact

|  |  |  |
|--|--|--|
| Arrangement  | 1 Form A                               | 1 Form C                               |
| Initial contact resistance, max. (By voltage drop 6 V DC 1A) | 100 mΩ                                 |  |
| Contact material   | Silver alloy                           |  |
| Rating (resistive load)                                      | Nominal switching capacity             | 5 A 30 V DC, 5 A 125 V AC, 3A 250 V AC |
|  | Max. switching power                   | 750 VA, 150 W                          |
|  | Max. switching voltage                 | 250 V AC, 30 V DC                      |
|  | Max. switching current                 | 5 A                                    |
| 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

|                         |        |
|-------------------------|--------|
| Minimum operating power | 196 mW |
| Nominal operating power | 400 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: 6ms; detection time: 10μs
- \*6 Half-wave pulse of sine wave: 6ms
- \*7 Detection time: 10μs
- \*8 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.

### Characteristics

|  |   |  |
|--|---|--|
| Max. operating speed   | 20 cpm (at 70°C)  |  |
| Initial insulation resistance*1  | Min. 100 MΩ (at 500 V DC)   |  |
| Initial breakdown voltage*2  | Between open contacts   | 750 Vrms   |
|  | Between contacts and coil   | 1,500 Vrms   |
| Surge voltage between coil and contact*3   | Min. 5,000 V  |  |
| Operate time*4 (at nominal voltage)  | Approx. 10 ms   |  |
| Release time (without diode)*4 (at nominal voltage)  | Approx. 2 ms  |  |
| Temperature rise (at 70°C)   | Max. 45°C with nominal coil voltage and at nominal switching capacity |  |
| Shock resistance   | Functional*5  | Min. 98 m/s <sup>2</sup> {10 G}  |
|  | Destructive*6   | Min. 980 m/s <sup>2</sup> {100 G}  |
| Vibration resistance   | Functional*7  | 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 2.0 mm |
| Conditions for operation, transport and storage*8 (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. 9.2g .32 oz   |  |

## TYPICAL APPLICATIONS

- Home appliances  
Oven, range, dryer, heater,  
Air conditioner etc.
- Automotive
- Garage door opener
- Personal computer
- Programmable controller

## ORDERING INFORMATION

Ex. JE 1 X N — DC12V — H

| Contact arrangement        | Pick-up voltage          | Coil voltage                | Protective construction |
|----------------------------|--------------------------|-----------------------------|-------------------------|
| 1a: 1 Form A<br>1:1 Form C | N:70% of nominal voltage | DC 5, 6, 9,<br>12, 24, 48 V | H: Flux-resistant type  |

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

## TYPES

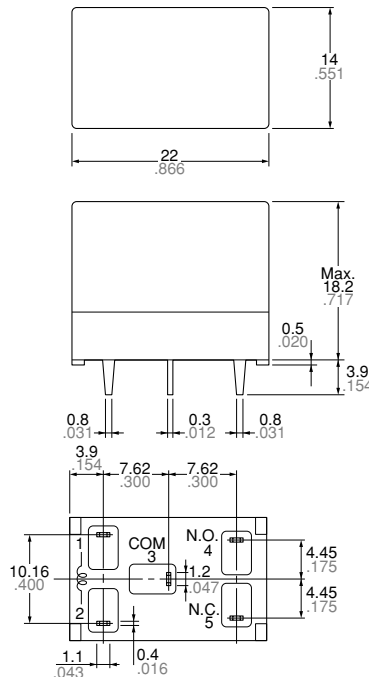
| Contact arrangement | Coil voltage | Pick-up 70% V type  |
|---------------------|--------------|---------------------|
|                     |              | Flux-resistant type |
| 1 Form A            | 5 V DC       | JE1aXN-DC5V-H       |
|                     | 6 V DC       | JE1aXN-DC6V-H       |
|                     | 9 V DC       | JE1aXN-DC9V-H       |
|                     | 12 V DC      | JE1aXN-DC12V-H      |
|                     | 24 V DC      | JE1aXN-DC24V-H      |
|                     | 48 V DC      | JE1aXN-DC48V-H      |
| 1 Form C            | 5 V DC       | JE1XN-DC5V-H        |
|                     | 6 V DC       | JE1XN-DC6V-H        |
|                     | 9 V DC       | JE1XN-DC9V-H        |
|                     | 12 V DC      | JE1XN-DC12V-H       |
|                     | 24 V DC      | JE1XN-DC24V-H       |
|                     | 48 V DC      | JE1XN-DC48V-H       |

## COIL DATA (at 20°C 68°F)

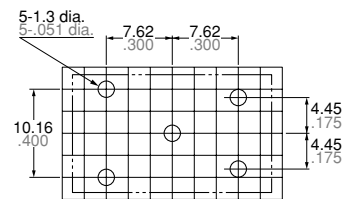
| Nominal voltage, V DC | Pick-up voltage, V DC (max.) | Drop-out voltage, V DC (min.) | Nominal operating current, mA (±10%) | Coil resistance, Ω(±10%) | Nominal operating power, mW | Maximum allowable voltage, V DC (at 70°C) |
|-----------------------|------------------------------|-------------------------------|--------------------------------------|--------------------------|-----------------------------|---|
| 5                     | 3.5                          | 0.5                           | 80                                   | 62.5                     | 400                         | 6.5                                       |
| 6                     | 4.2                          | 0.6                           | 67                                   | 90                       | 400                         | 7.8                                       |
| 9                     | 6.3                          | 0.9                           | 44                                   | 202                      | 400                         | 11.7                                      |
| 12                    | 8.4                          | 1.2                           | 33                                   | 360                      | 400                         | 15.6                                      |
| 24                    | 16.8                         | 2.4                           | 17                                   | 1,440                    | 400                         | 31.2                                      |
| 48                    | 33.6                         | 4.8                           | 8.3                                  | 5,760                    | 400                         | 62.4                                      |

## DIMENSIONS

mm inch

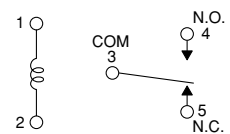


PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

Schematic (Bottom view)



Note: The above shows 1 Form C type, and No. 5 terminal is eliminated on the 1 Form A type.

**Dimension:**

Max. 1mm .039 inch:

1 to 5mm .039 to .197 inch:

Min. 5mm .197 inch:

**General tolerance**

±0.2 ±.008

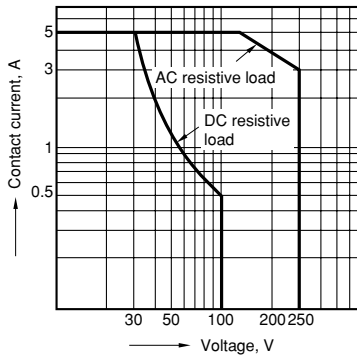
±0.3 ±.012

±0.4 ±.016

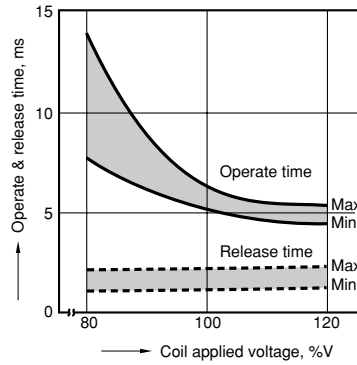
# JE-X

## REFERENCE DATA

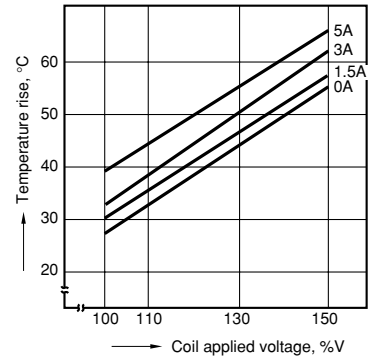
1. Max. switching power



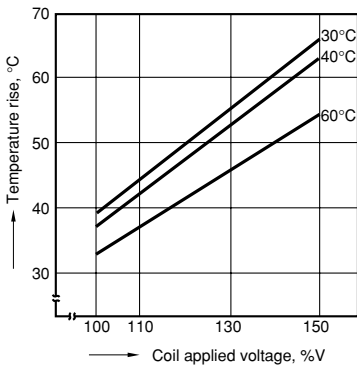
2. Operate and release time



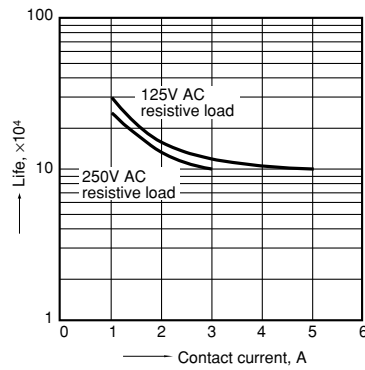
3. Coil temperature rise (at 30°C 86°F)



4. Coil temperature rise  
(Contact carrying current: 5 A)



5. Life curve



## NOTE

Soldering should be carried out within 3 s at 350°C 662°F or within 5 s at 250°C 482°F.

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