HIGH POWER TWIN RELAY

1 POLE x 2—30A

(FOR AUTOMOTIVE APPLICATIONS)

FBR562 SERIES

RoHS compliant

■ FEATURES

- Two independent relays mounted in a single package (43% of the volume of the two FRL-270 relays)
- High current contact capacity (carrying current: 40 A/2 minutes, 30 A/1 hour)
- High heat resistance and extended operating voltage
- RoHS compliant since date code: 0627
  Please see page 9 for more information



■ ORDERING INFORMATION

[Example] FBR562 (a) N (b) D12 (c) – W1 (d) ** (e)

(a)	Series Name	FBR562: FBR562 Series relay for 12 V battery (contact gap 0.4 mm)
(b)	Enclosure	N : Plastic sealed type
(c)	Nominal Voltage	D06 : 6 VDC D09 : 9 VDC D12 : 12 VDC
(d)	Contact Material	

■ SPECIFICATIONS

Item			Specifications
Contact	Arrangement		1 form C × 2 (SPDT × 2)
	Material		Silver-tin oxide indium (–W1 type)
	Voltage Drop (resistance)		Maximum 100 mV (at 2 A 12 VDC)
	Ratings		14 VDC 20 A (locked motor load) 14 VDC inrush 20 A, break 4 A (motor free load)
	Maximum Carrying Current		40 A/2 minutes, 30 A/ 1 hour (25°C, 100% rated coil voltage)
	Maximum Inrush Current (reference)		–W1 type: 60 A
	Max. Switching Current (reference)		40 A 16 VDC
	Minimum Switching Load*1 (reference)		–W1 type: 6 VDC 1 A
Coil	Operating Temperature		–40°C to +85°C (no frost) (refer to the CHARACTERISTIC DATA)
	Storage Temperature		–40°C to +100°C (no frost)
Time Value	Operate (at nominal voltage)		Maximum 10 ms
	Release (at nominal voltage)		Maximum 5 ms
Life	Mechanical		1×10^7 operations minimum
	Electrical		1×10^5 operations minimum (locked motor load) 1×10^6 operations minimum (motor free Load)
Other	Vibration Resistance		10 to 55 Hz (double amplitude of 1.5 mm)
	Shock Resistance	Misoperation	100 m/s^2
		Endurance	1,000 m/s^2

*1 Values when switching a resistive load at normal room temperature and humidity and in a clean environment.
The minimum switching load varies with the switching frequency and operating environment.

■ COIL DATA CHART

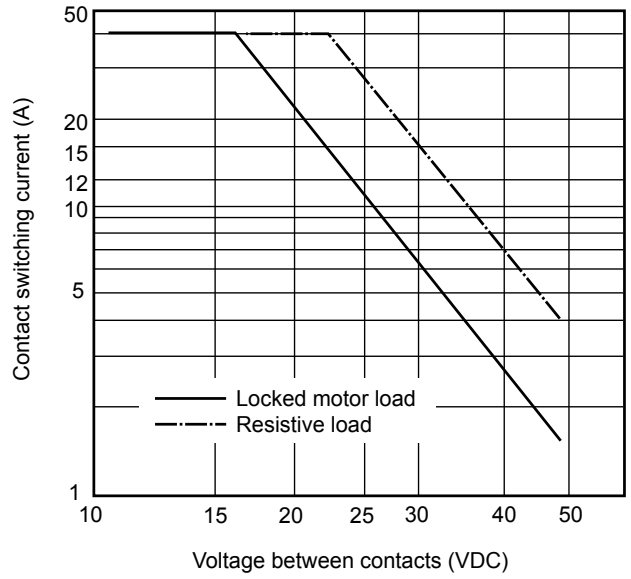
MODEL W1 contact	Nominal voltage	Coil resistance (±10%) (at 20°C)	Must operate voltage	Thermal resistance
FBR562ND06-W1	6 VDC	42 Ω	3.6 VDC (at 20°C) 4.5 VDC (at 85°C)	77°C/W
FBR562ND09-W1	9 VDC	95 Ω	5.4 VDC (at 20°C) 6.8 VDC (at 85°C)	
FBR562ND12-W	112 VDC	170 Ω	7.3 VDC (at 20°C) 9.2 VDC (at 85°C)	

■ SUITABLE APPLICATIONS

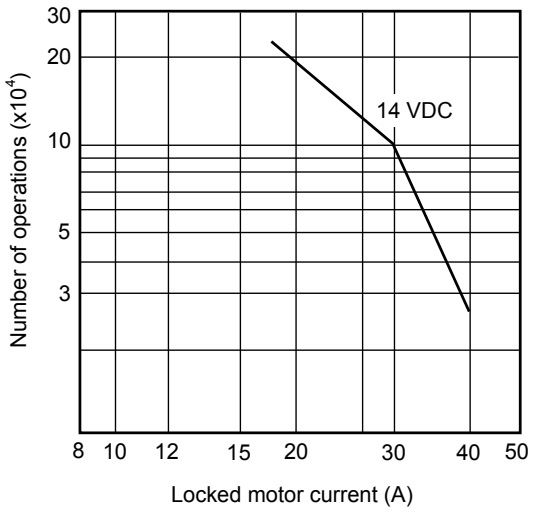
Application		Normal load current	Life x 10 ^{3}	Recommended model (example)
For 12 V battery	Power Windows	20 to 30 A (switching at motor locking)	100	FBR562N□ -W1
	Automatic Door Lock	18 to 30 A/4 to 5 door (switching at motor locking)	100	FBR562N□ -W1
	Intermittent Wipers	INRUSH 15 to 30 A BREAK 2 to 8 A (motor free)	300	FBR562N□-W1
	Tilt-Lock Wheel	INRUSH 15 A BREAK 2.5 A (motor free)	100	FBR562N□-W1
	Sunroof	20 to 30 A (switching at motor locking)	100	FBR562N□-W1
	Others	Car audio system, etc	—	FBR562N□-W1

■ CHARACTERISTIC DATA

1. MAXIMUM BREAK CAPACITY



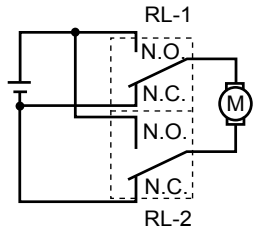
2. LIFE



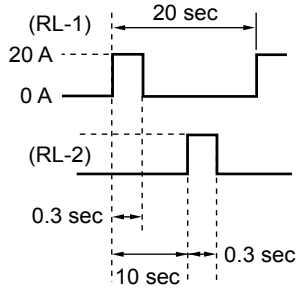
3. LIFE TEST (EXAMPLE)

• Test item
14 VDC-20 A
Motor lock
200,000 operations minimum
(FBR562 ☐-W type)

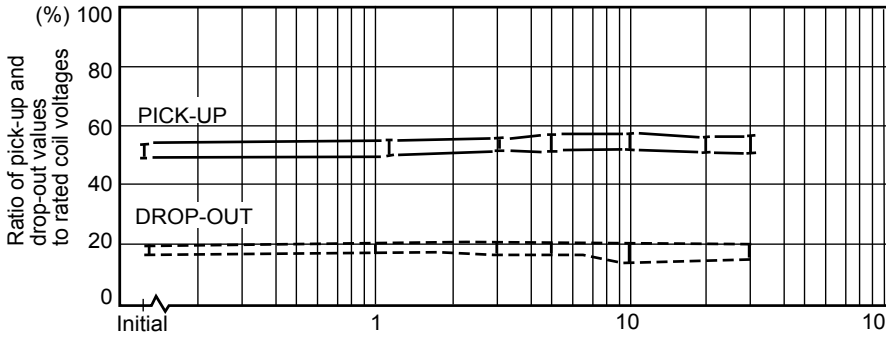
• Test circuit



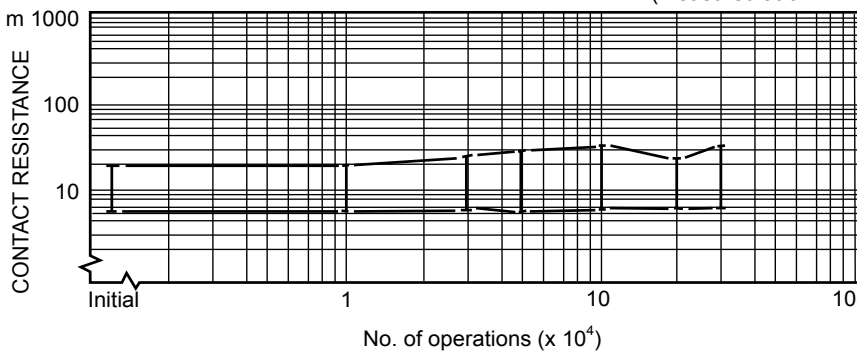
• Current Wave Form



• Shift of pick-up drop-out voltage

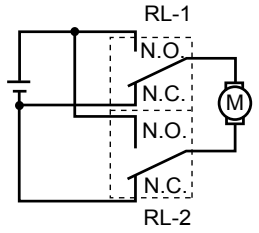


• Shift of contact resistance (measured at 6 V-1 A

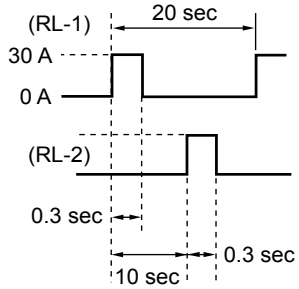


• Test item
14 VDC-30 A
Motor lock
100,000 operations minimum
(FBR562 ☐-W type)

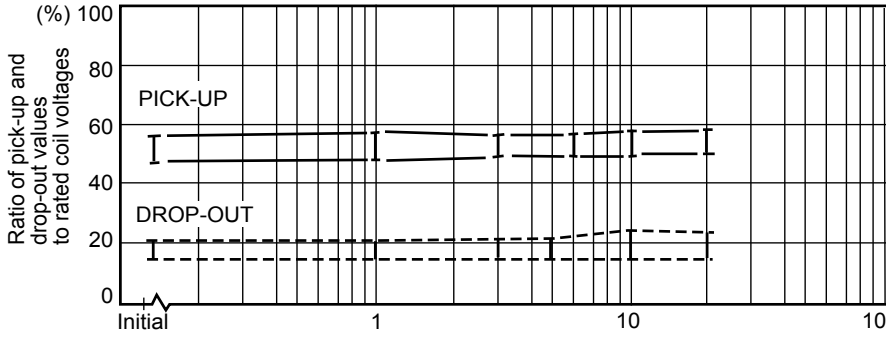
• Test circuit



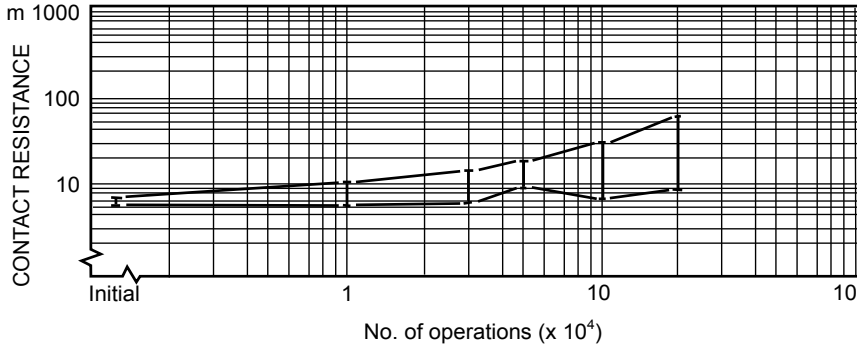
• Current wave form



• Shift of pick-up drop-out voltage



• Shift of contact resistance (measured at 6 V-1 A

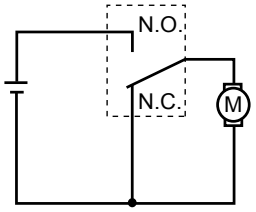


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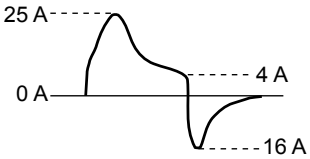
(Continued)

• Test item
16 VDC-25 A INRUSH
Motor Free
400,000 operations minimum
(FBR562 □-N type)

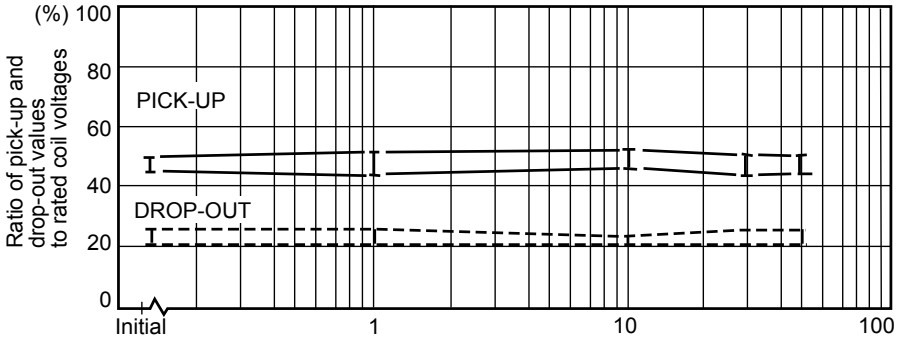
• Test circuit



• Current wave form

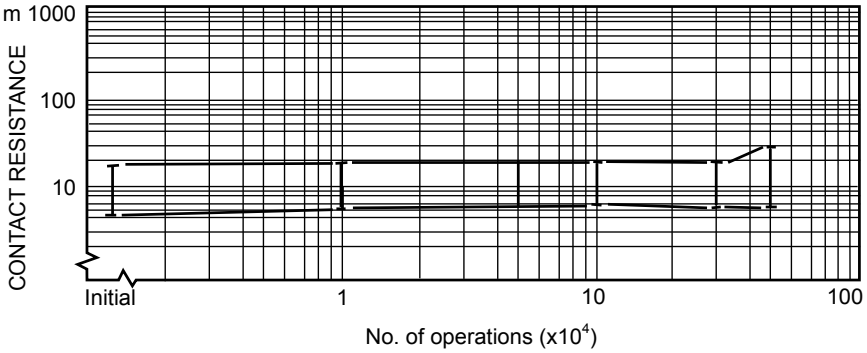


• Shift of pick-up drop-out voltage

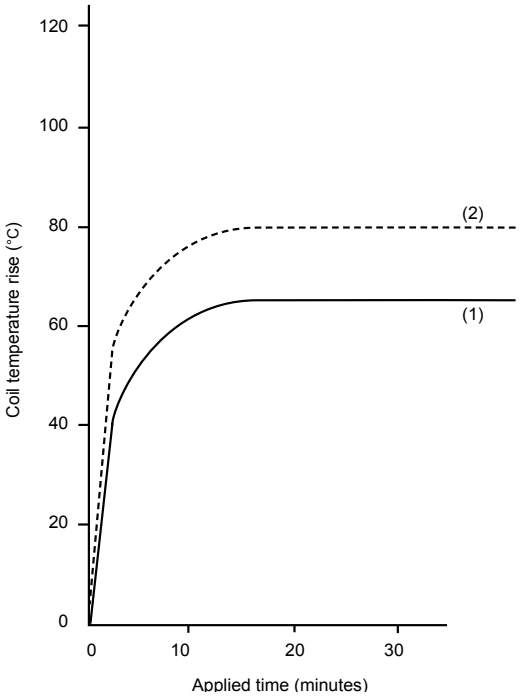


• Shift of contact resistance

(measured at 6 V-1 A)



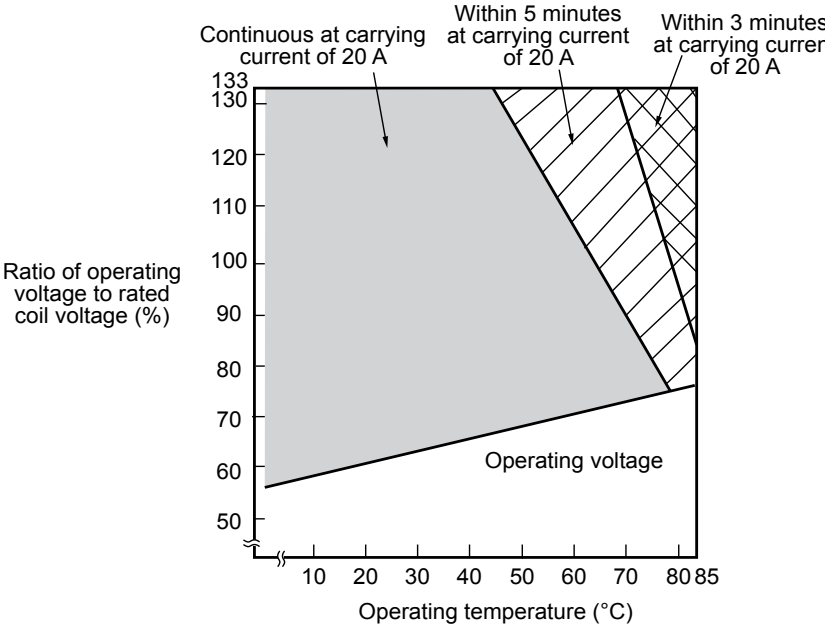
4. COIL TEMPERATURE RISE



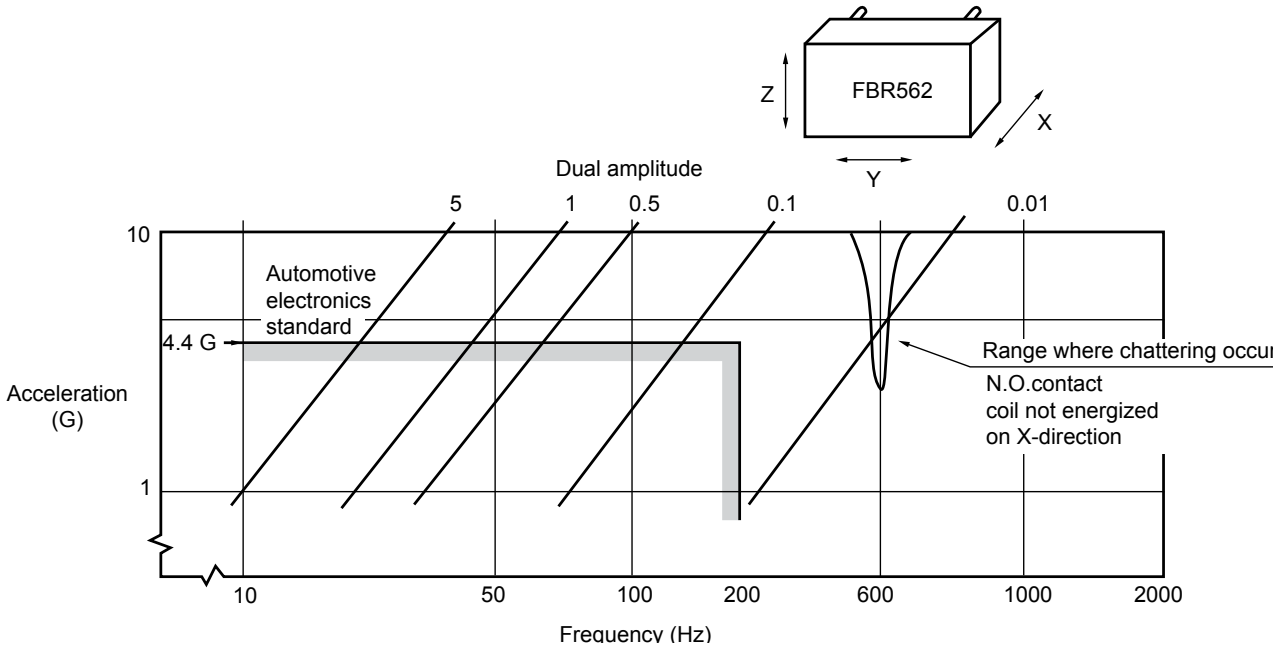
*: One coil energized at 20°C

If both coils are energized, temperature rise will increase by
(1) 5°C (0 A carrying current)
(2) 20°C (10 A carrying current)

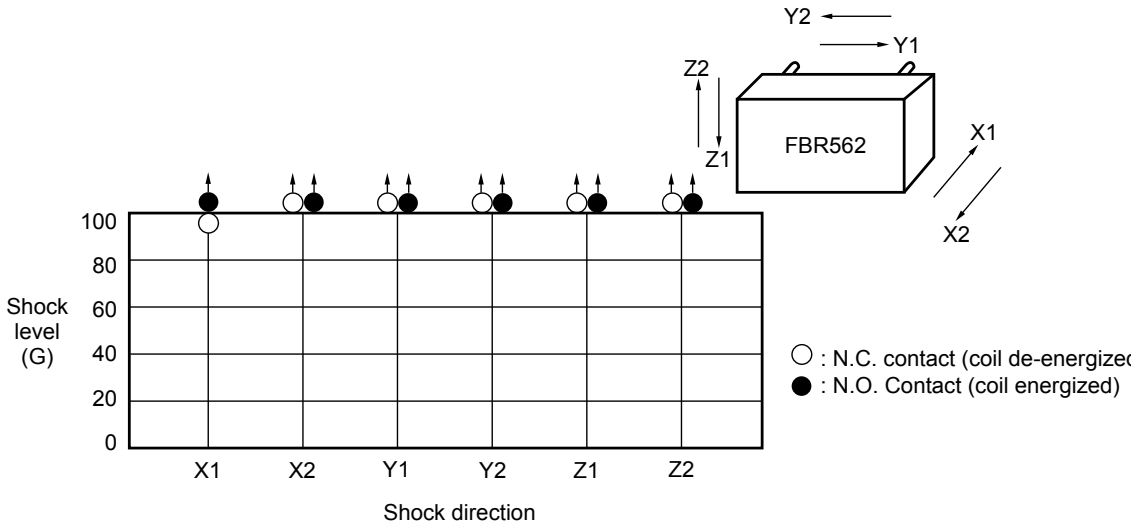
5. OPERATING COIL VOLTAGE RANGE (EXAMPLE)



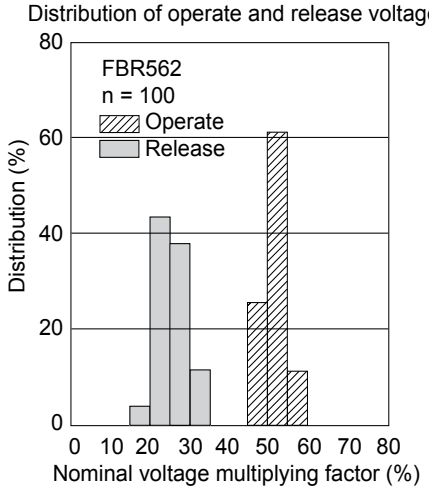
6. VIBRATION RESISTANCE CHARACTERISTICS

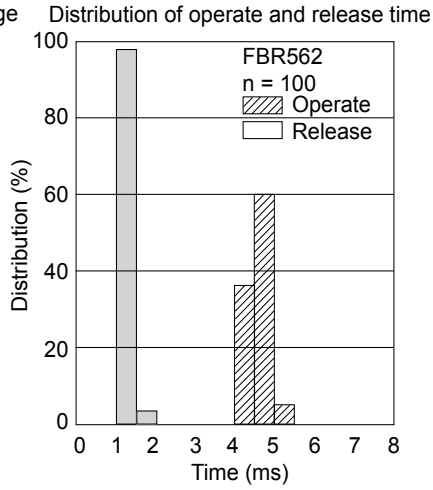


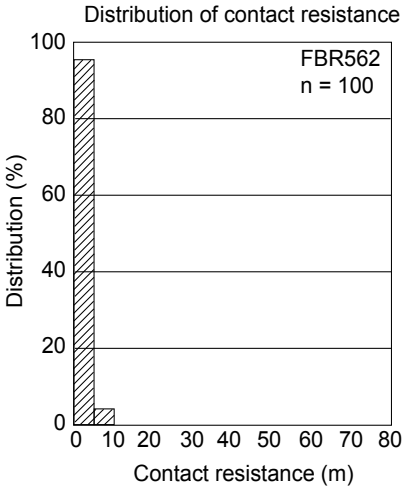
7. SHOCK RESISTANCE CHARACTERISTICS



■ REFERENCE DATA

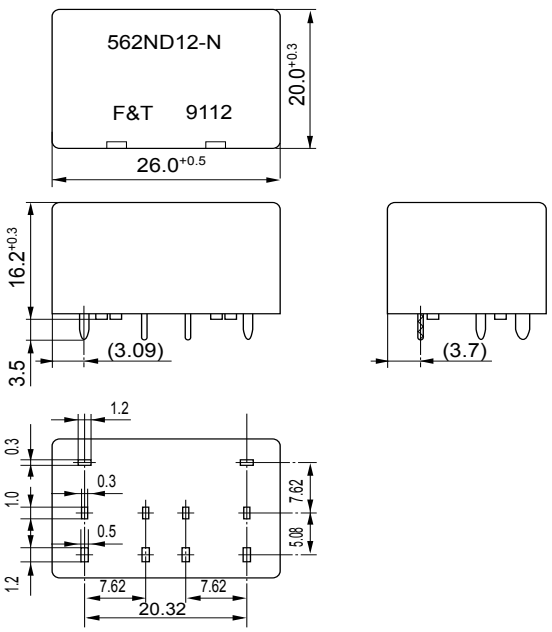




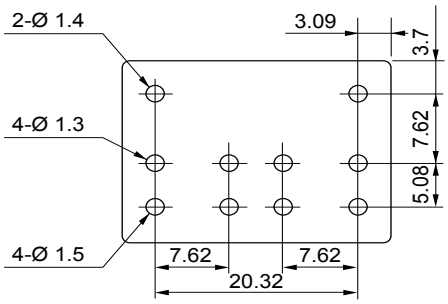


■ DIMENSIONS

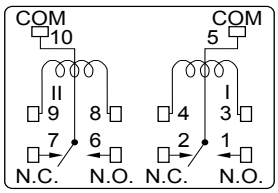
● Dimensions



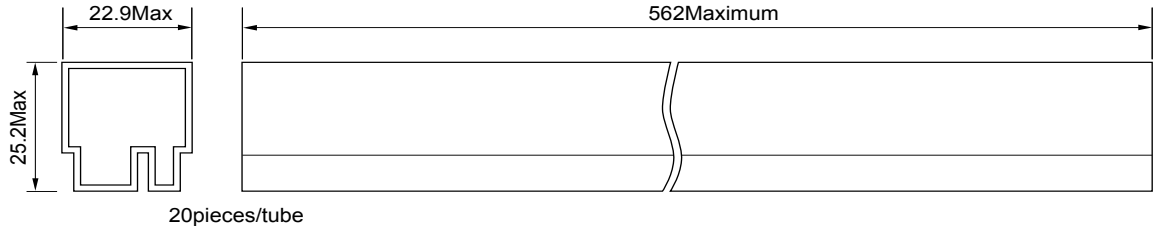
● PC board mounting hole layout (BOTTOM VIEW)



● Schematic
(BOTTOM VIEW)



● Tube carrier



Unit: mm

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. Most 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 most 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 leaded 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 condtion

Flow Solder condtion:

Pre-heating:	maximum 120˚C
Soldering:	dip within 5 sec. at 260˚C soler 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 realys.

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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