FUJITSU

# POWER RELAY
# 1 POLE - 5A Slim Type
# NY Series

## ■ FEATURES

- Slim type with 5 mm thickness
  - Suited for high density mounting
- Low power consumption and high sensitivity
  - Nominal coil power: 120 mW
  - Operating power: 54 mW
- UL and CSA recognized
- Conforms to IEC61010, 61131
- High insulation
  - Surge voltage: 5,080V
  - Dielectric strength: 3,000VAC (coil and contacts)
- SIL pitch terminals
- Plastic sealed type, RTIII
- Compatible with solid state I/O module type SN in size and pin (terminal) arrangement
- Environmentally friendly cadmium free contact type
- RoHS compliant.

Please see page 6 for more information


## ■ PARTNUMBER INFORMATION

**[Example]** NY (a) P (b) - (*) 12 (c) W (d) - K (e) - (*) IE (f)

| | | | |
|---|---|---|---|
| (a) | Relay type | NY | : NY-Series |
| (b) | Mounting type | Nil<br>P | : PCB board mounting type<br>: Socket mounting type |
| (c) | Coil rated voltage | 12 | : 4.5.....24 VDC<br>Coil rating table at page 3 |
| (d) | Contact design | W | : Bifurcated contact |
| (e) | Enclosure | K | : Plastic sealed type, RTIII |
| (f) | Insulation | IE | : Complies with IEC standard, IEC61010, 61131 |

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

## ■ SPECIFICATION

| Item | | | NY |
|---|---|---|---|
| Contact Data | Configuration | | 1 form A (SPST-NO) |
| | Construction | | Bifurcated |
| | Material | | Gold overlay silver alloy (AgNi + Au) |
| | Resistance (initial) | | Max. 30 mΩ at 6 VDC, 1 A |
| | Contact rating | | 5A, 250VAC / 30VDC |
| | Max. carrying current | | 5A |
| | Max. switching voltage | | 270VAC / 150 VDC |
| | Max. switching power | | 750VA / 90W |
| | Max. switching current | | 5A |
| | Min. switching load * | | 1 mA, 5 VDC |
| Life | Mechanical | | Min. 20 x $10^6$ operations |
| | Electrical | | Min. 100 x $10^3$ operations<br>(at 3A, 250VAC, 30VDC resistive)<br>Min. 50 x $10^3$ operations<br>(at 5A, 250VAC, 30VDC resistive) |
| Coil Data | Rated power (at 20 ℃) | | 120 mW |
| | Operate power (at 20 ℃) | | 54 mW |
| | Operating temperature range | | -40 ℃ to +90 ℃ (no frost) |
| Timing Data | Operate (at nominal voltage) | | Max. 10 ms (without bounce) |
| | Release (at nominal voltage) | | Max. 5 ms (no diode) |
| Insulation | Resistance (initial) | | Min. 1,000MΩ at 500VDC |
| | Dielectric strength | Open contacts | 750VAC, 1min |
| | | Contacts to coil | 3,000VAC, 1min |
| | Surge strength | Coil to contacts | 5,080V / 1.2 x 50μs standard wave |
| Other | Vibration resistance | Misoperation | 10 to 55Hz double amplitude 1.5 mm |
| | | Endurance | 10 to 55Hz double amplitude 5 mm |
| | Shock | Misoperation | Min. 100m/s² (11 ± 1ms) |
| | | Endurance | Min. 1,000m/s² (6 ± 1ms) |
| | Weight | | Approximately 3.5 g |
| | Sealing | | Plastic sealed, RTIII |

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

## ■ COIL RATING

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release-Voltage (VDC) * | Rated Power (mW) |
|---|---|---|---|---|---|
| 4.5 | 4.5 | 169 | 3 | 0.45 | 120 |
| 5 | 5 | 208 | 3.35 | 0.5 | |
| 6 | 6 | 300 | 4 | 0.6 | |
| 9 | 9 | 675 | 6 | 0.9 | |
| 12 | 12 | 1,200 | 8 | 1.2 | |
| 18 | 18 | 2,700 | 12.1 | 1.8 | |
| 24 | 24 | 4,800 | 16.1 | 2.4 | |

Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are valid for pulse wave voltage.

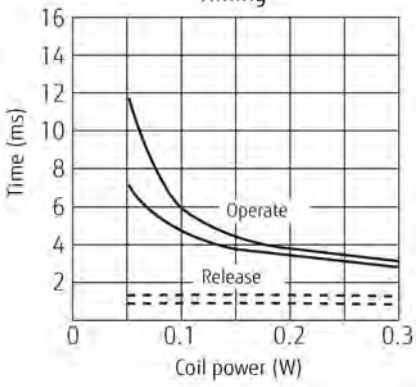
## ■ SAFETY STANDARDS

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

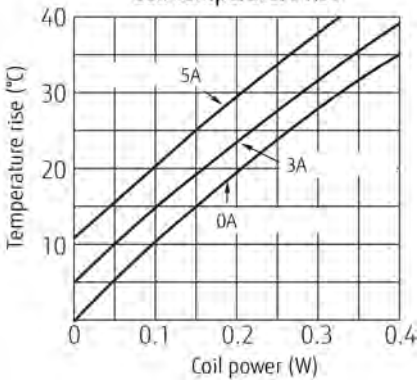
Also complies with IEC 61010, 61131

## ■ CHARACTERISTIC DATA

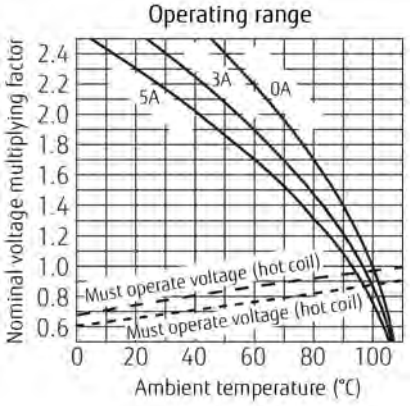
Timing



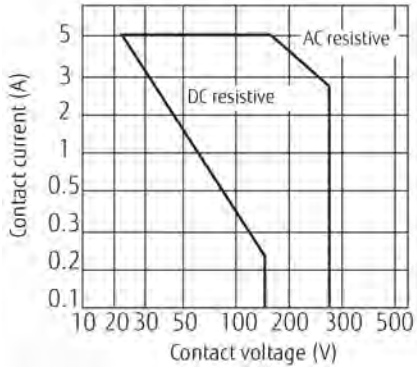

Coil temperature rise



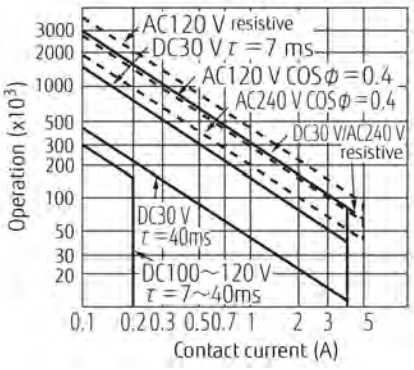

Operating range



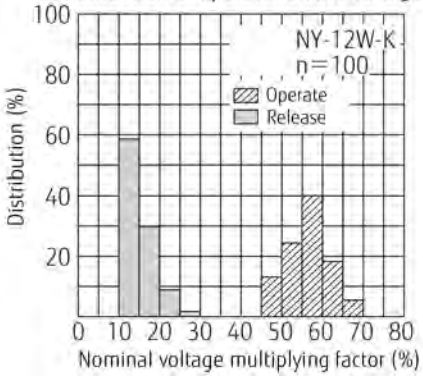

Maximum switching power



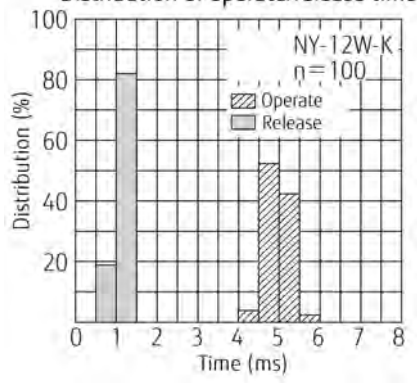

Life curve



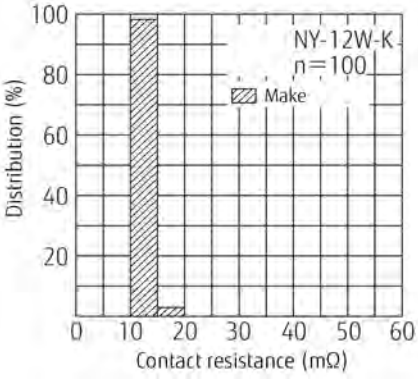

Distribution of operate/release voltage



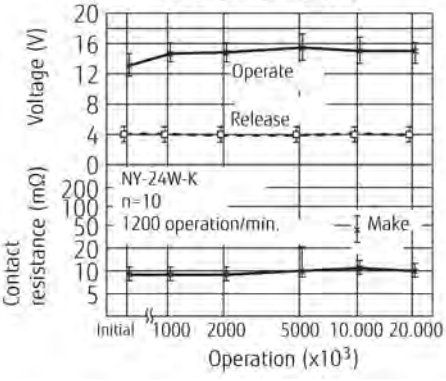

Distribution of operate/release time



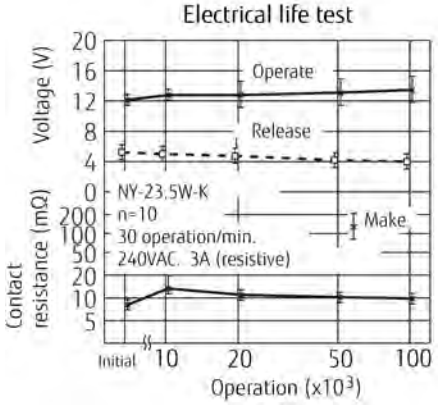

Distribution of contact resistance



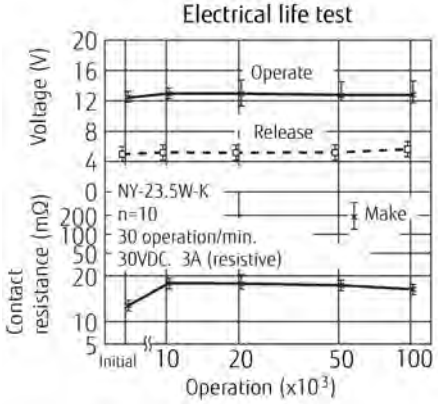

Mechanical life test




Electrical life test



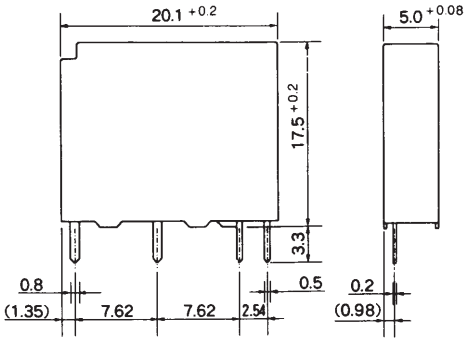

Electrical life test



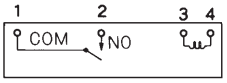
## ■ DIMENSIONS

NY type

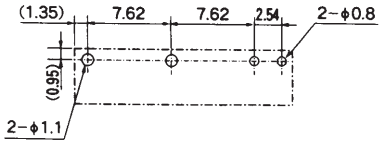
- **Dimensions**




- **Schematics**

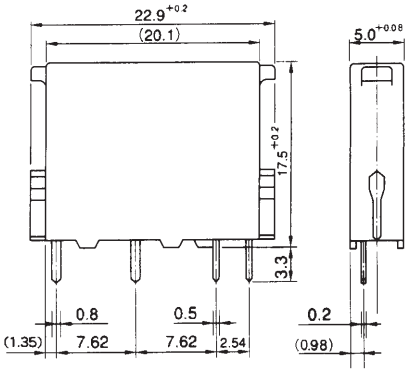



- **PC board mounting hole layout**
(BOTTOM VIEW)

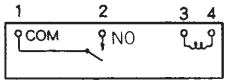



NYP type

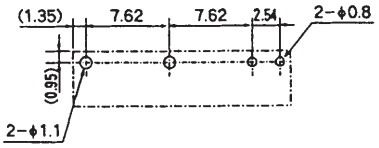
- **Dimensions**




- **Schematics**

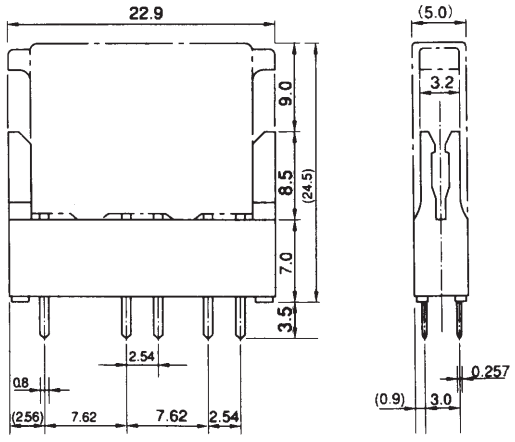



- **PC board mounting hole layout**
(BOTTOM VIEW)

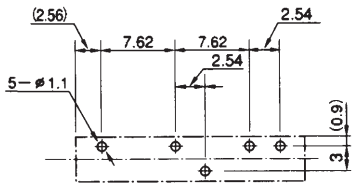



Socket type JL-5N

- **Dimensions**




- **PC board mounting hole layout**
(BOTTOM VIEW)



# RoHS Compliance and Lead Free Information

## 1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives.
  As per Annex III of directive 2011/65/EU.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at:
  http://www.fujitsu.com/downloads/MICRO/fcai/relays/lead-free-letter.pdf
- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified.
  This material has been verified to be compatible with PbSn assembly process.

## 2. Recommended Lead Free Solder Condition

- Recommended solder Sn-3.0Ag-0.5Cu.

**Flow Solder Condition:**

| | |
|---|---|
| Pre-heating: | maximum 120˚C within 9 sec. |
| Soldering: | dip within 5 sec. at 255˚C ± 5˚C solder bath |

Relay must be cooled by air immediately after soldering

**Solder by Soldering Iron:**

| | |
|---|---|
| Soldering Iron | 30-60W |
| Temperature: | maximum 350-360˚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, unless otherwise indicated.

## 4. Tin Whiskers

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

## Fujitsu Components International Headquarter Offices

**Japan**
Fujitsu Component Limited
Gotanda-Chuo Building
3-5, Higashigotanda 2-chome, Shinagawa-ku
Tokyo 141, Japan
Tel: (81-3) 5449-7010
Fax: (81-3) 5449-2626
Email: promothq@ft.ed.fujitsu.com
Web: www.fcl.fujitsu.com

**North and South America**
Fujitsu Components America, Inc.
250 E. Caribbean Drive
Sunnyvale, CA 94089 U.S.A.
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: components@us.fujitsu.com
Web: http://us.fujitsu.com/components

**Europe**
Fujitsu Components Europe B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: (31-23) 5560910
Fax: (31-23) 5560950
Email: info@fceu.fujitsu.com
Web: emea.fujitsu.com/components/

**Asia Pacific**
Fujitsu Components Asia Ltd.
102E Pasir Panjang Road
#01-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcal@fcal.fujitsu.com
Web: http://www.fujitsu.com/sg/services/micro/components/