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# 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, CSA, VDE 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

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

(a)	Relay type	NY	: NY-Series
(b)	Mounting type	Nil P	: PCB board mounting type : Socket mounting type
(c)	Coil rated voltage	12	: 4.524 VDC Coil rating table at page 3
(d)	Contact design	W	: Bifurcated contact
(e)	Enclosure	К	: Plastic sealed type, RTIII
(f)	Insulation	IE	: Complies with IEC standard, IEC61010, 61131

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



### SPECIFICATION

ltem			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 <sup>6</sup> operations		
	Electrical		Min. 100 x 10 <sup>3</sup> operations (at 3A, 250VAC, 30VDC resistive) Min. 50 x 10 <sup>3</sup> operations (at 5A, 250VAC, 30VDC resistive)		
Coil Data	Rated power (at 20 °C)		120 mW		
	Operate power (at 20 °C)		54 mW		
	Operating temperature ra	ange	-40 °C to +90 °C (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/s <sup>2</sup> (11 ± 1ms)		
	SHUCK	Endurance	Min. 1,000m/s <sup>2</sup> (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	
5	5	208	3.35	0.5	
6	6	300	4	0.6	
9	9	675	6	0.9	120
12	12	1,200	8	1.2	
18	18	2,700	12.1	1.8	
24	24	4,800	16.1	2.4	

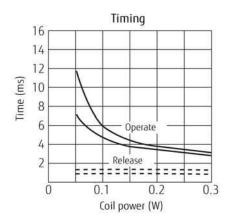
Note: All values in the table are valid for 20°C and zero contact current. \* Specified operate values are valid for pulse wave voltage.

### SAFETY STANDARDS

Туре	Compliance	Contact rating
UL	UL 508, UL 1604	Flammability: UL 94-V0 (plastics)
	E56140, E199193	3A (General use) 5A, 250VAC/30 VDC (resistive)
CSA	C22.2 No. 14 LR 35579	1/8 HP, 250VAC /125VAC Pilot duty: C300
VDE	0435 part 201 40016933	5A, 250VAC, cos φ1, 30K (-40 / 80 °C) 5A, 30VDC, 0msec, 100K (-40 / 80 °C)

Also complies with VDE, IEC 61010, 61131

#### **CHARACTERISTIC DATA**

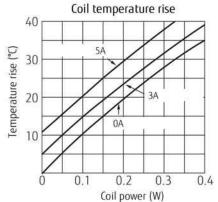


Maximum switching power

AC resistive

5

3



Life curve

AC120 V resistive

DC30

 $\tau = 40 \text{ms}$ 

-DC100~120 \

 $\tau = 7 \sim 40 \text{ms}$ 

Contact current (A)

0.20.3 0.50.7 1

DC30 V  $\tau = 7$  ms

AC120 V COS $\phi = 0.4$ 

AC240 V COS $\phi = 0.4$ 

3 5

V/AC240 V resistive

3000

2000

1000

500

300 200

100

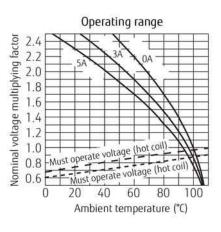
50

30

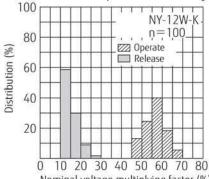
20

0.1

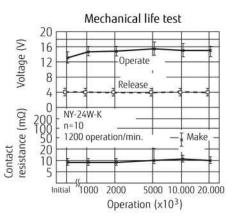
Operation (x10<sup>3</sup>)

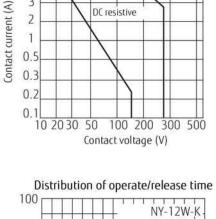


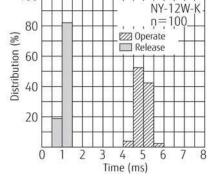
Distribution of operate/release voltage

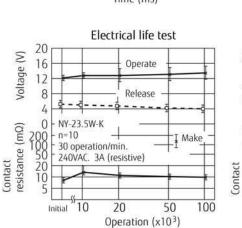


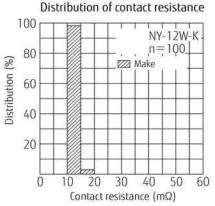
Nominal voltage multiplying factor (%)

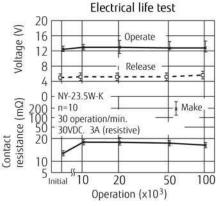








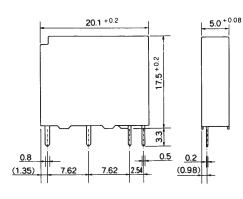




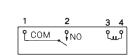
### DIMENSIONS

NY type

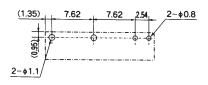
• Dimensions





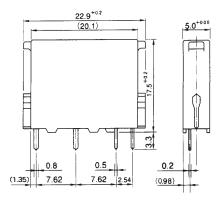


• PC board mounting hole layout (BOTTOM VIEW)



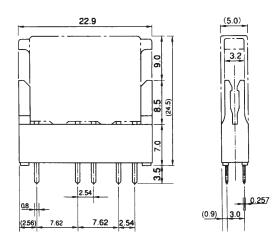
NYP type

• Dimensions



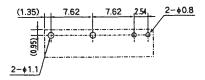
#### Socket type JL-5N

• Dimensions

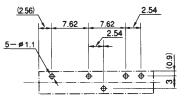


• Schematics

1 2 3 4 9 COM 9 NO 9 11 9 • PC board mounting hole layout (BOTTOM VIEW)



• PC board mounting hole layout (BOTTOM VIEW)



### **RoHS Compliance and Lead Free Information**

### 1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/us/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 Profile

• Recommended solder Sn-3.0Ag-0.5Cu.

### 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, 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.

### **NY SERIES**

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