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

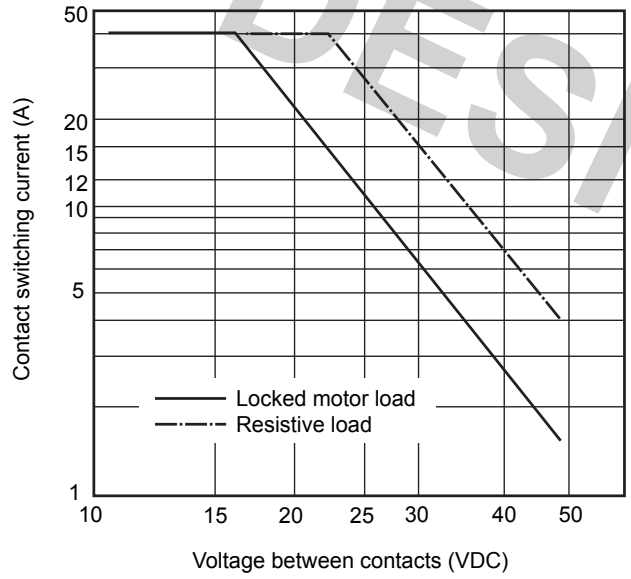
MODEL W1 contact	Nominal voltage	Coil resistance (±10%) (at 20°C)	Must operate voltage	Thermal resistance
FBR562ND06-W1	6 VDC	42 Ω	3.6 VDC (at 20°C) 4.5 VDC (at 85°C)	77°C/W
FBR562ND09-W1	9 VDC	95 Ω	5.4 VDC (at 20°C) 6.8 VDC (at 85°C)	
FBR562ND12-W	112 VDC	170 Ω	7.3 VDC (at 20°C) 9.2 VDC (at 85°C)	

■ SUITABLE APPLICATIONS

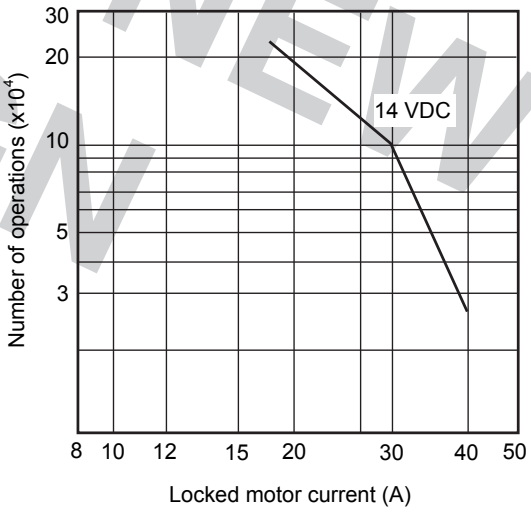
Application		Normal load current	Life x 10 ^{3}	Recommended model (example)
For 12 V battery	Power Windows	20 to 30 A (switching at motor locking)	100	FBR562N□ -W1
	Automatic Door Lock	18 to 30 A/4 to 5 door (switching at motor locking)	100	FBR562N□ -W1
	Intermittent Wipers	INRUSH 15 to 30 A BREAK 2 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



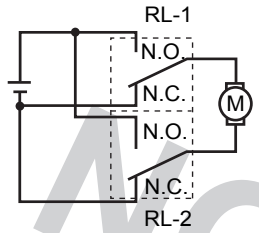
2. LIFE



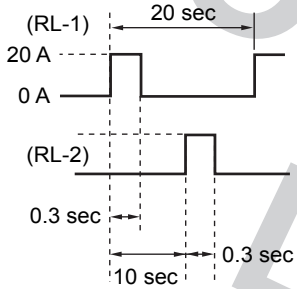
3. LIFE TEST (EXAMPLE)

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

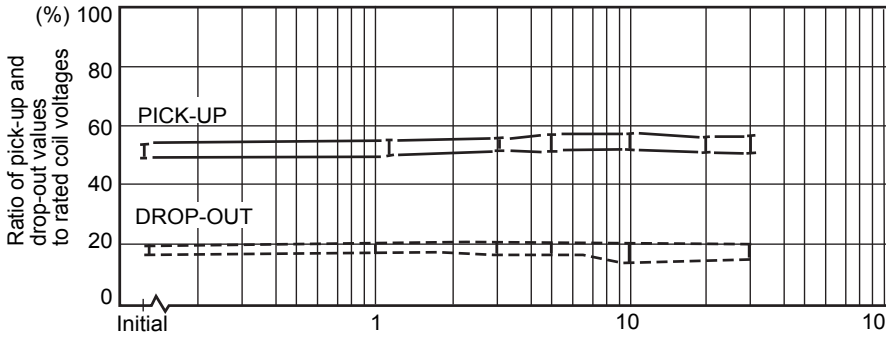
• Test circuit



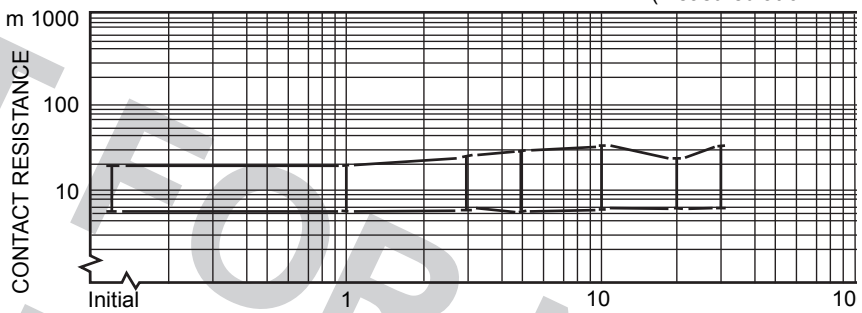
• Current Wave Form



• Shift of pick-up drop-out voltage

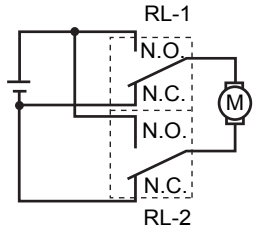


• Shift of contact resistance (measured at 6 V-1 A

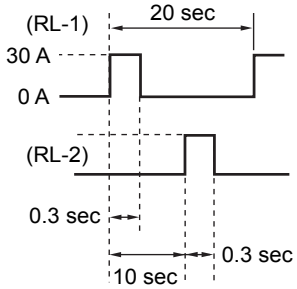


• Test item
14 VDC-30 A
Motor lock
100,000 operations minimum
(FBR562 □-W type)

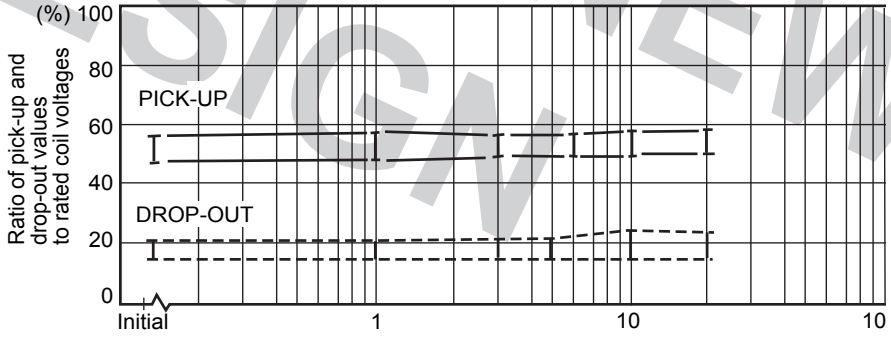
• Test circuit



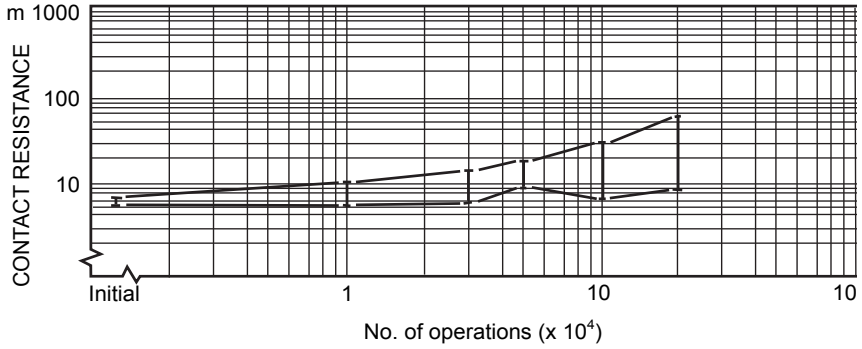
• Current wave form



• Shift of pick-up drop-out voltage



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



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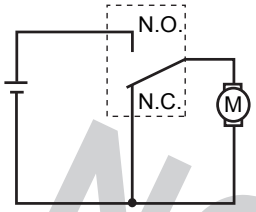
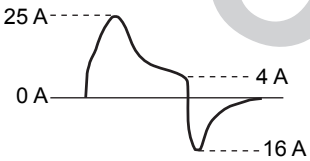
(Continued)

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

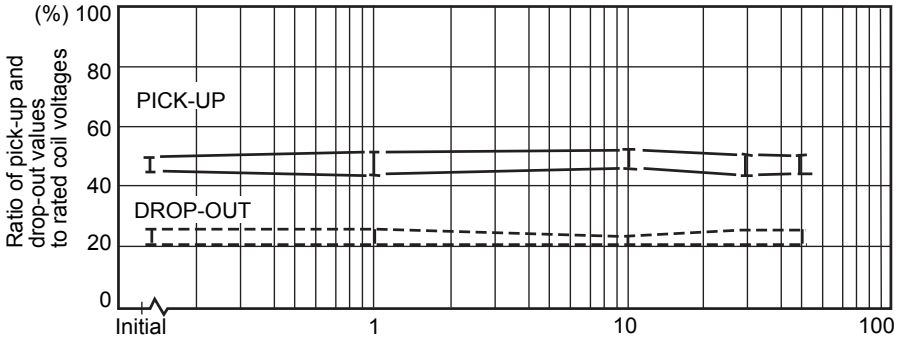
• Test circuit



• Current wave form

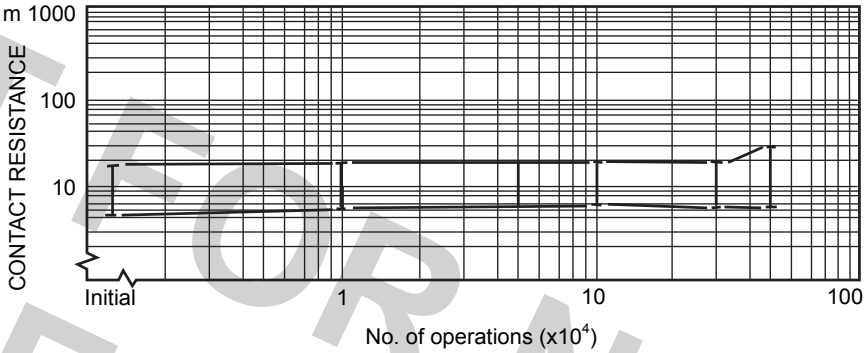


• Shift of pick-up drop-out voltage

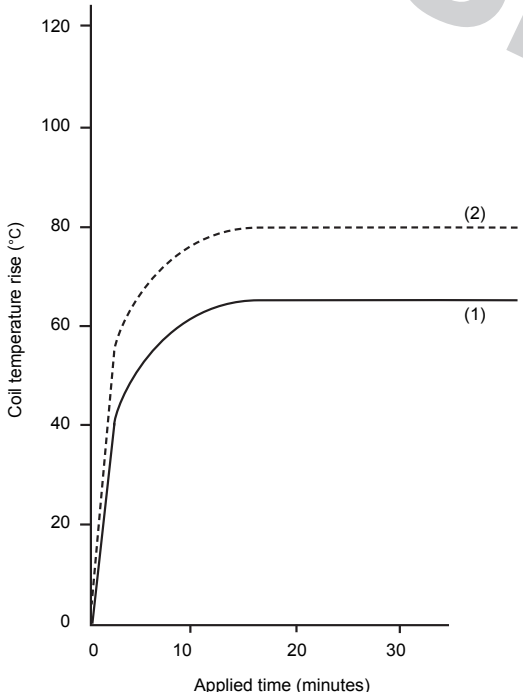


• Shift of contact resistance

(measured at 6 V-1 A)



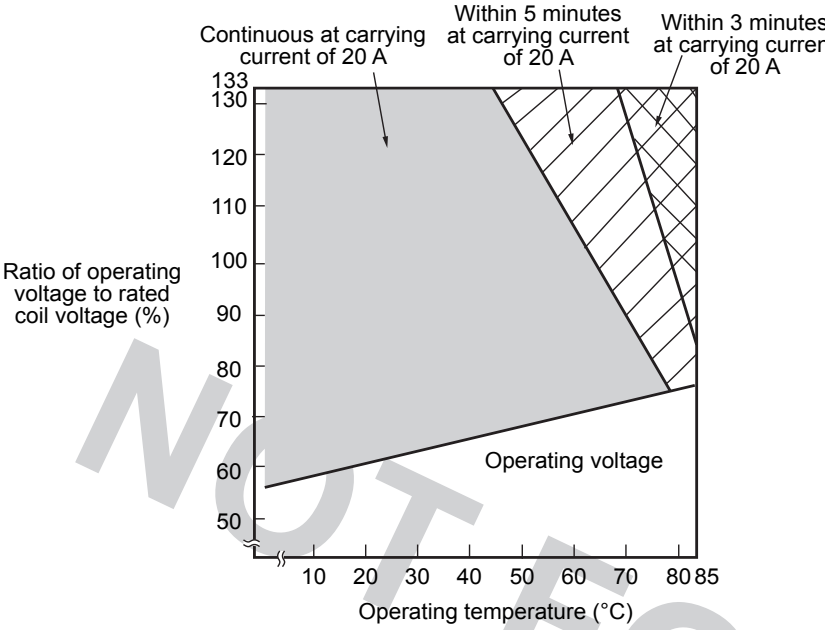
4. COIL TEMPERATURE RISE



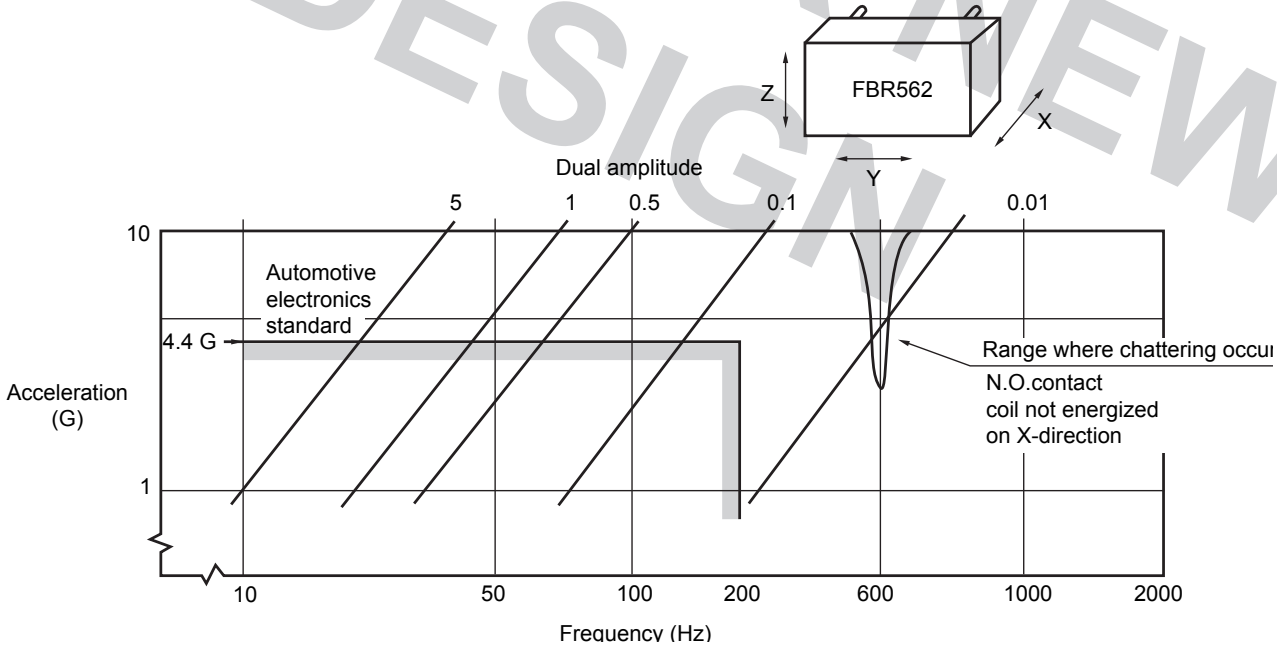
*: One coil energized at 20°C

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

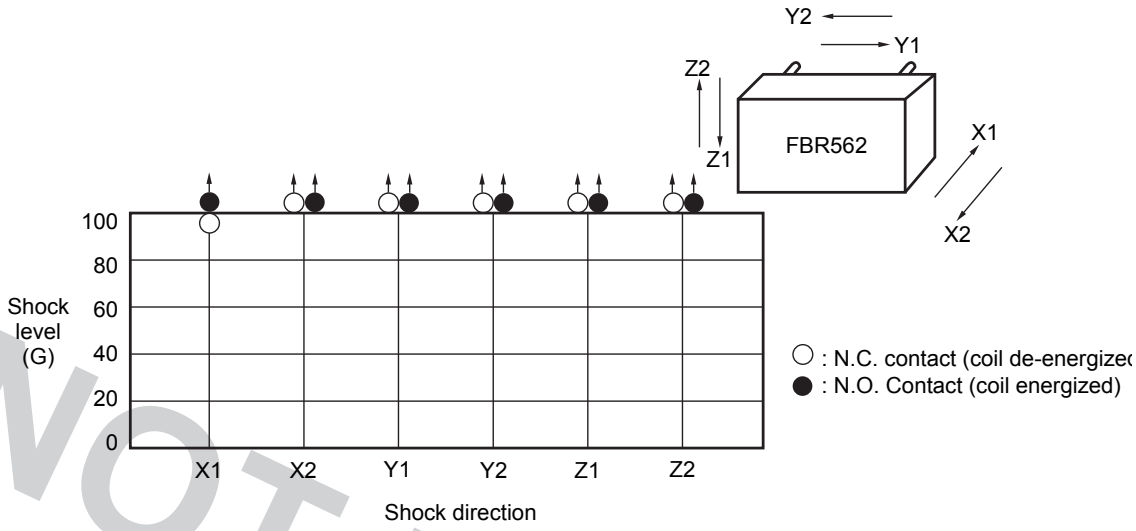
5. OPERATING COIL VOLTAGE RANGE (EXAMPLE)



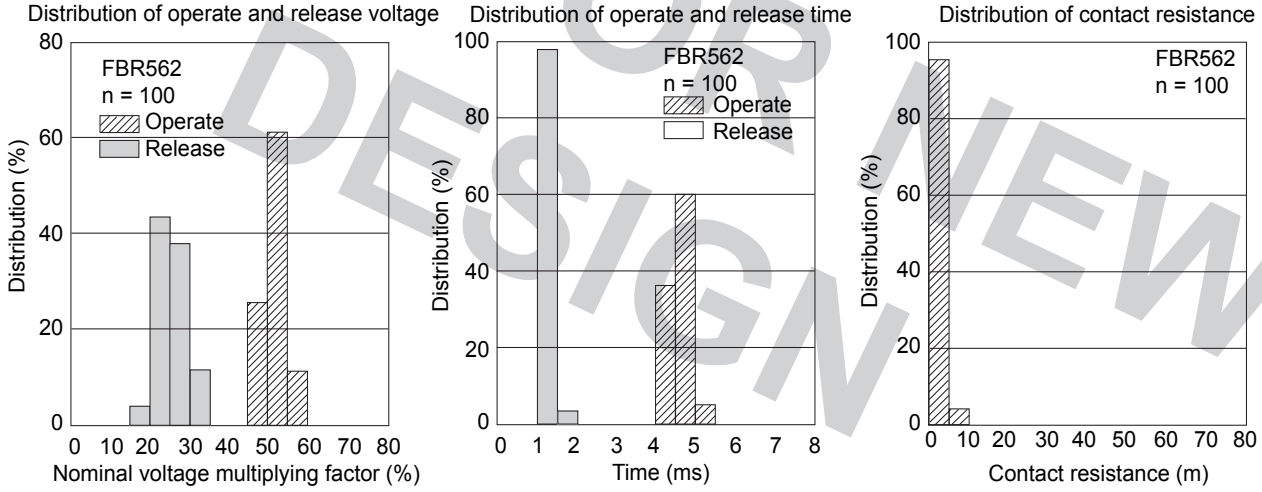
6. VIBRATION RESISTANCE CHARACTERISTICS



7. SHOCK RESISTANCE CHARACTERISTICS

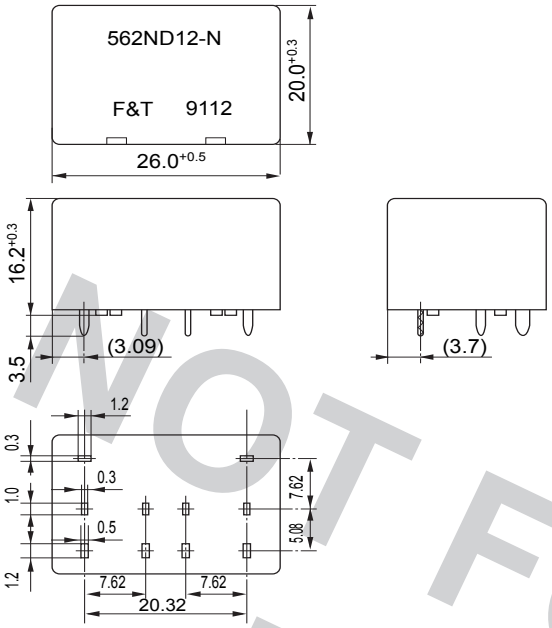


■ REFERENCE DATA

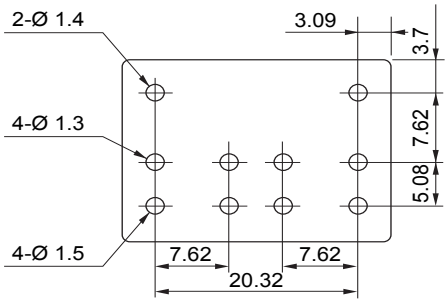


■ DIMENSIONS

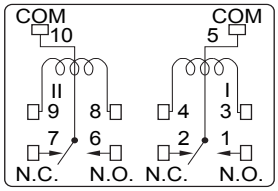
● Dimensions



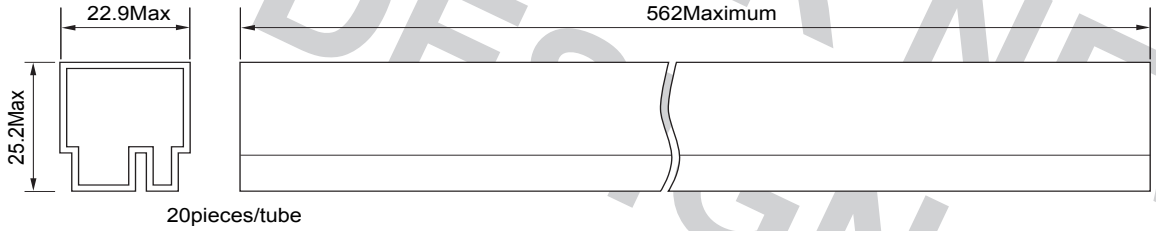
● PC board mounting hole layout (BOTTOM VIEW)



● 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.

Fujitsu Components International Headquarter Offices

Japan
Fujitsu Component Limited
Gotanda-Chuo Building
3-5, Higashigotanda 2-chome, Shinagawa-ku
Tokyo 141 8630, Japan
Tel: (81-3) 5449-7010
Fax: (81-3) 5449-2626
Email: promothq@fcl.fujitsu.com
Web: www.fcl.fujitsu.com

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/

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://www.fujitsu.com/us/services/edevices/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/

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