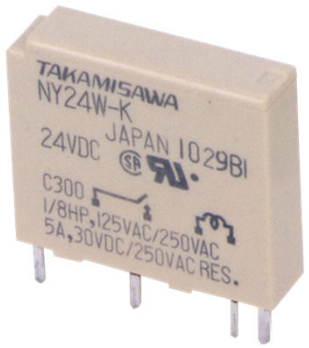
POWER RELAY

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
- 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

■ PARTNUMBER INFORMATION

[Example] NY P - 12 W - K - IE

(a) (b) (c) (d) (e) (*) (f)

(a)	Relay type	NY	: NY Series
(b)	Mounting type	Nil P	: PCB mounting type : Socket mounting type
(c)	Coil rated voltage	12	: 4.5....24VDC Coil rating table at page 3
(d)	Contact design	W	: Bifurcated contact
(e)	Enclosure	K	: Plastic sealed type, RTIII
(f)	Insulation	IE	: Conform to IEC standard

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

■ SPECIFICATIONS

Item			NY	Remarks / Conditions
Contact data	Configuration		1 form A (SPST-NO)	
	Construction		Bifurcated	
	Material		Gold overlay silver alloy (AgNi +Au)	
	Resistance (initial)		Max. 30mΩ at 6 VDC, 1 A	
	Contact rating		5A, 250VAC / 30VDC	
	Max. carrying current		5A	
	Max. switching voltage		270VAC / 125 VDC	
	Max. switching power		1,250VA / 150W	
	Max. switching current		5A	
	Min. switching load *		1mA, 5 VDC	
Coil data	Rated power (at 20℃)		120mW	
	Operate power (at 20℃)		54mW	
	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 (without bounce)	
Life	Mechanical		Min. 20 x 10^6 operations	
	Electrical		Min. 100 x 10^3 operations (at 3A, 250VAC, 30VDC resistive) Min. 50 x 10^3 operations (at 5A, 250VAC, 30VDC resistive)	
Insulation	Resistance (initial)		Min. 1,000MΩ at 500VDC	
	Dielectric strength	Open contacts	750VAC, 1min	
		Contacts to coil	3,000VAC, 1min	
	Surge strength	Contacts to coil	5,080V / 1.2 x 50μs standard wave	
	Clearance / Creepage		Min. 3mm / Min. 3mm	
Others	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.75mm	Coil ON/OFF, 3 axes, total 6 cycles
		Endurance	10 to 55 to 10Hz single amplitude 2.5mm	Coil OFF, 3 axes, total 6 hours
	Shock	Misoperation	Min. 100m/s² (11 ± 1ms)	Coil ON/OFF, 3 axes, total 36 operations
		Endurance	Min. 1,000m/s² (6 ± 1ms)	Coil OFF, 3 axes, total 18 operations
	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% (Ω)	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 tables are valid for 20℃ and zero contact current.
* Specified operate values are valid for pulse wave voltage.
❗ Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 ANSI/ISA12.12.01 E56140, E199193	Flammability: UL 94-V0 (plastics)
		3A, 250VAC/30VDC (General use) 5A, 250VAC/30VDC (resistive) 1/8 HP, 250VAC /125VAC Pilot duty: C300, D150, R300
CSA	C22.2 No. 14 LR 35579	

Also conform to IEC61010, 61131 reinforced insulation.

■ PART NUMBER LIST

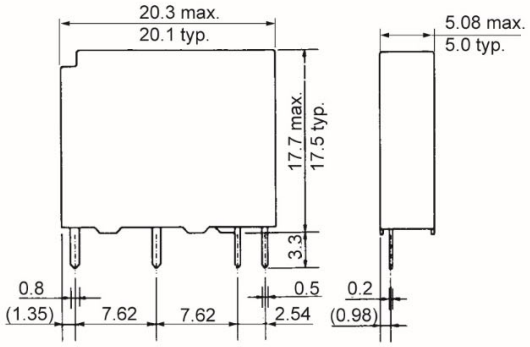
** : Coil code

Part number	Mounting type	Contact design	Enclosure	Insulation	Socket
NY-**W-K-IE	PCB mounting	Bifurcated contact	Plastic sealed	Conform to IEC standard	-
NYP-**W-K-IE	Socket mounting				JL-5N

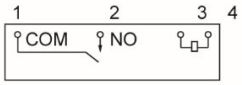
■ DIMENSIONS

NY type

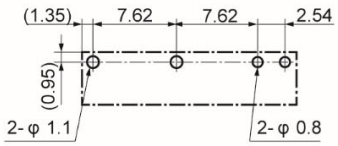
- Dimensions



- Schematics

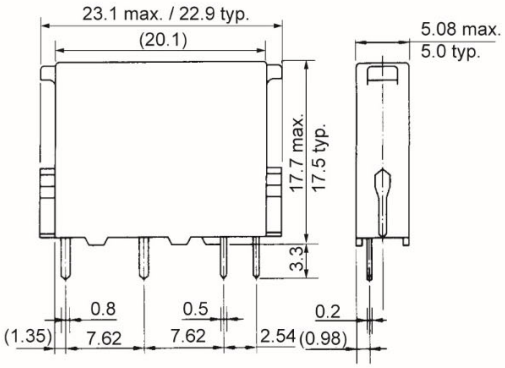


- PC board mounting hole layout (BOTTOM VIEW)

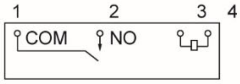


NYP type

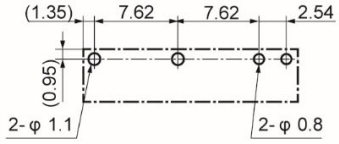
- Dimensions



- Schematics

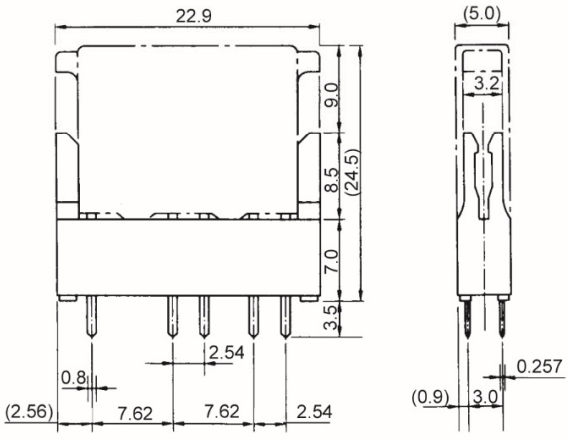


- PC board mounting hole layout (BOTTOM VIEW)

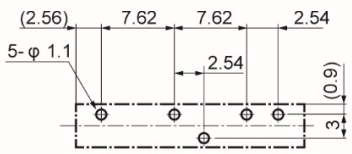


Socket type JL-5N

- Dimensions



- PC board mounting hole layout (BOTTOM VIEW)



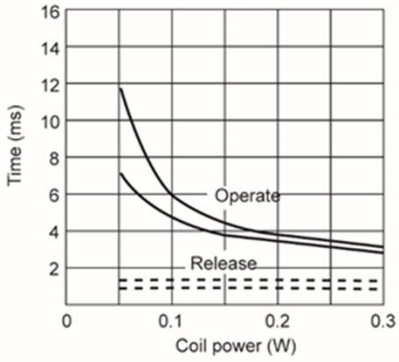
Unit: mm

Note: Dimensions do not include tolerances.
Note: Dimensions of the terminals do not include thickness of pre-solder.
Note: Tolerance for PC board mounting hole/pad layout: +/-0.1.

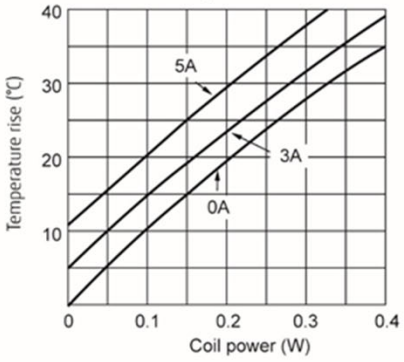
■ CHARACTERISTIC DATA

(Characteristic data is not guaranteed value but measured values of samples from production line.)

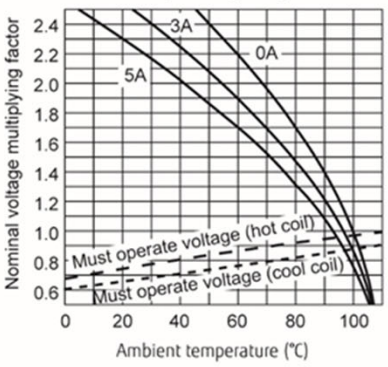
Timing



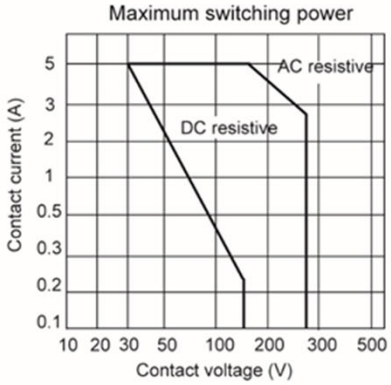
Coil temperature rise



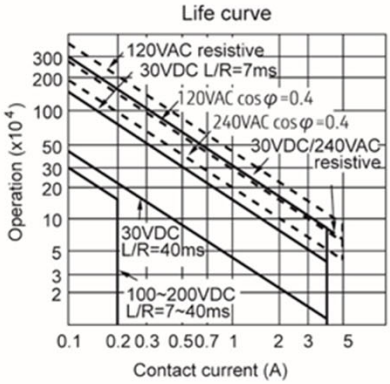
Operating range



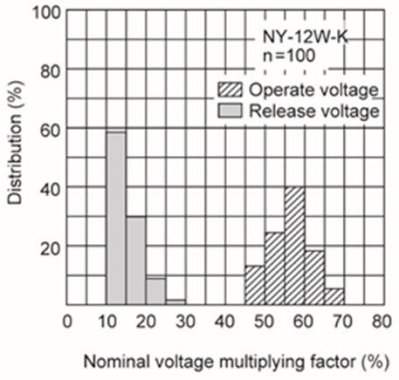
Maximum switching power



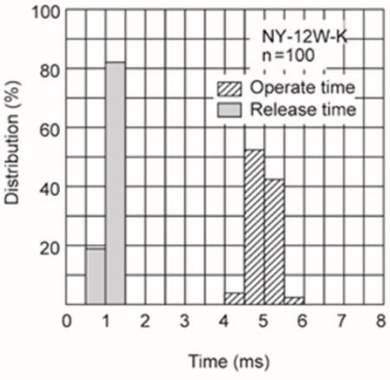
Life curve



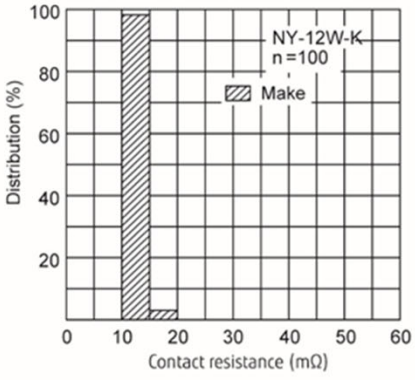
Distribution of operate/release voltage



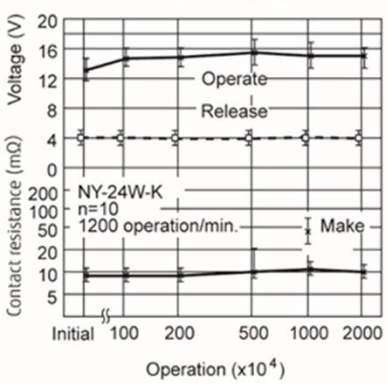
Distribution of operate/release time



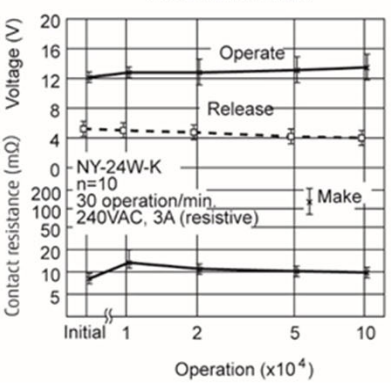
Distribution of contact resistance



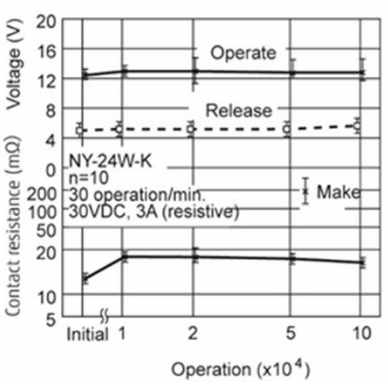
Mechanical life test



Electrical life test



Electrical life test



CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions.
  Please perform the confirmation test before actual use.
- Reflow soldering is prohibited.
- Do not use relays in the atmosphere with sulfide gas, chloride gas or nitric oxide.
  Contact resistance may increase.
- Do not use silicon or silicon-containing product or materials near relays.
  It may cause contact failure.

GENERAL INFORMATION

1. RoHS Compliance

- All relays produced by FCL Components are compliant with RoHS directive 2011/65/EU, including commission-delegated directive 2015/863.

2. Recommended Lead Free Solder Condition

- 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.
- Recommended solder for assembly: Sn-3.0Ag-0.5Cu.

Flow Solder Condition:

Pre-Heating: Maximum 120℃ within 90 sec.
Soldering: Dip within 5 sec. at 255℃±5℃ solder bath

Relay must be cooled by air immediately after soldering

Solder by Soldering Iron:

Soldering iron: 30W to 60W
Temperature: Maximum 340℃ to 360℃
Duratin: Maximum 3 sec.

We highly recommend that you confim 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.

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