

# AUTOMOTIVE 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
- High current contact capacity  
(carrying current: 40A/2 minutes, 30A/1 hour)
- Suitable for controlling 24V 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



### ■ APPLICATIONS

Body control (power window, door lock etc.)

### ■ PART NUMBERS

[Example] FBR572 N D24 - W1 \*\*  
 (a) (b) (c) (d) (e)

(a)	Relay type	FBR572 : FBR572 series (contact gap 0.8mm) FBR582 : FBR582 series (contact gap 1.4mm)
(b)	Enclosure	N : Plastic sealed type
(c)	Coil rated voltage	D24 : 24VDC Please refer to coil rating table
(d)	Contact material	W1 : Silver-tin oxide indium Y : Silver-tin oxide
(e)	Special type	To be assigned custom specification

Actual marking does not carry the type name: "FBR"

E.g.: Ordering code: FBR572ND24-W1 Actual marking: 572ND24-W1

# FBR572, 582 Series

## ■ SPECIFICATIONS

Item		Specifications		Remarks/Conditions	
		FBR572	FBR582		
Contact Data	Configuration	1c (1 form C, SPDT) x 2			
	Material	Silver-tin oxide indium (-W1 type) Silver-tin oxide (-Y type)			
	Voltage drop	Max. 100mV		Initial at 1A, 12VDC	
	Contact rating	12A, 28VDC (locked motor load) Inrush 15A, break 2.5A, 28VDC (motor free load)			
	Max. carrying current	40A / 2 minutes (at 25°C, 100% rated coil voltage)			
	Max. inrush current	60A		Reference	
	Max. switching voltage	28VDC	32VDC	Reference	
	Max. switching current	12A	14A	Reference	
	Min. switching load <sup>*1</sup>	1A, 6VDC		Reference	
Coil	Operating temperature range	-40°C to +85°C		No frost	
	Storage temperature range	-40°C to +100°C		No frost	
Time	Operate	Max. 10 ms		At nominal voltage	
	Release	Max. 5 ms		At nominal voltage	
Life	Mechanical	Min. 10 x 10 <sup>6</sup> operations	Min. 1 x 10 <sup>6</sup> operations		
	Electrical	Locked motor load	Min. 100 x 10 <sup>3</sup> operations	Min. 100 x 10 <sup>3</sup> operations	
		Motor free load	Min. 500 x 10 <sup>3</sup> operations	-	
Others	Vibration resistance	Misoperation	10 to 200Hz acceleration 44m/s <sup>2</sup> (4.5G), constant acceleration		Coil ON/OFF, 3 axis, total 6 cycles
		Endurance	10 to 200Hz acceleration 44m/s <sup>2</sup> (4.5G), constant acceleration		Coil OFF, 3 axis, total 6 hours
	Shock resistance	Misoperation	100m/s <sup>2</sup> (11±1ms)		Coil ON/OFF, 3 axis, total 36 operations
		Endurance	1,000m/s <sup>2</sup> (6±1ms)		Coil OFF, 3 axis, total 18 operations
	Dimensions / Weight	20.0 x 26.0 x 16.2mm / Approx. 18g			

\*1: 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.

**!** Care shall be taken on the heat generated on PC board when maximum carrying current exceeds 10A. Please perform the confirmation test with actual conditions.

# FBR572, 582 Series

## ■ COIL DATA

Series	Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ ( $\Omega$ )	Must Operate Voltage* <sup>1</sup> (VDC)	Must Release Voltage* <sup>1</sup> (VDC)
FBR572	D24	24	384	14.4 (at 20°C)	1.9 (at 20°C)
				18.0 (at 85°C)	2.4 (at 85°C)
FBR582	D24	24	170	14.4 (at 20°C)	2.0 (at 20°C)
				18.0 (at 85°C)	2.6 (at 85°C)

Note: All values in the table are valid for 20°C and zero contact current unless otherwise specified.

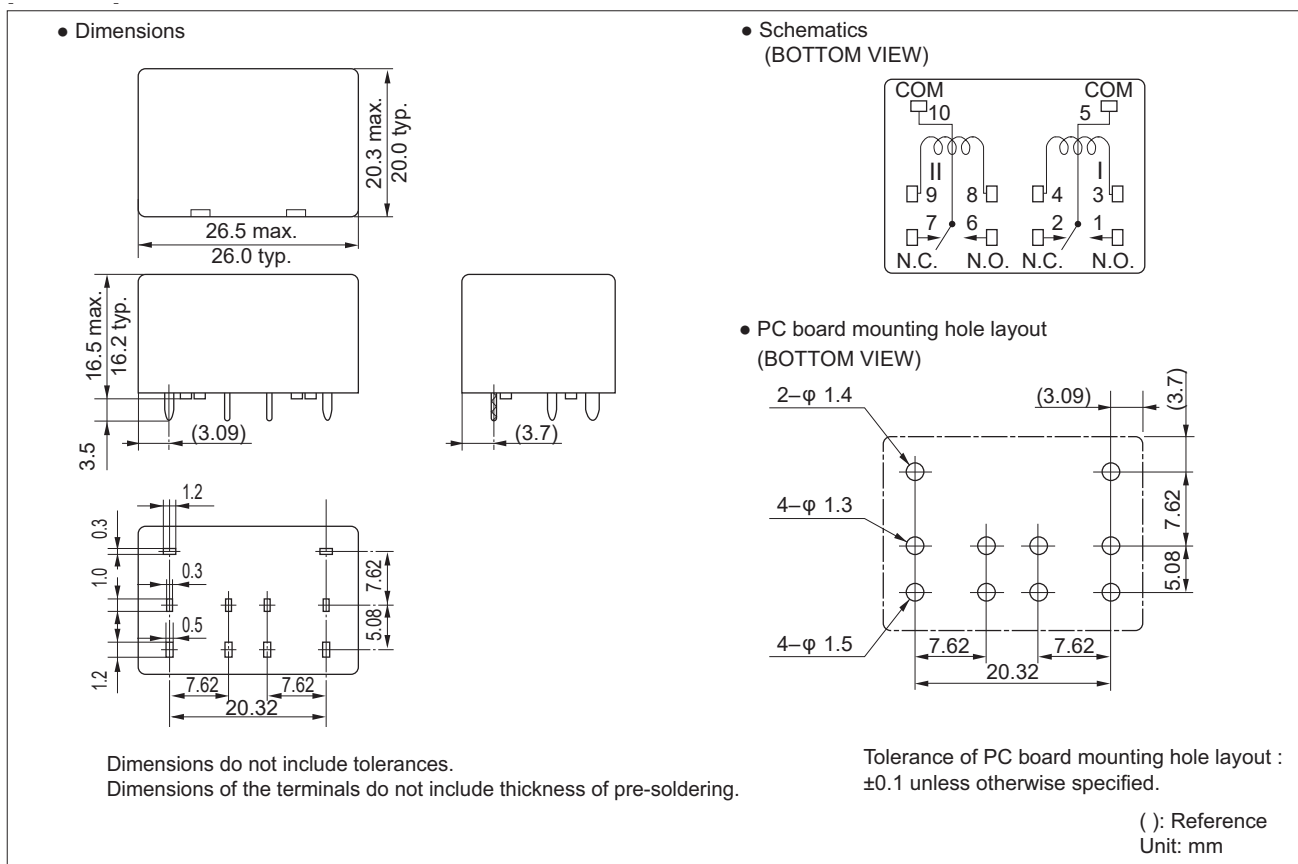
\*1: Specified operated values are valid for pulse voltage.

**!** Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

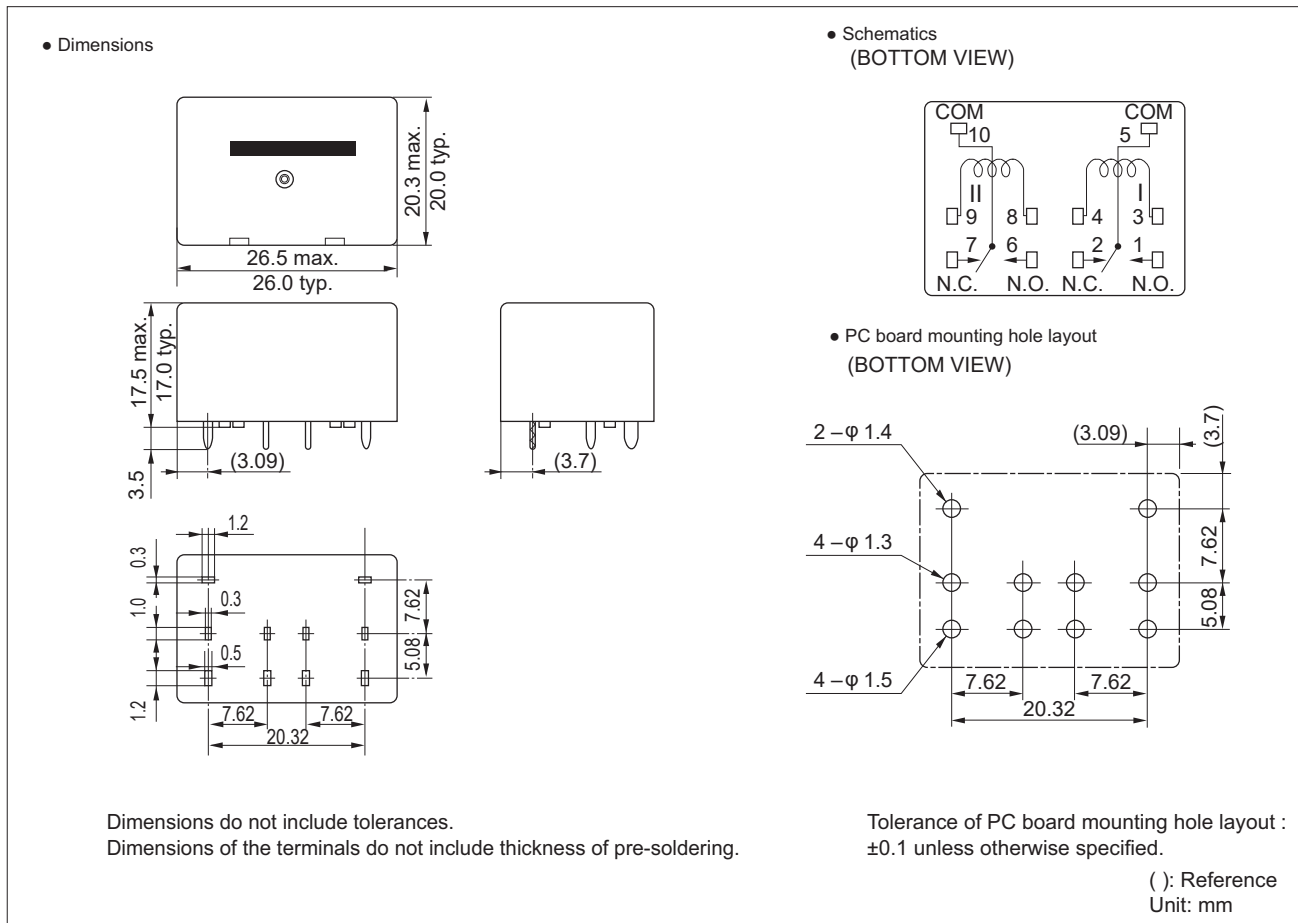
## ■ PART NUMBER LIST

Part Number	Contact Gap	Enclosure	Contact Material	Contact Arrangement
FBR572ND24-W1	0.8mm	Plastic sealed	Silver-tin oxide indium	1c (1 Form C, SPDT) x 2
FBR572ND24-Y			Silver-tin oxide	
FBR582ND24-W1	1.4mm	Plastic sealed	Silver-tin oxide indium	
FBR582ND24-Y			Silver-tin oxide	

## ■ DIMENSIONS

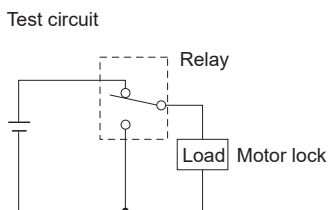
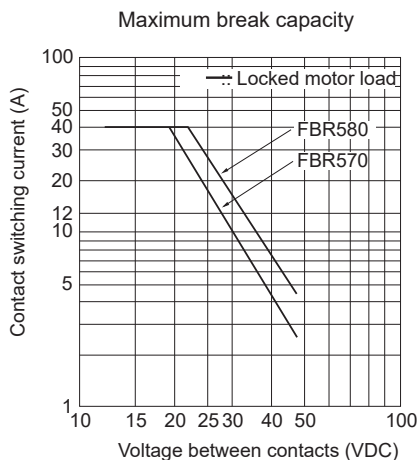


[ FBR580 ]



## CHARACTERISTIC DATA

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



### Life Test

#### (1) Motor lock

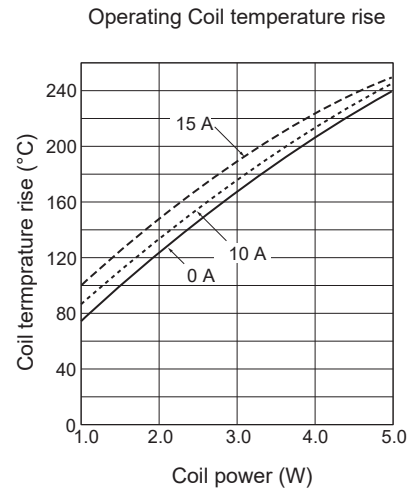
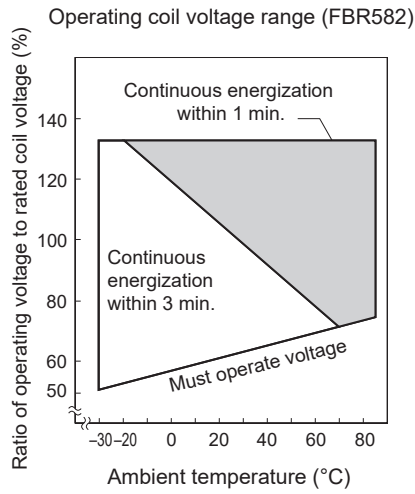
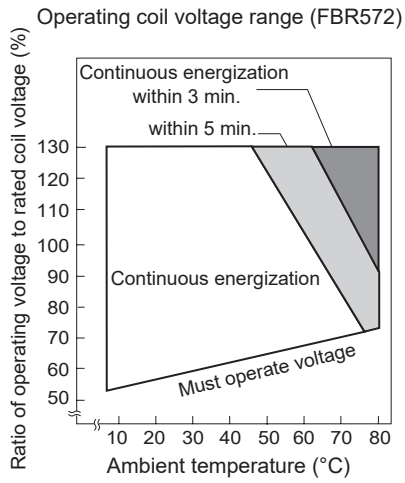
Test Item	Test Circuit	Current Wave Form
12V 28VDC Motor lock 100,000 operations minimum Contact material: Silver tin oxide indium		

#### (2) Motor free

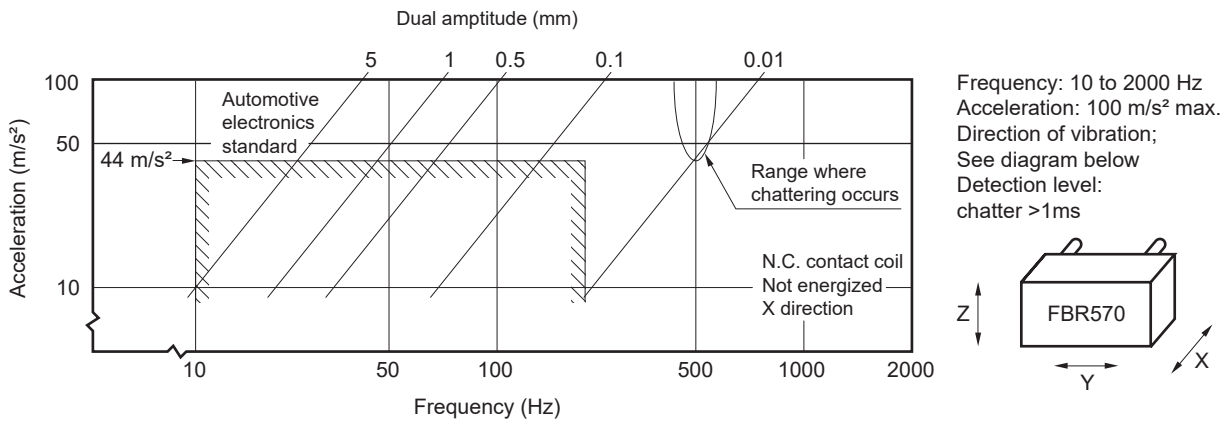
Test Item	Test Circuit	Current Wave Form
Inrush 15A, Break 2.5A 28VDC Motor free 500,000 operations minimum Contact material: Silver tin oxide indium		

## CHARACTERISTIC DATA

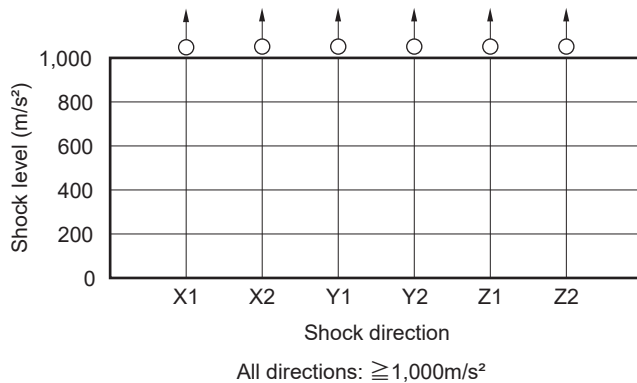
(Characteristic data is not guaranteed value but measured values of samples from production line.)



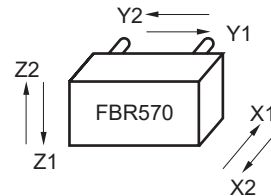
### Vibration resistance characteristics



### Shock resistance characteristics



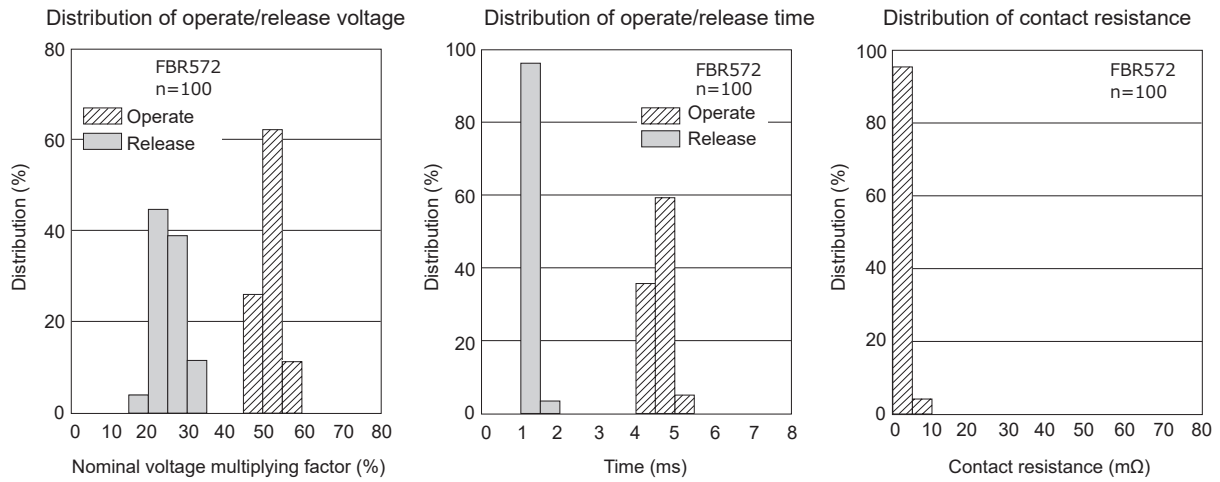
Shock application time:  $6 \pm 1 \text{ ms}$ , half-sine wave  
 Test condition: Coil energized and de-energized  
 Shock direction: See diagram below  
 Detection level: chatter > 1ms



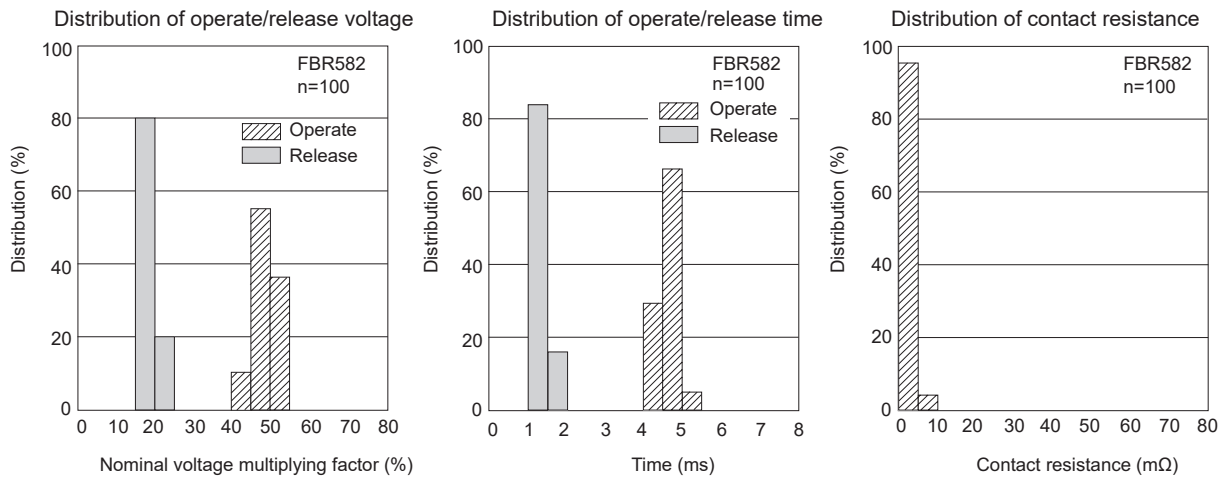
## CHARACTERISTIC DATA

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

[FBR572]



[FBR582]



## 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°C within 90 sec.

Soldering: Dip within 5 sec. at 255°C±5°C solder bath

Relay must be cooled by air immediately after soldering

#### Solder by Soldering Iron:

Soldering Iron: 30-60W

Temperature: Maximum 340-360°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, 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.

## Contact

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