

COMPACT POWER RELAY

1 POLE X 2—12A (28VDC) (FOR 24V BATTERY AUTOMOTIVE APPLICATIONS)

FBR572, 582 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)
- Suitable for controlling 24 V motors in trucks and other large vehicles
- High heat resistance and extended operating voltage
- Two types of contact gap (FBR572: 0.8 mm, FBR582: 1.4 mm)
- RoHS compliant since date code: 0627
Please see page 9 for more information



■ ORDERING INFORMATION

[Example] FBR572 N D24 - W **
 (a) (b) (c) (d) (e)

(a)	Series Name	FBR572: FBR572 Series relay (contact gap 0.8 mm) FBR582: FBR582 Series relay (contact gap 1.4 mm)
(b)	Structure	N : Plastic sealed type
(c)	Nominal Voltage	D24 : 24 VDC
(d)	Contact Material	W1 : Silver-tin oxide indium Y : Silver-tin oxide
(e)	Custom Designation	To be assigned custom specification

FBR572, 582 SERIES

■ SPECIFICATIONS

Item		FBR570 Series	FBR580 Series
Contact	Arrangement	1 form C × 2 (SPDT ×2)	
	Material	Silver-tin oxide indium (-W1 type)	Silver-tin oxide (-Y type)
	Voltage Drop (Resistance)	Maximum 100 mV (at 12 VDC 2 A)	
	Ratings	28 VDC 12 A (locked motor load) 28 VDC inrush 15 A, break 2.5 A (motor free load)	
	Maximum Carrying Current* ¹	40 A/2 minutes, 30 A/ 1 hour (25°C, 100% rated coil voltage)	
	Maximum Inrush Current (Reference)	60 A	
	Max. Switching Current (Reference)	12 A 28 VDC	14 A 32 VDC
	Minimum Switching Load* ² (Reference)	1A, 6 VDC	
Coil	Operating Temperature	-40°C to +85°C (no frost)	
	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	1 × 10 ⁶ operations minimum
	Electrical	1 × 10 ⁵ operations minimum (locked motor load) 5 × 10 ⁵ operations minimum (motor free load)	1 × 10 ⁵ operations minimum (locked motor 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 Refer to 'Operating Coil Voltage Range' (page 5)

*2 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

ORDERING CODE	Rated coil voltage	Coil resistance (±10%)	Must operate voltage	Thermal resistance
FBR572ND24-W1 FBR572ND24-Y	24 VDC	384 Ω	67°C/W	14.4 VDC (at 20°C)
FBR582ND24-W1 FBR582ND24-Y		170 Ω	56°C/W	18.0 VDC (at 85°C)

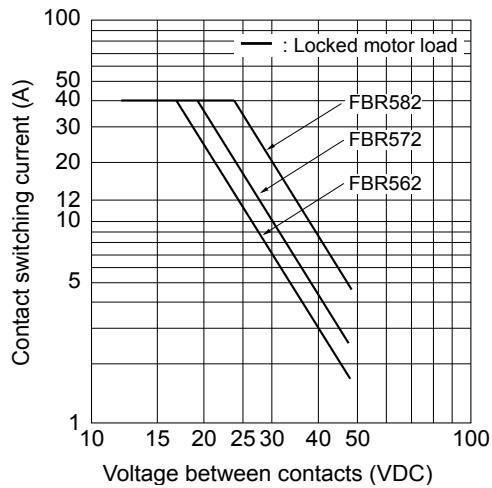
FBR572, 582 SERIES

■ SUITABLE APPLICATIONS

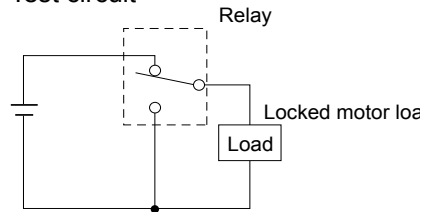
Application	Normal load current	Life x 10 ³	Recommended model (example)
Power Windows	10 to 12 A (switching at motor locking)	100	FBR582ND24-W1
Automatic Door Lock	5 A/2 door (switching at motor locking)	100	FBR572ND24-W1

■ CHARACTERISTIC DATA

1. MAXIMUM BREAK CAPACITY



• Test circuit



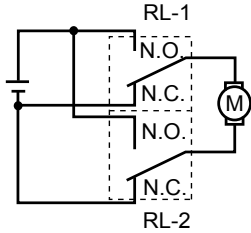
FBR572, 582 SERIES

2. LIFE TEST (EXAMPLE)

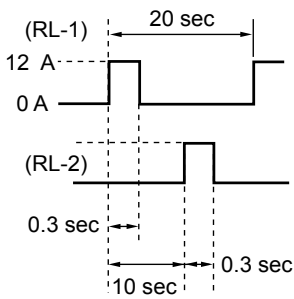
[FBR572 type]

- Test item
28 VDC-12 A
Motor lock
100,000 operations minimum
(FBR572 □-W type)

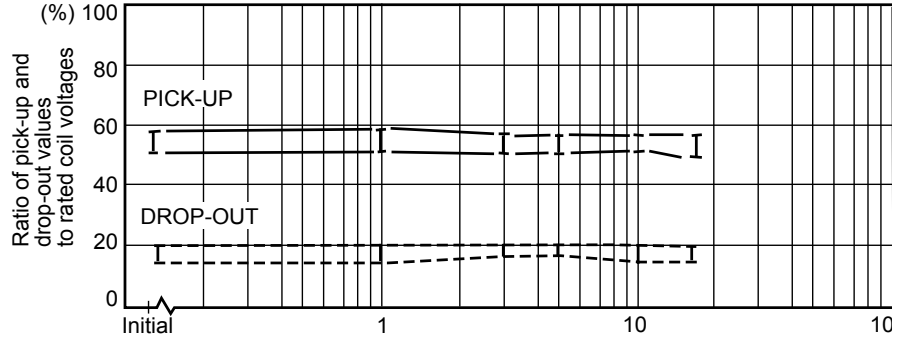
• Test circuit



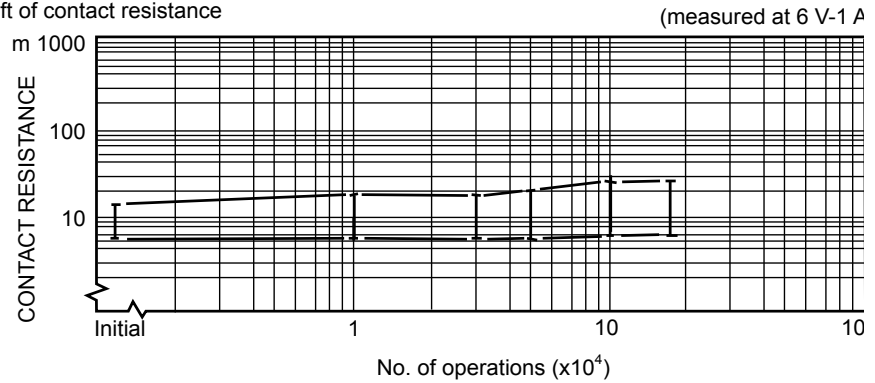
• Current wave form



• Shift of pick-up drop-out voltage



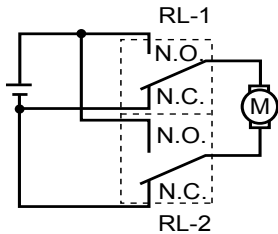
• Shift of contact resistance



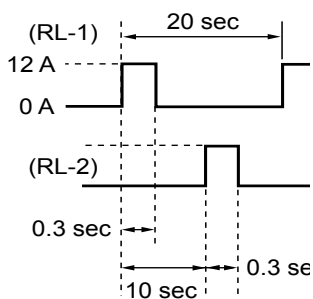
[FBR582 type]

- Test item
28 VDC-12 A
Motor lock
100,000 operations minimum
(FBR582 □-W type)

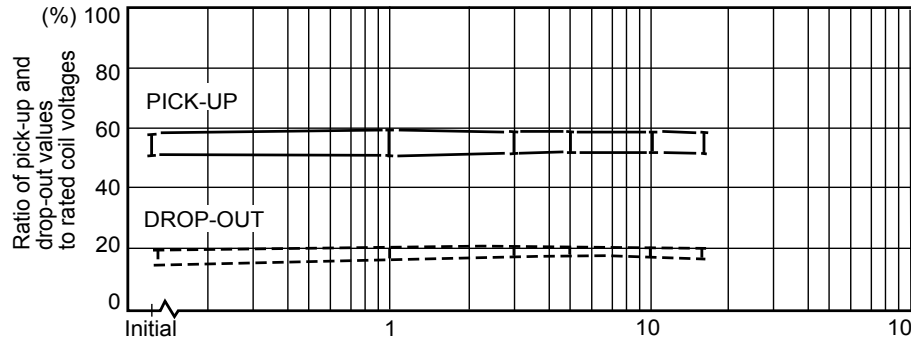
• Test circuit



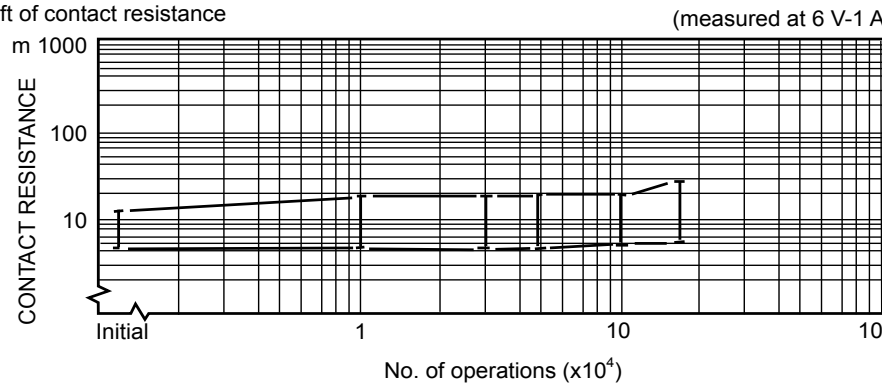
• Current wave form



• Shift of pick-up drop-out voltage



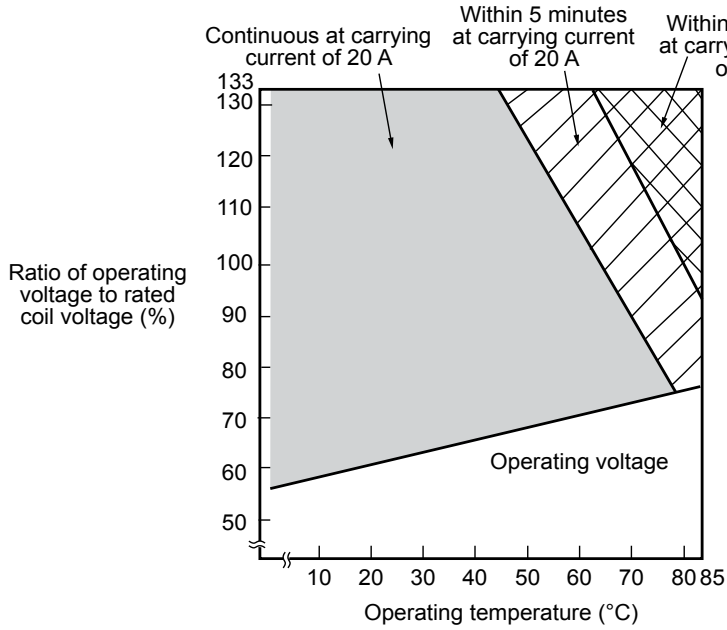
• Shift of contact resistance



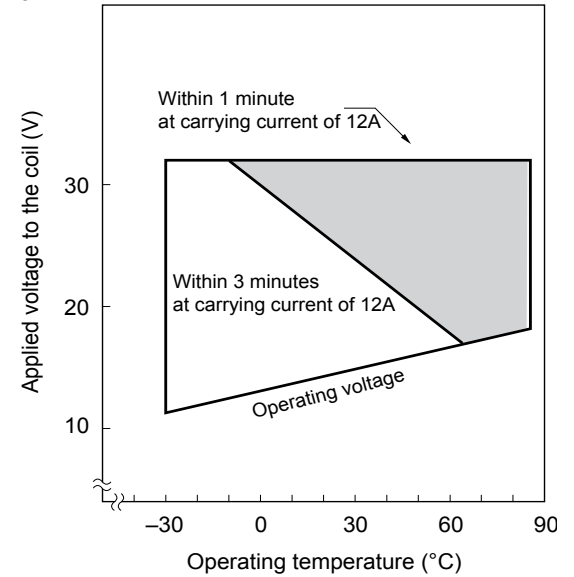
FBR572, 582 SERIES

3. OPERATING COIL VOLTAGE RANGE

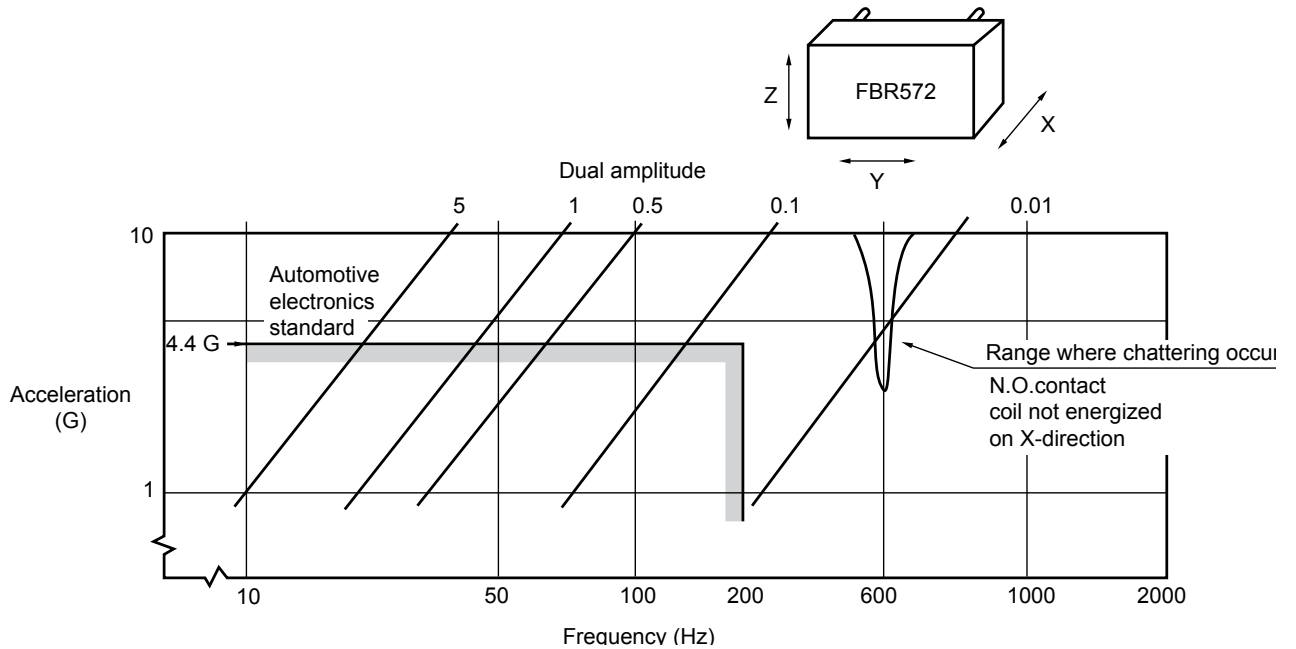
[FBR572 type]



[FBR582 type]

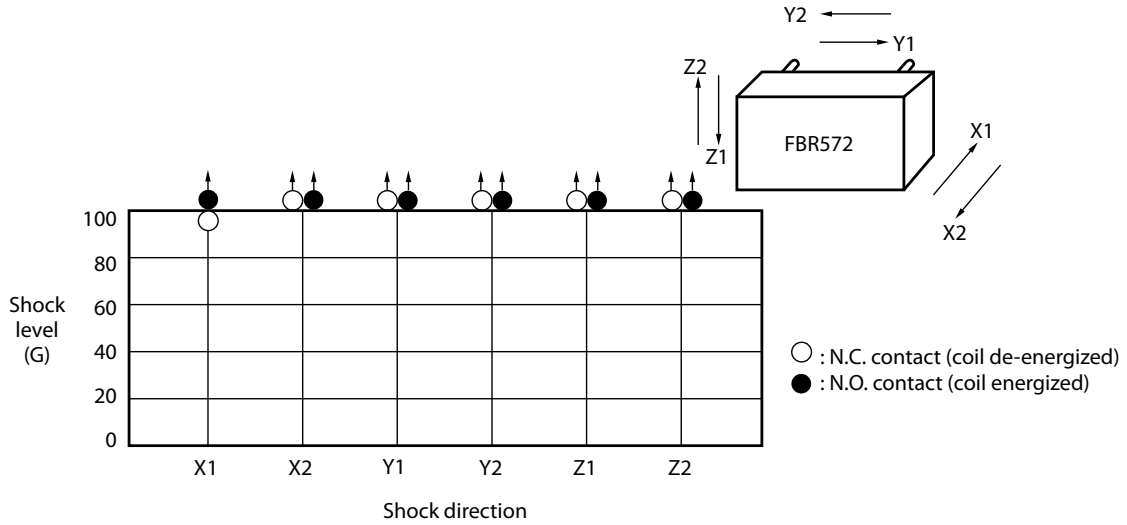


4. VIBRATION RESISTANCE CHARACTERISTICS



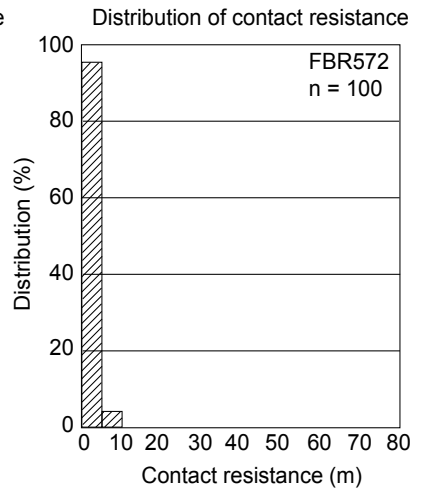
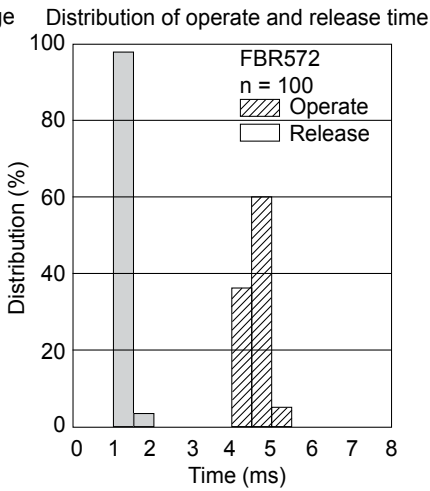
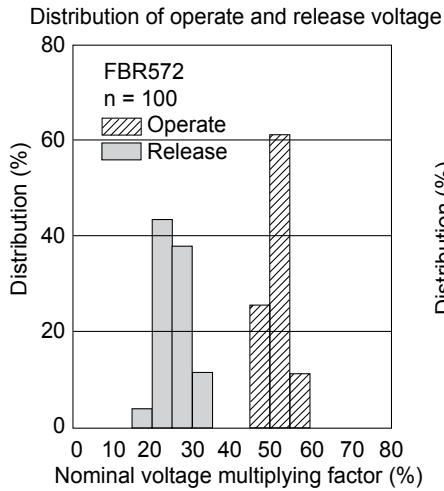
FBR572, 582 SERIES

5. SHOCK RESISTANCE CHARACTERISTICS

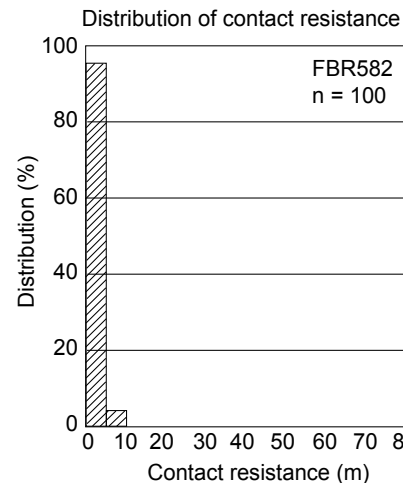
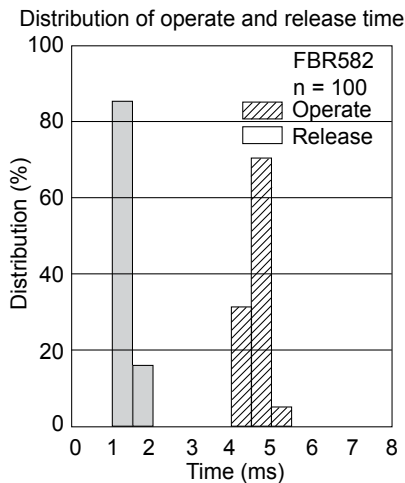
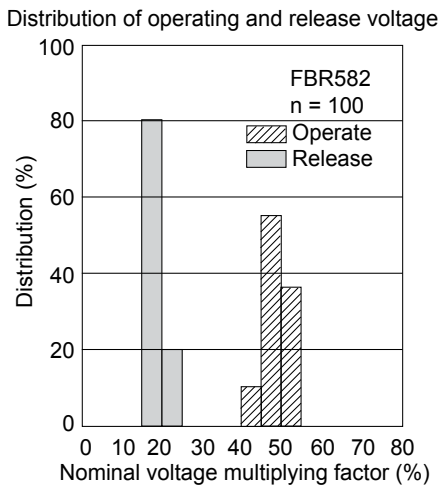


■ REFERENCE DATA

[FBR572 type]



[FBR582 type]

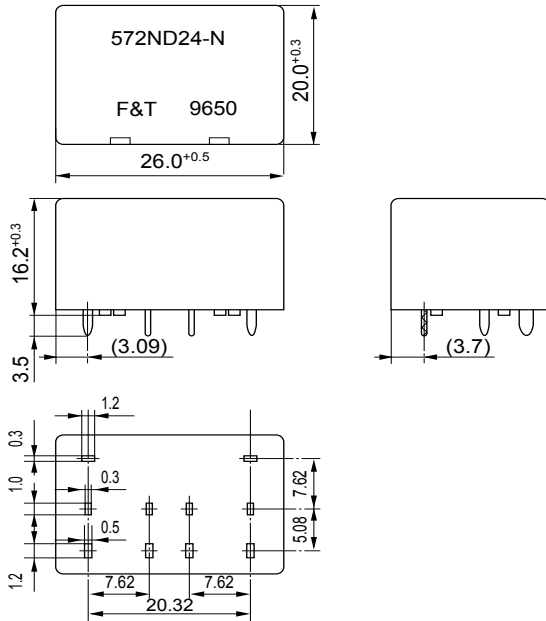


FBR572, 582 SERIES

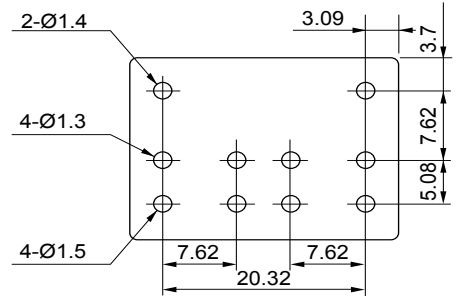
■ DIMENSIONS

[FBR572 type]

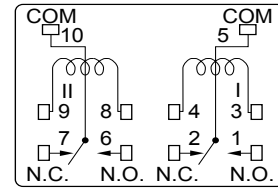
- Dimensions



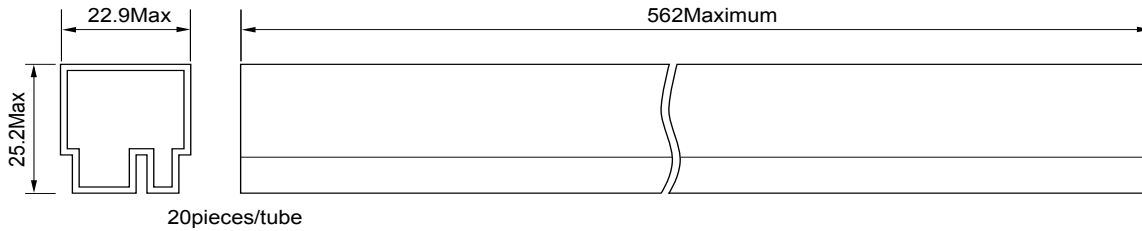
- PC board mounting hole layout (BOTTOM VIEW)



- Schematic (BOTTOM VIEW)



- Tube carrier



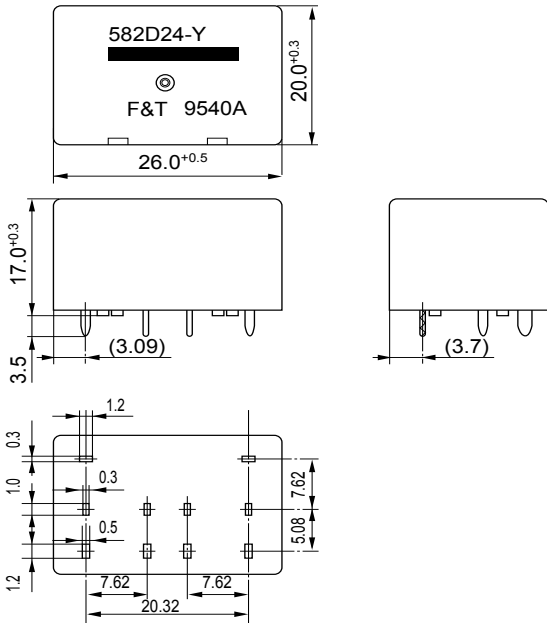
Unit: mm

FBR572, 582 SERIES

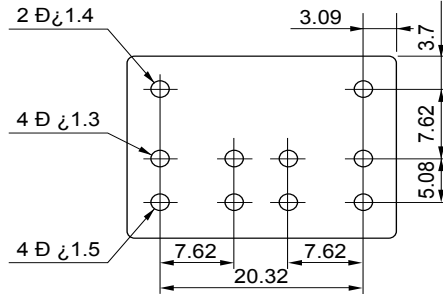
■ DIMENSIONS

[FBR582 type]

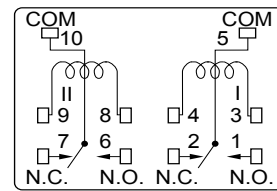
● Dimension



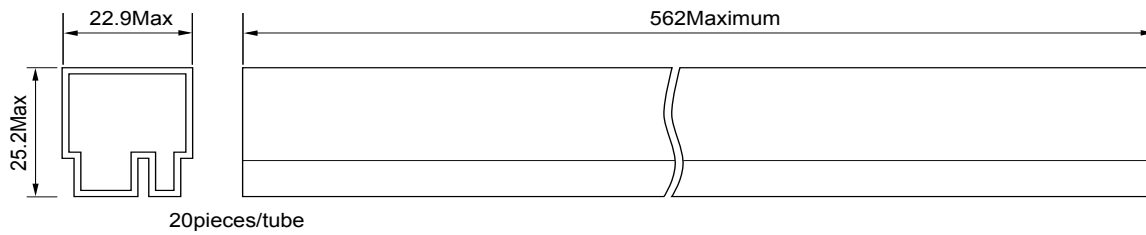
● PC board mounting hole layout (BOTTOM VIEW)



● 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 lead 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 condition

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.

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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