

# POWER RELAY

## 1 POLE—5 A (CADMIUM FREE CONTACTS TYPE)

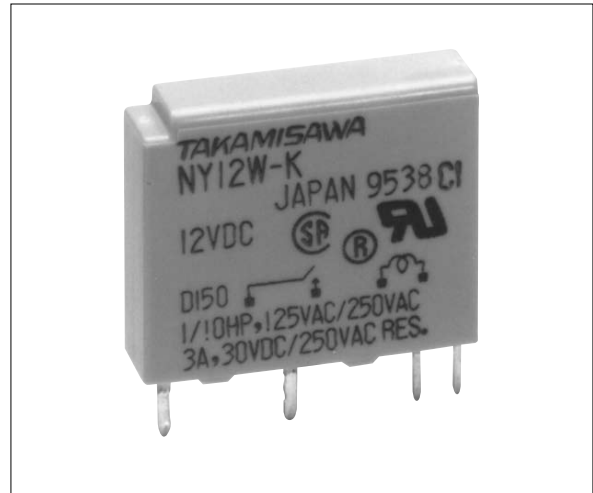
### NY SERIES

RoHS compliant



#### FEATURES

- Ultra slim type with 5 mm thickness  
—Good for high density mounting
- Low power consumption and high sensitivity  
—Nominal coil power: 120 mW  
—Operating power: 54 mW
- UL, CSA, VDE recognized
- Conforms to IEC61010, 61131
- High isolation  
—Surge voltage: 5,080V  
—Dielectric strength: 3,000VAC (coil and contacts)
- SIL pitch terminals
- Plastic sealed type
- Compatible with solid state I/O module type SN (see page 376) in size and pin (terminal) arrangement
- Environmentally friendly cadmium free contact type
- RoHS compliant since date code: 0439C1  
Please see page 6 for more information



#### ORDERING INFORMATION

[Example]  $\frac{NY}{(a)} \frac{P}{(b)} - \frac{12}{(*)} \frac{W}{(c)} - \frac{K}{(e)} - \frac{IE}{(*) (f)}$

|     |                         |  |
|-----|-------------------------|--|
| (a) | Series Name             | NY: NY Series  |
| (b) | Terminal Classification | Nil : PC board mounting type<br>P : Socket mounting type |
| (c) | Nominal Voltage         | Refer to the COIL DATA CHART                             |
| (d) | Contact                 | W : Bifurcated type                                      |
| (e) | Enclosure               | K : Plastic sealed type                                  |
| (f) | Insulation              | IE : Comply with IEC standard                            |

Note: Actual marking omits the hyphen (-) and IE of (\*)

#### SAFETY STANDARDS

| Type | Compliance               | Contact rating   |
|------|--------------------------|--|
| UL   | UL 508, UL 1604          | Flammability: UL 94-V0 (plastics)<br>3A (General use)<br>5A, 250VAC/30 VDC (resistive) |
|      | E56140, E199193          |  |
| CSA  | C22.2 No. 14<br>LR 35579 | 1/8 HP, 250VAC /125VAC<br>Pilot duty: C300   |

Also complies with VED, IEC 61010, 61131

## ■ SPECIFICATIONS

| Item       |                              | NY  |   |
|------------|------------------------------|---|---|
| Contact    | Arrangement                  | 1 form A (SPST-NO)  |   |
|            | Material                     | Gold overlay silver alloy   |   |
|            | Configuration                | Bifurcated  |   |
|            | Resistance (initial)         | Maximum 30 mΩ (at 1 A 6 VDC)  |   |
|            | Rating (resistive)           | 3 A 250 VAC or 3 A 30 VDC   |   |
|            | Maximum Carrying Current     | 5 A   |   |
|            | Maximum Switching Power      | 750 VA, 90 W  |   |
|            | Maximum Switching Voltage    | 270 VAC, 150 VDC  |   |
|            | Maximum Switching Current    | 5 A   |   |
|            | Minimum Switching Load*1     | 1mA 5 VDC   |   |
| Coil       | Nominal Power (at 20°C)      | 120 mW  |   |
|            | Operate Power (at 20°C)      | 54 mW   |   |
|            | Operating Temperature        | -40°C to +90°C (no frost) (refer to the CHARACTERISTIC DATA)  |   |
| Time Value | Operate (at nominal voltage) | Maximum 10 ms   |   |
|            | Release (at nominal voltage) | Maximum 5 ms  |   |
| Life       | Mechanical                   | 2 x 10 <sup>7</sup> operations minimum  |   |
|            | Electrical                   | 1 x 10 <sup>5</sup> operations minimum (at 3A 250VAC, 30VDC resistive)<br>5 x 10 <sup>4</sup> operations minimum (at 5 A 250 VAC, 30 VDC resistive) |   |
| Other      | Vibration Resistance         | Misoperation  | 10 to 55 Hz (double amplitude of 1.5 mm)    |
|            |                              | Endurance   | 10 to 55 Hz (double amplitude of 5.0 mm)    |
|            | Shock Resistance             | Misoperation  | 100 m/s <sup>2</sup> (11 <sup>±1</sup> ms)  |
|            |                              | Endurance   | 1,000 m/s <sup>2</sup> (6 <sup>±1</sup> ms) |
|            | Weight                       | Approximately 3.5 g   |   |

\*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

## ■ INSULATION

| Item                 | NY                | Note                     |
|----------------------|-------------------|--------------------------|
| Resistance (initial) | Minimum 1,000 MΩ  | at 500 VDC               |
| Dielectric Strength  | open contacts     | 750 VAC 1 min.           |
|                      | coil and contacts | 3,000 VAC 1 min.         |
| Surge Voltage        | 5,080 V           | 1.2 x 50μs standard wave |

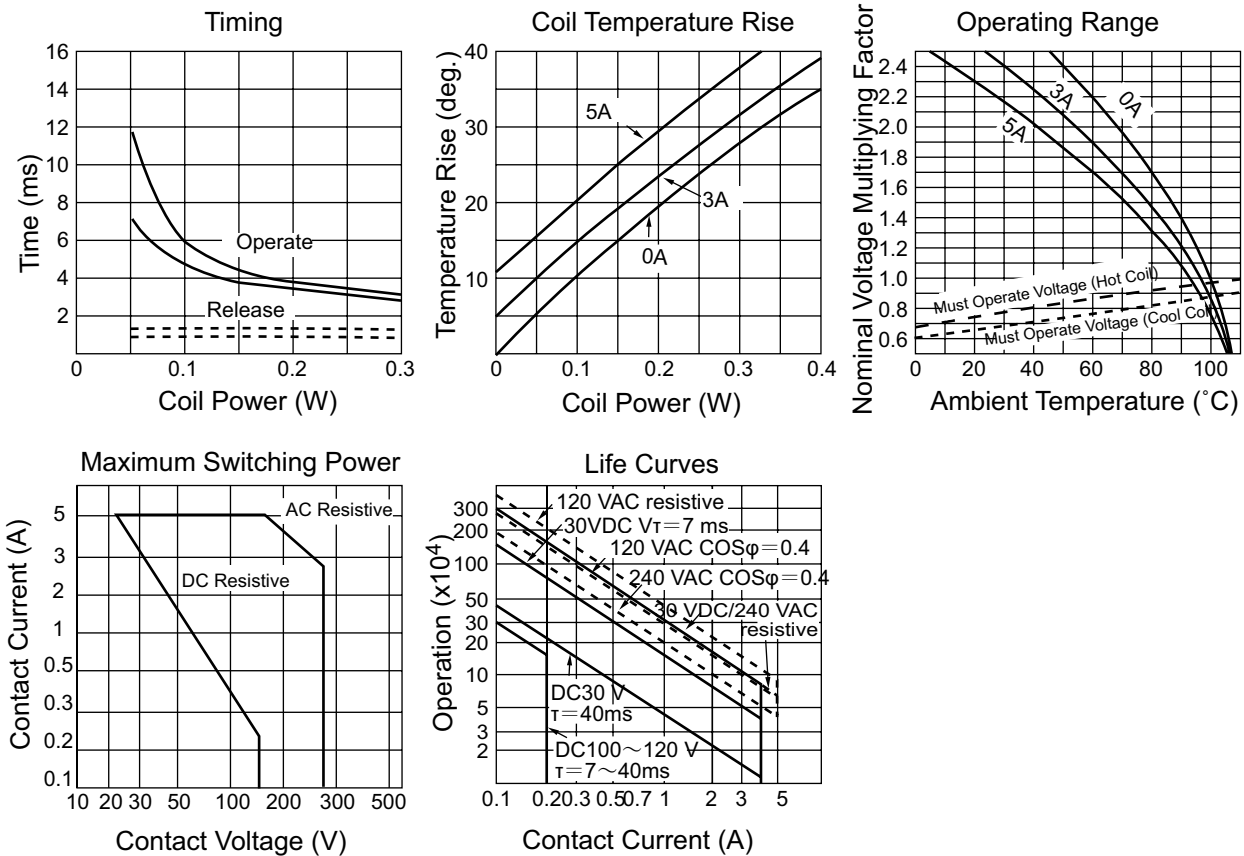
## COIL DATA CHART

| MODEL          | Nominal voltage | Coil resistance ( $\pm 10\%$ ) | Must operate voltage* | Must release voltage* | Nominal power |
|----------------|-----------------|--------------------------------|-----------------------|-----------------------|---------------|
| NY- 4.5 W-K-IE | 4.5 VDC         | 169 $\Omega$                   | 3 VDC                 | 0.45 VDC              | 120 mW        |
| NY- 5 W-K-IE   | 5 VDC           | 208 $\Omega$                   | 3.35 VDC              | 0.5 VDC               | 120 mW        |
| NY- 6 W-K-IE   | 6 VDC           | 300 $\Omega$                   | 4 VDC                 | 0.6 VDC               | 120 mW        |
| NY- 9 W-K-IE   | 9 VDC           | 675 $\Omega$                   | 6 VDC                 | 0.9 VDC               | 120 mW        |
| NY- 12 W-K-IE  | 12 VDC          | 1,200 $\Omega$                 | 8 VDC                 | 1.2 VDC               | 120 mW        |
| NY- 18W-K-IE   | 18 VDC          | 2,700 $\Omega$                 | 12.1VDC               | 1.8 VDC               | 120 mW        |
| NY- 24 W-K-IE  | 24 VDC          | 4,800 $\Omega$                 | 16.1 VDC              | 2.4 VDC               | 120 mW        |

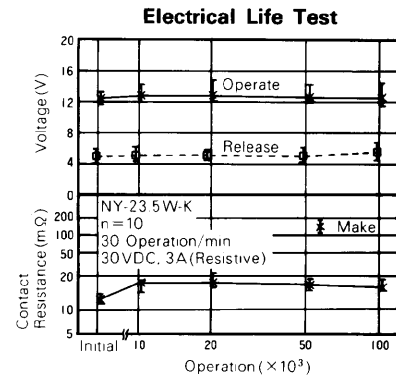
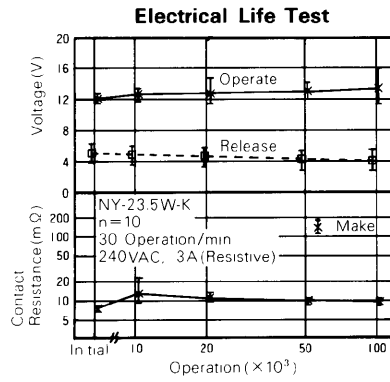
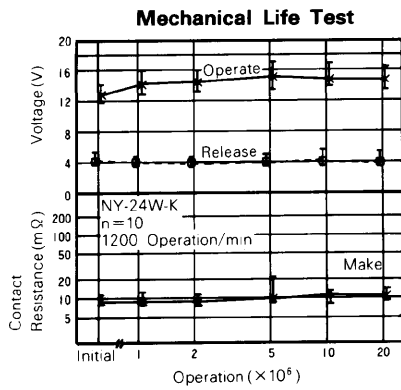
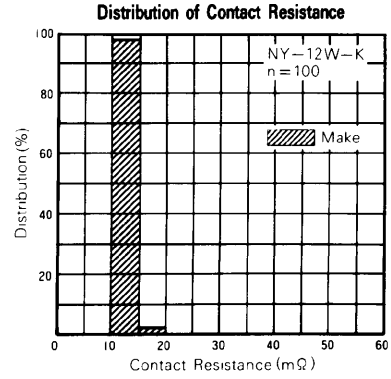
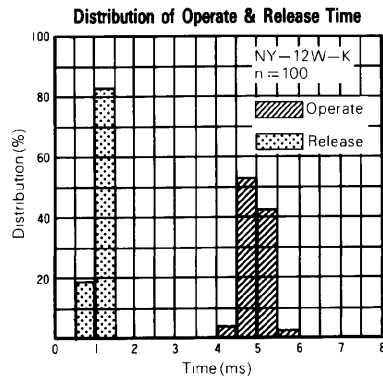
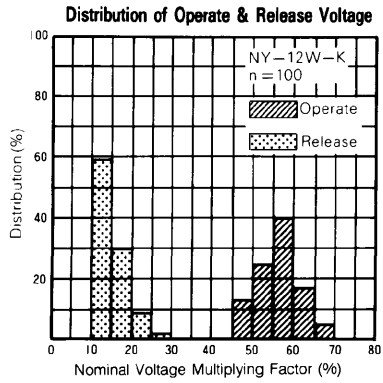
Note: All values in the table are measured at 20°C

\*: Specified values are subject to pulse wave voltage

## CHARACTERISTIC DATA



## ■ REFERENCE DATA

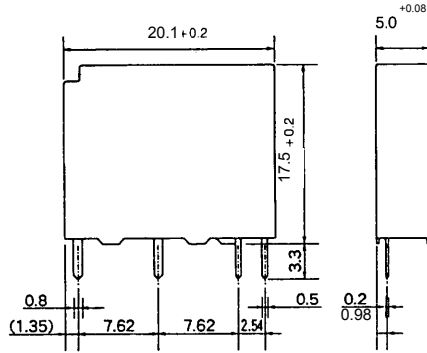


# NY SERIES

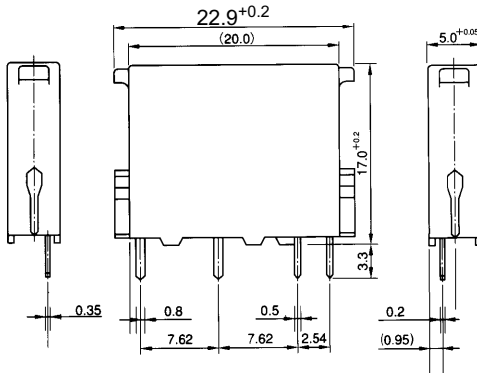
## ■ DIMENSIONS

### ● Dimensions

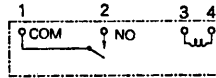
NY type



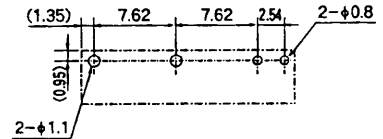
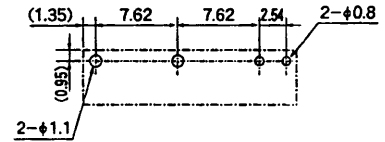
NYP type



### ● Schematics (BOTTOM VIEW)

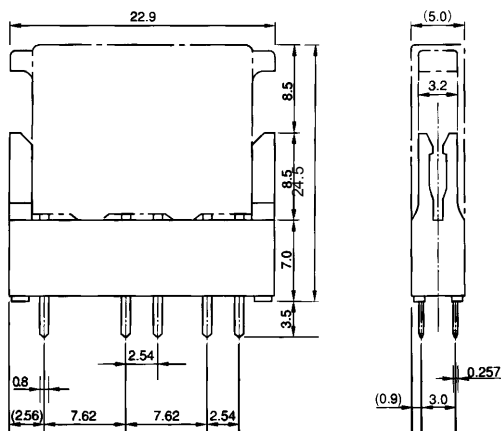


### ● PC board mounting hole layout (BOTTOM VIEW)

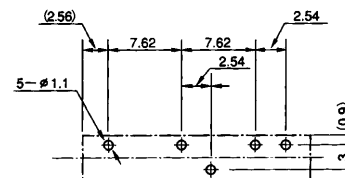


Unit: mm

## ■ SOCKET DIMENSIONS



## ■ SOCKET DRILLING PLANT



Unit: mm

## ■ NOTES

1. Socket ordering code. JL-5N
2. Standard IC socket is not recommended. Please use socket JL-5N.

## RoHS Compliance and Lead Free Relay Information

### 1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (<http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in lead assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
- We will ship leaded relays as long as the leaded relay inventory exists.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

### 2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu.

#### Reflow Solder condition

**Flow Solder condition:**

Pre-heating: maximum 120°C  
Soldering: dip within 5 sec. at  
260°C solder bath

**Solder by Soldering Iron:**

Soldering Iron  
Temperature: maximum 360°C  
Duration: maximum 3 sec.

**We highly recommend that you confirm your actual solder conditions**

### 3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays.

### 4. Tin Whisker

- Dipped SnAgCu solder is known as low risk tin whisker. No considerable length whisker was found by our in house test.

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