

HIGH POWER TWIN RELAY

1 POLE x 2—30A

(FOR AUTOMOTIVE APPLICATIONS)

FBR562 SERIES

■ 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



■ ORDERING INFORMATION

[Example] FBR562 N D12 – W1 **
 (a) (b) (c) (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	W1 : Silver-tin oxide indium
(e)	Custom Designation	To be assigned custom specification

■ 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
	Weight		Approximately 18 g

*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

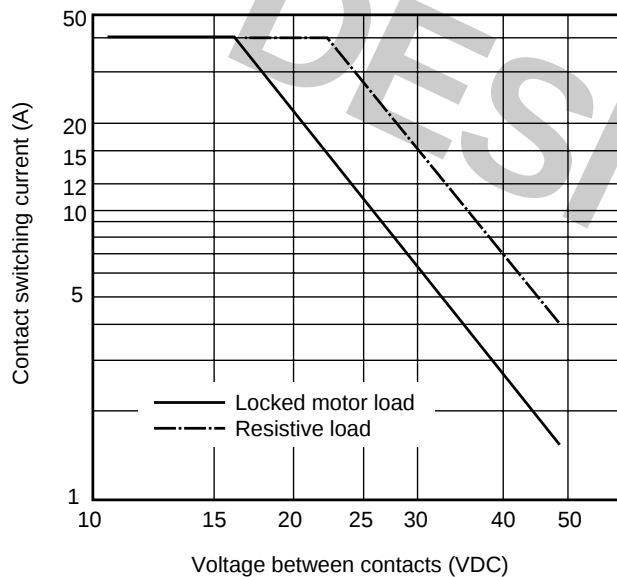
MODEL	Nominal voltage	Coil resistance (±10%) (at 20°C)	Must operate voltage	Thermal resistance
W1 contact				
FBR562ND06-W1	6 VDC	42 Ω	3.6 VDC (at 20°C) 4.5 VDC (at 85°C)	77°C/W
FBR562ND09-W1	9 VDC	95 Ω	5.4 VDC (at 20°C) 6.8 VDC (at 85°C)	
FBR562ND12-W1	12 VDC	170 Ω	7.3 VDC (at 20°C) 9.2 VDC (at 85°C)	

■ SUITABLE APPLICATIONS

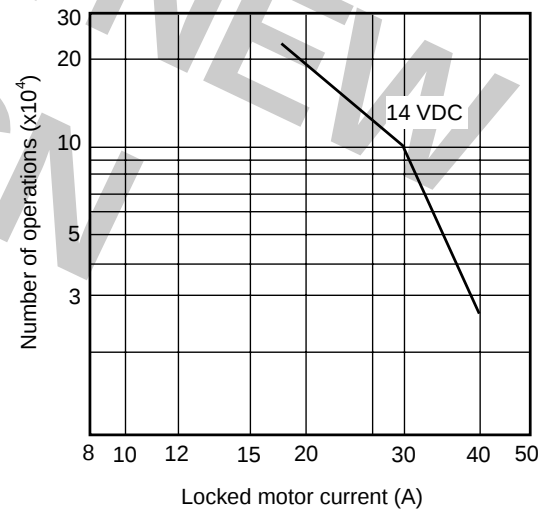
Application		Normal load current	Life x 10 ³	Recommended model (example)
For 12 V battery	Power Windows	20 to 30 A (switching at motor locking)	100	FBR562N□ -W1
	Automatic Door Lock	18 to 30 A/4 to 5 door (switching at motor locking)	100	FBR562N□ -W1
	Intermittent Wipers	INRUSH 15 to 30 A BREAK 2 to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



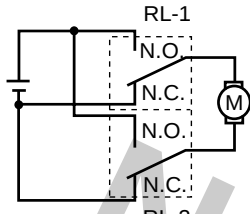
2. LIFE



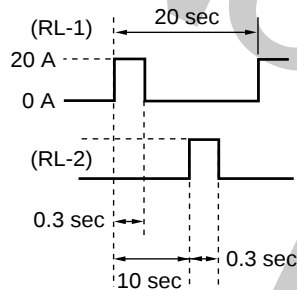
3. LIFE TEST (EXAMPLE)

¥ Test item
14 VDC-20 A
Motor lock
200,000 operations minimum
(FBR562 □-W1 type)

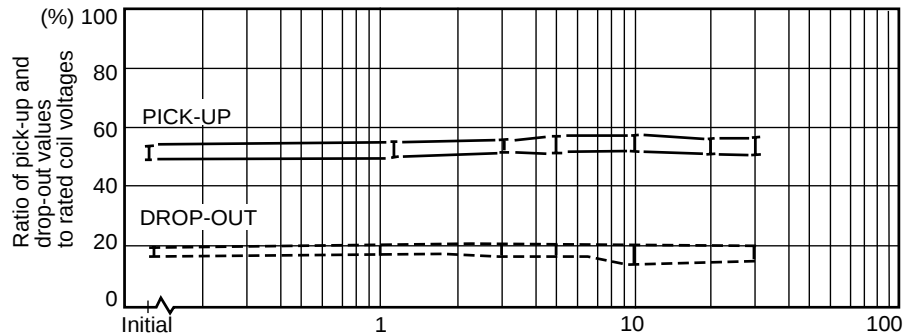
¥ Test circuit



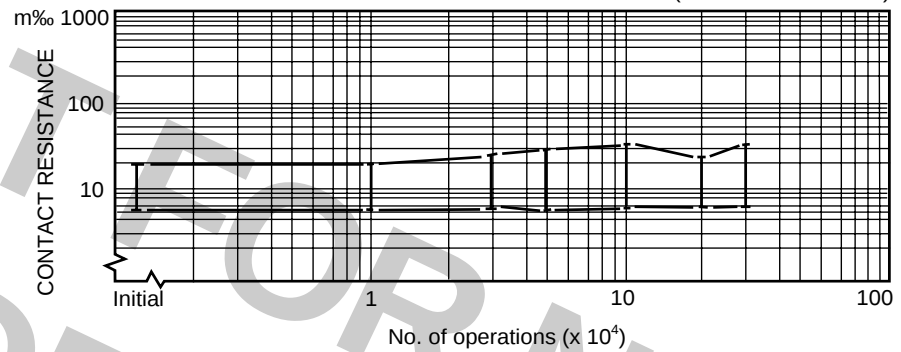
¥ Current Wave Form



¥ Shift of pick-up drop-out voltage

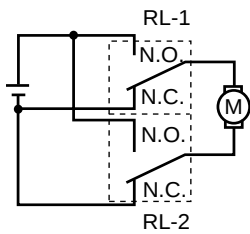


¥ Shift of contact resistance

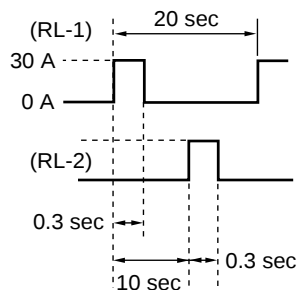


¥ Test item
14 VDC-30 A
Motor lock
100,000 operations minimum
(FBR562 □-W1 type)

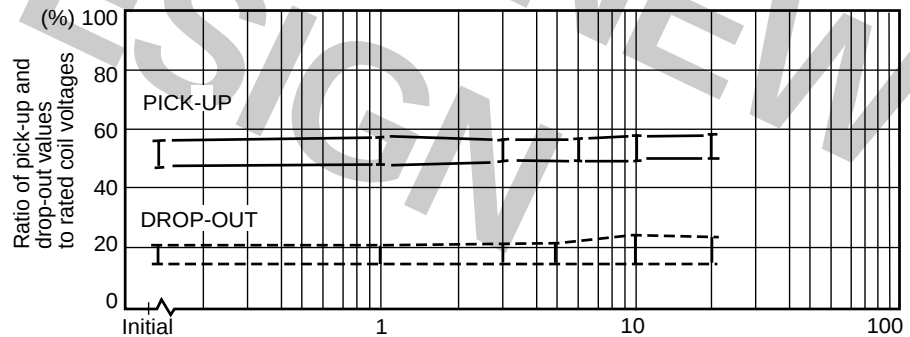
¥ Test circuit



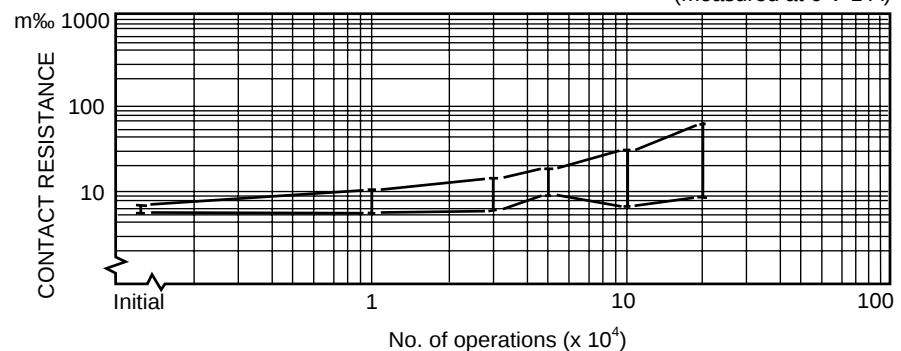
¥ Current wave form



¥ Shift of pick-up drop-out voltage



¥ Shift of contact resistance

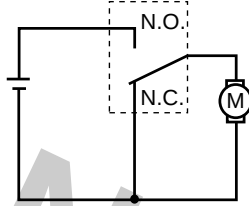


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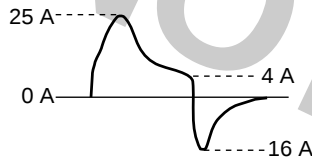
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- Test item
16 VDC-25 A INRUSH
Motor Free
400,000 operations minimum
(FBR562 □-W1 type)

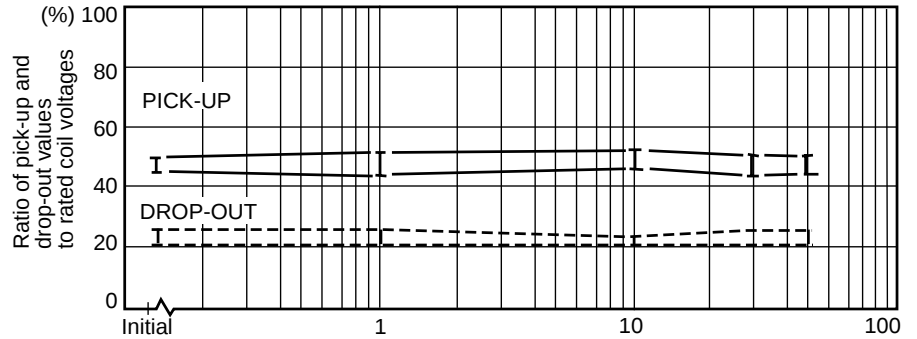
- Test circuit



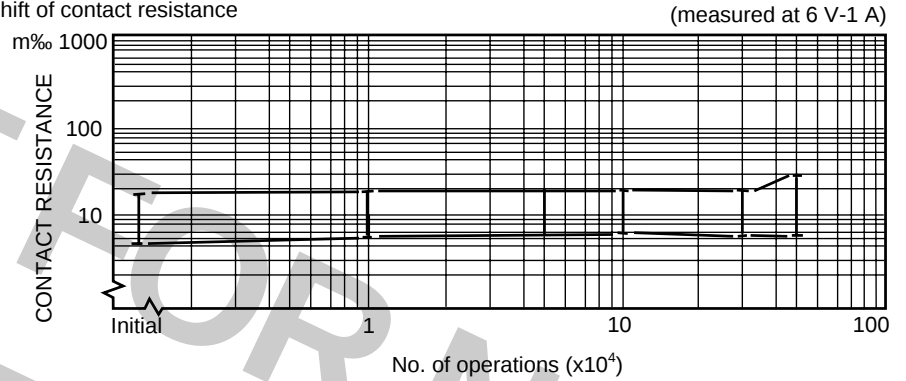
- Current wave form



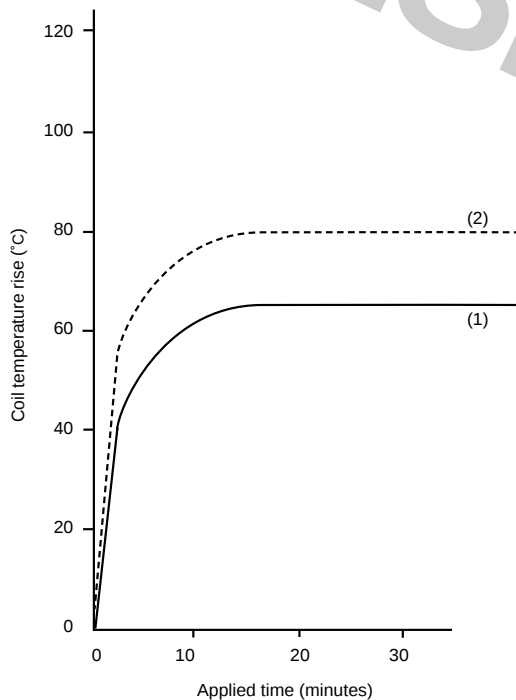
- Shift of pick-up drop-out voltage



- Shift of contact resistance



4. COIL TEMPERATURE RISE

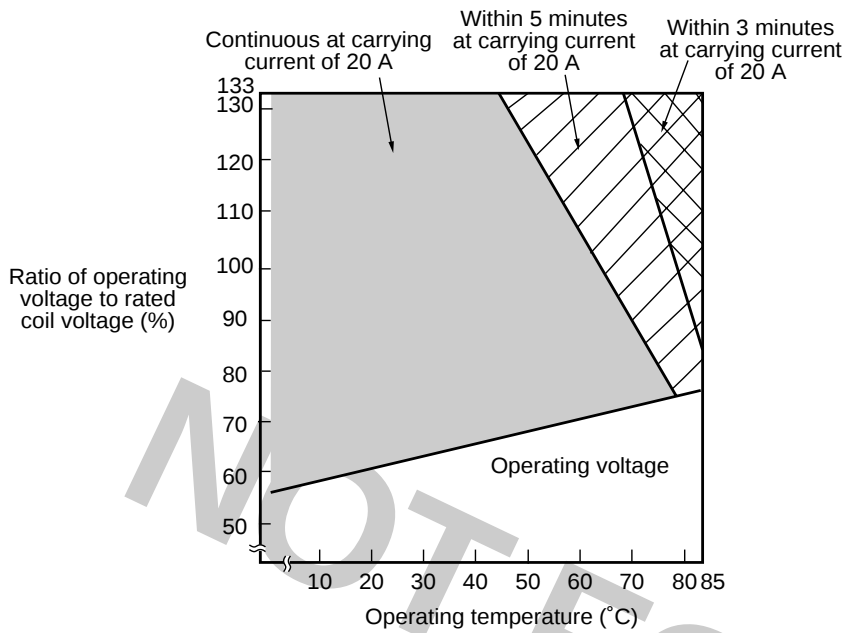


*: One coil energized at 20°C

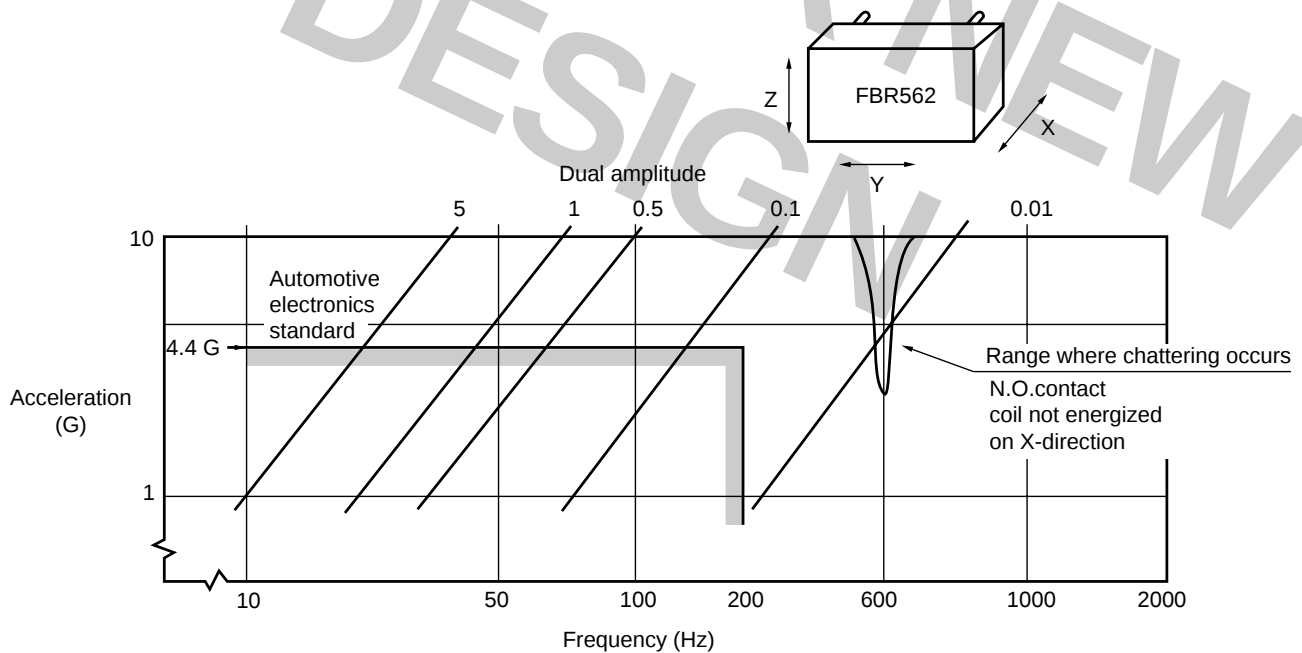
If both coils are energized, temperature rise will increase by

- (1) 5°C (0 A carrying current)
- (2) 20°C (10 A carrying current)

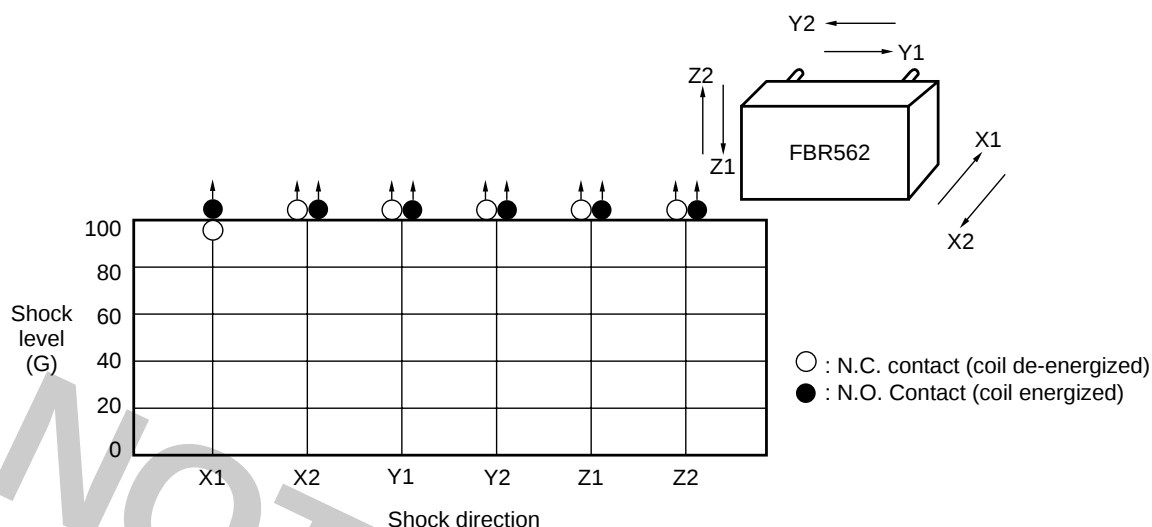
5. OPERATING COIL VOLTAGE RANGE (EXAMPLE)



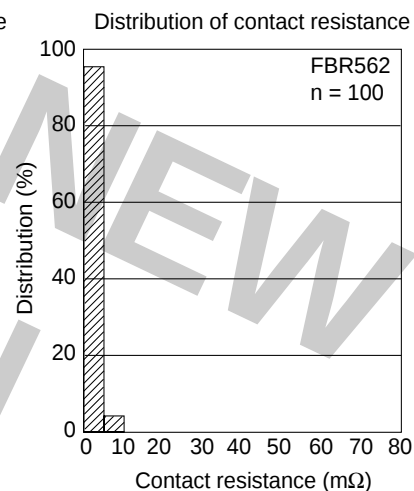
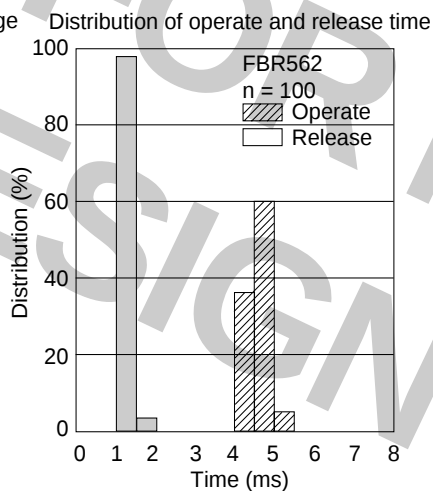
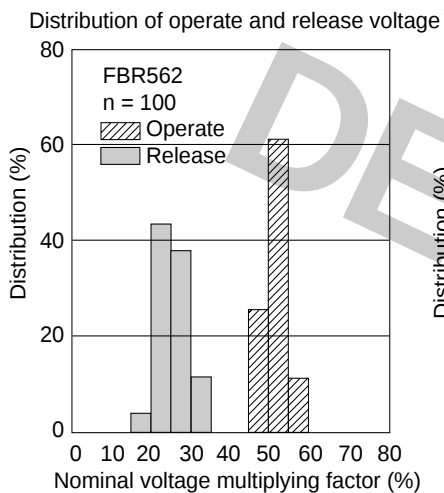
6. VIBRATION RESISTANCE CHARACTERISTICS



7. SHOCK RESISTANCE CHARACTERISTICS

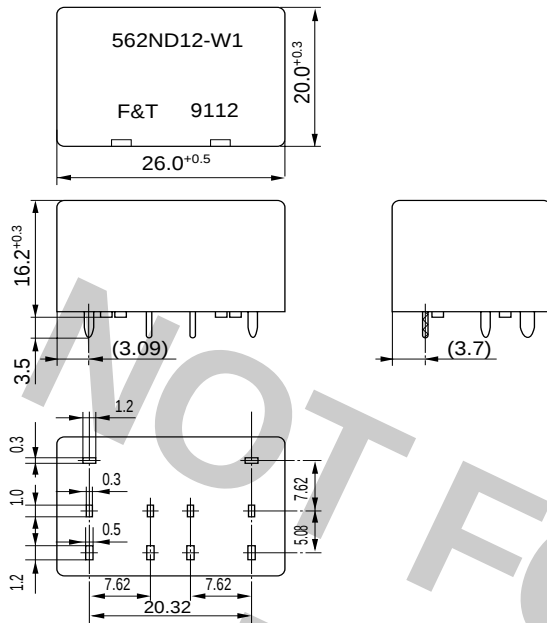


REFERENCE DATA

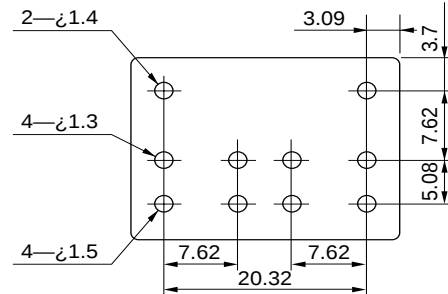


■ DIMENSIONS

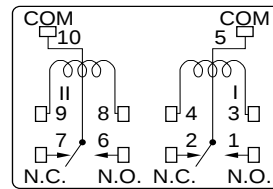
● Dimensions



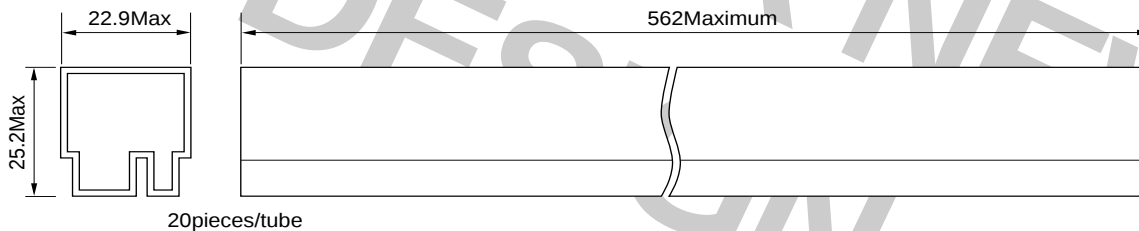
● PC board mounting hole layout (BOTTOM VIEW)



● Schematic (BOTTOM VIEW)



● Tube carrier



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: marcom@fcai.fujitsu.com
Web: www.fcai.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: www.fceu.fujitsu.com

Asia Pacific

Fujitsu Components Asia Ltd.
102E Pasir Panjang Road
#04-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcal@fcal.fujitsu.com
www.fcal.fujitsu.com

Unit: mm