

# COMPACT POWER RELAY

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

### FBR572, 582 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)
- 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)



#### ■ ORDERING INFORMATION

[Example]     $\frac{\text{FBR572}}{\text{(a)}}$      $\frac{\text{N}}{\text{(b)}}$      $\frac{\text{D24}}{\text{(c)}}$      $-$      $\frac{\text{W}}{\text{(d)}}$      $\frac{\text{**}}{\text{(e)}}$

|     |                    |                                                                                                      |
|-----|--------------------|------------------------------------------------------------------------------------------------------|
| (a) | Series Name        | FBR572: FBR572 Series relay (contact gap 0.8 mm)<br>FBR582: FBR582 Series relay (contact gap 1.4 mm) |
| (b) | Structure          | N : Plastic sealed type                                                                              |
| (c) | Nominal Voltage    | D24 : 24 VDC                                                                                         |
| (d) | Contact Material   | W : Silver-tin oxide indium<br>Y : Silver-tin oxide<br>N : Silver copper nickel                      |
| (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 (–W type)<br>Silver copper nickel (–N type)                                                  | Silver-tin oxide indium (–W type)<br>Silver-tin oxide (–Y type) |
|            | Voltage Drop (Resistance)            | Maximum 100 mV (at 12 VDC 2 A)                                                                                       |                                                                 |
|            | Ratings                              | 28 VDC 12 A (locked motor load)<br>28 VDC inrush 15 A, break 2.5 A (motor free load)                                 |                                                                 |
|            | Maximum Carrying Current             | 40 A/2 minutes, 30 A/ 1 hour<br>(25°C, 100% rated coil voltage)                                                      |                                                                 |
|            | Maximum Inrush Current (Reference)   | –W,–Y type: 60 A<br>–N type: 40 A                                                                                    |                                                                 |
|            | Max. Switching Current (Reference)   | 12 A 28 VDC                                                                                                          | 14 A 32 VDC                                                     |
|            | Minimum Switching Load*1 (Reference) | –W, –Y Type: 6 VDC 1 A<br>–N Type: 6 VDC 2 A                                                                         |                                                                 |
| 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 <sup>7</sup> operations minimum                                                                                | 1 ×10 <sup>6</sup> operations minimum                           |
|            | Electrical                           | 1 ×10 <sup>5</sup> operations minimum (locked motor load)<br>5 ×10 <sup>5</sup> operations minimum (motor free load) | 1 ×10 <sup>5</sup> operations minimum (locked motor load)       |
| Other      | Vibration Resistance                 |                                                                                                                      | 10 to 55 Hz (double amplitude of 1.5 mm)                        |
|            | Shock Resistance                     | Misoperation                                                                                                         | 100 m/s <sup>2</sup>                                            |
|            |                                      | Endurance                                                                                                            | 1,000 m/s <sup>2</sup>                                          |
|            | 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

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

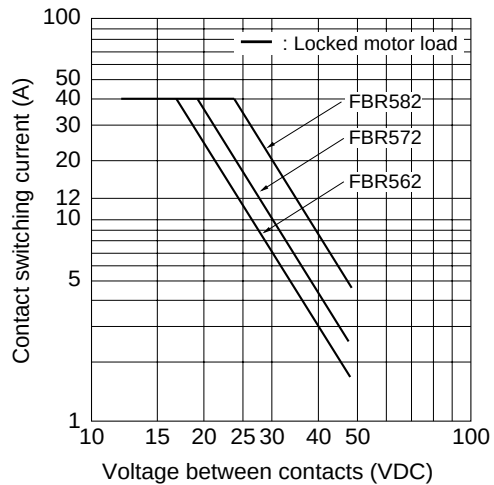
# FBR572, 582 SERIES

## ■ SUITABLE APPLICATIONS

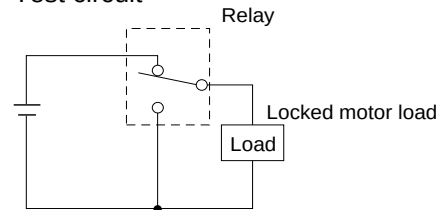
| Application         | Normal load current                               |              | Life x 10 <sup>3</sup> | Recommended model (example) |
|---------------------|---------------------------------------------------|--------------|------------------------|-----------------------------|
| Power Windows       | 10 to 12 A (switching at motor locking)           |              | 100                    | FBR572ND24-W                |
| Automatic Door Lock | 5 A/2 door (switching at motor locking)           |              | 100                    | FBR572ND24-W                |
| Intermittent Wipers | INRUSH 15 to 30 A<br>BREAK 2 to 8<br>(motor free) | Current wave | 300                    | FBR572ND24-W                |
|                     |                                                   |              |                        | FBR572ND24-N                |

## ■ CHARACTERISTIC DATA

### 1. MAXIMUM BREAK CAPACITY



#### • Test circuit



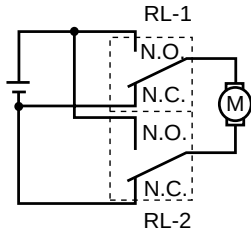
# FBR572, 582 SERIES

## 2. LIFE TEST (EXAMPLE)

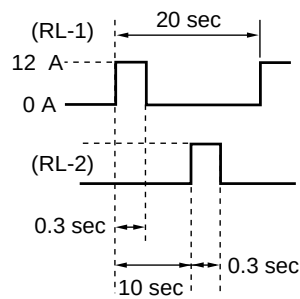
### [FBR572 type]

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

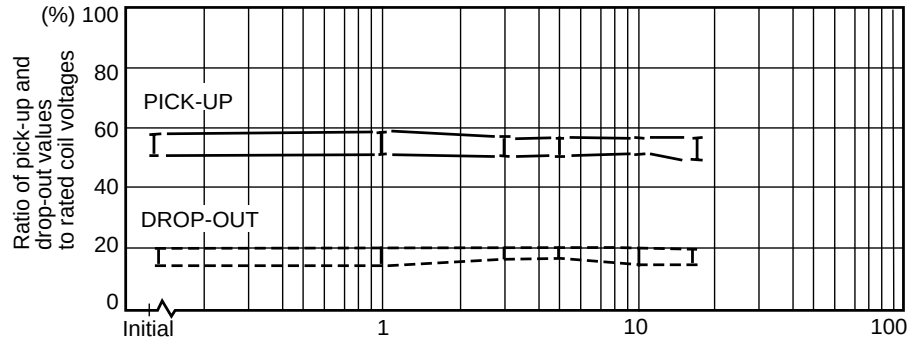
#### • Test circuit



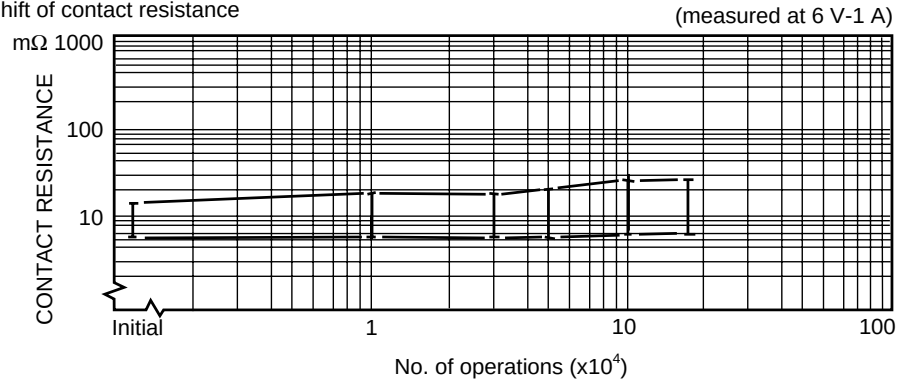
#### • Current wave form



#### • Shift of pick-up drop-out voltage



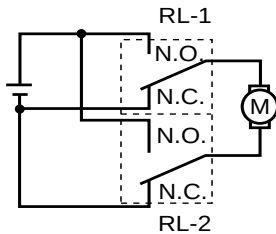
#### • Shift of contact resistance



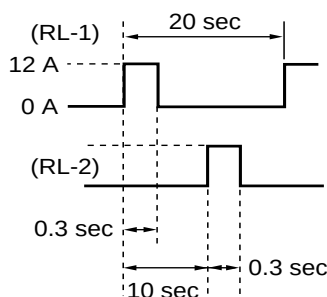
### [FBR582 type]

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

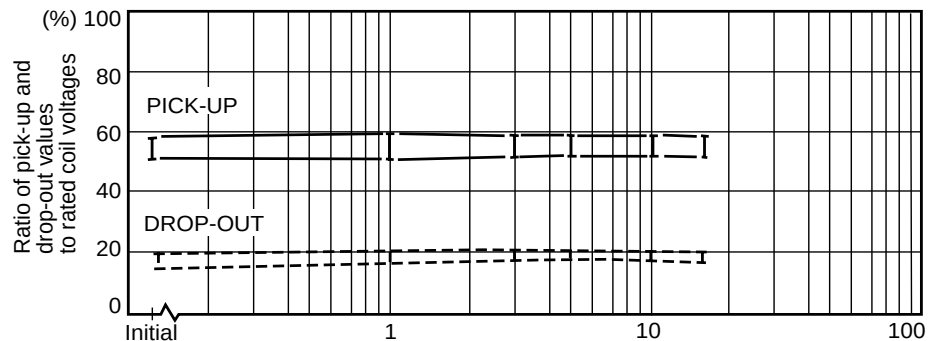
#### • Test circuit



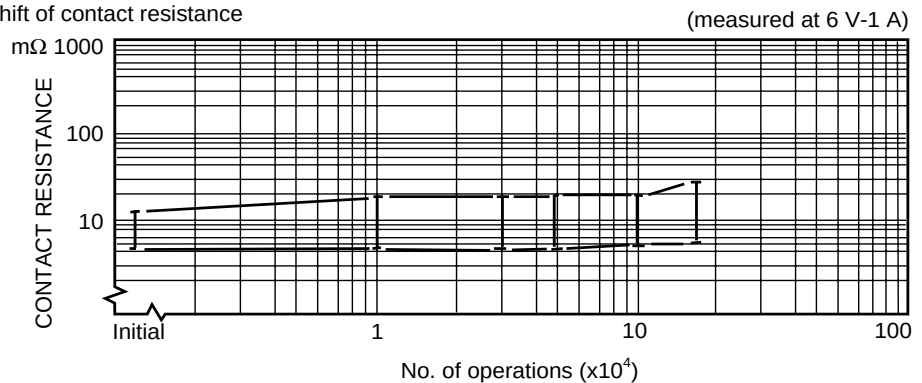
#### • Current wave form



#### • Shift of pick-up drop-out voltage



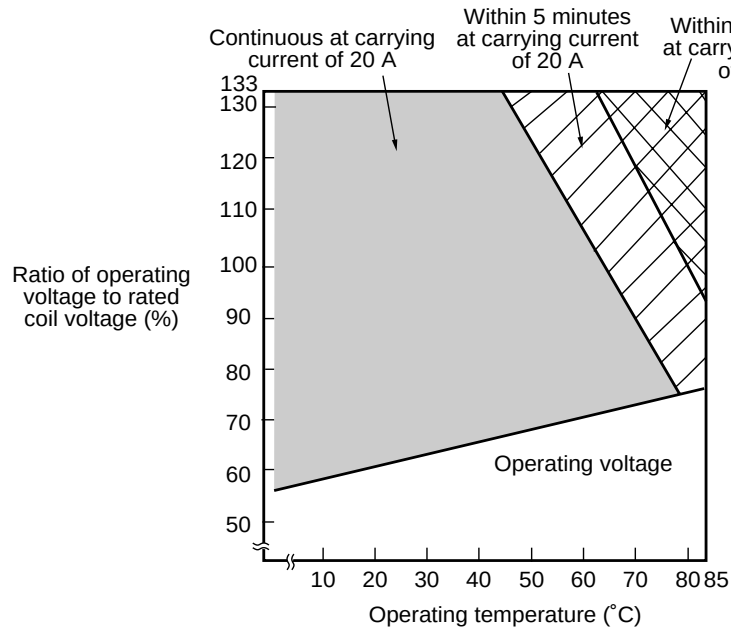
#### • Shift of contact resistance



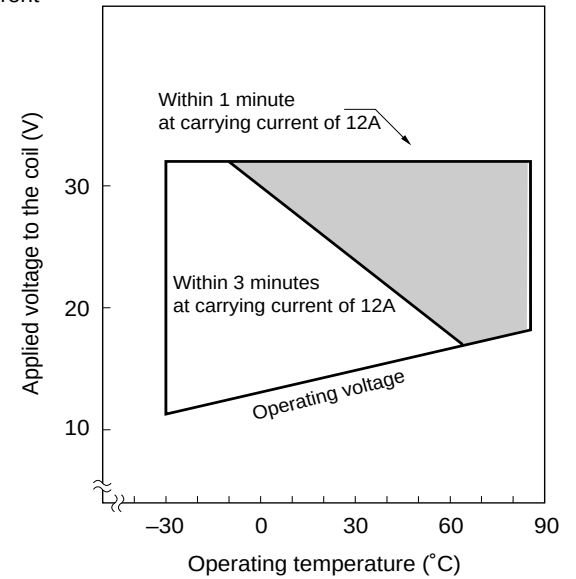
# FBR572, 582 SERIES

## 3. OPERATING COIL VOLTAGE RANGE

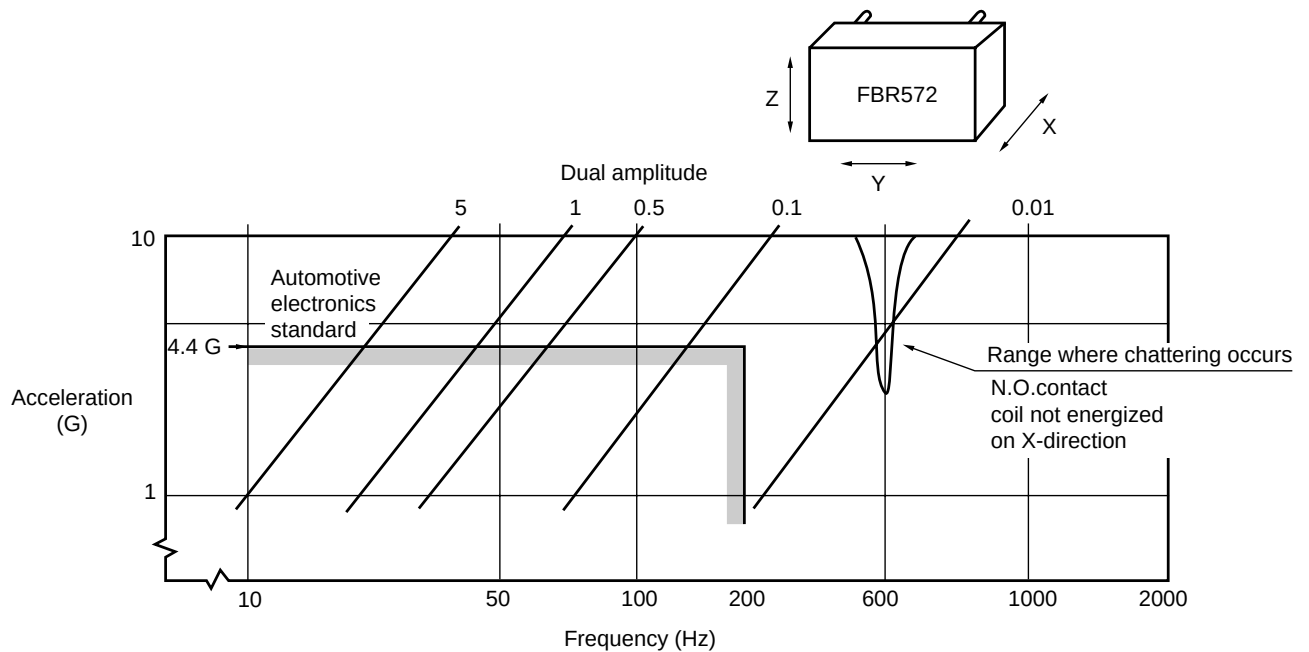
[FBR572 type]



[FBR582 type]

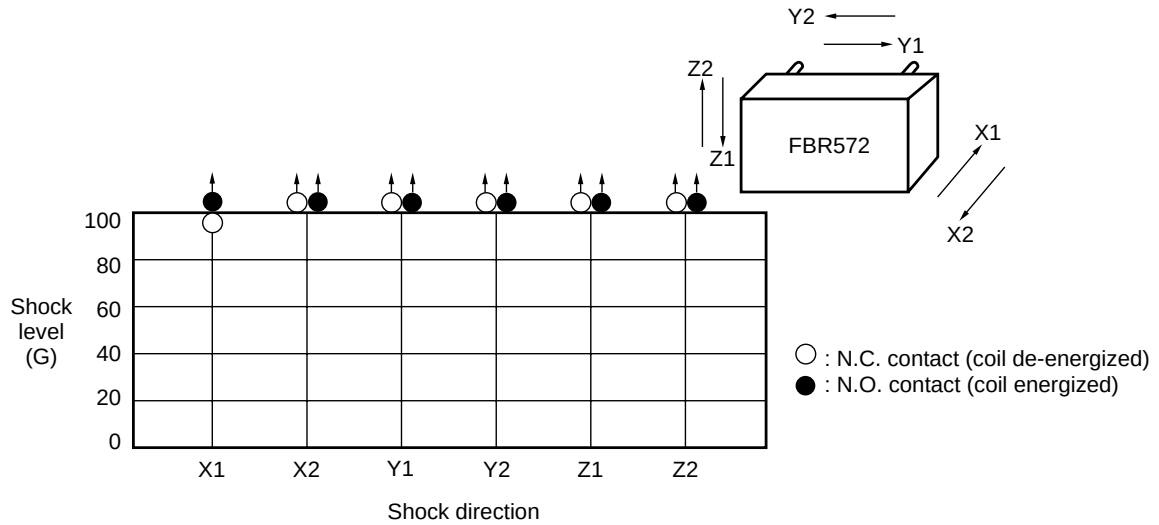


## 4. VIBRATION RESISTANCE CHARACTERISTICS



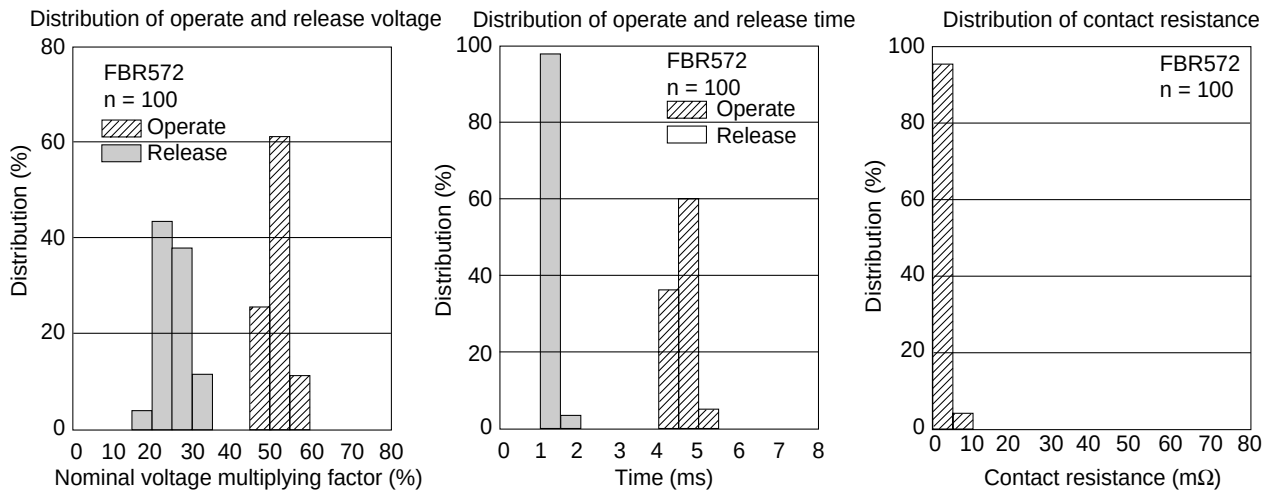
# FBR572, 582 SERIES

## 5. SHOCK RESISTANCE CHARACTERISTICS

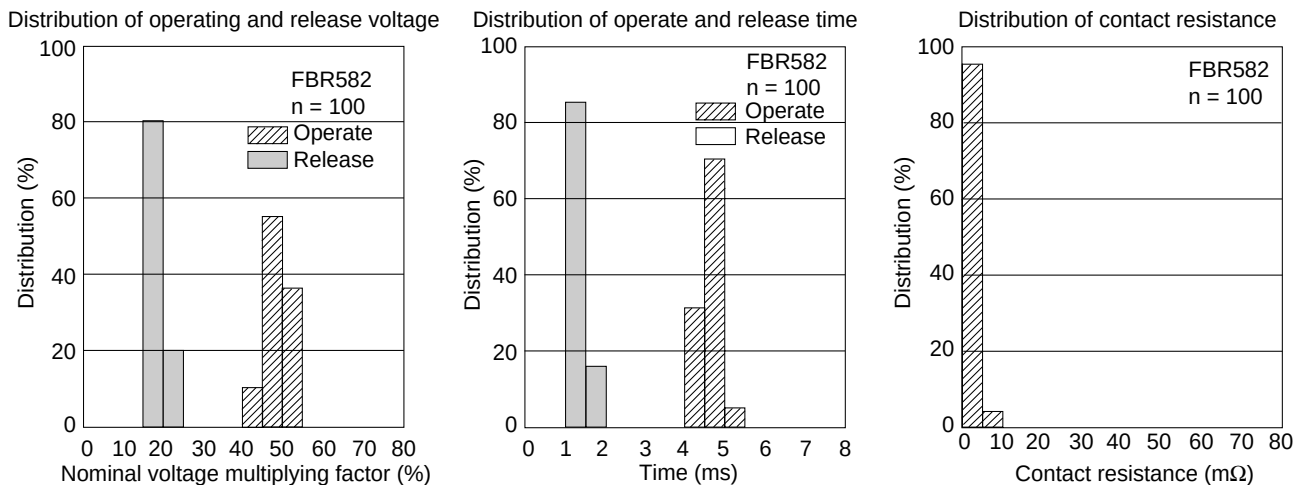


## REFERENCE DATA

[FBR572 type]



[FBR582 type]

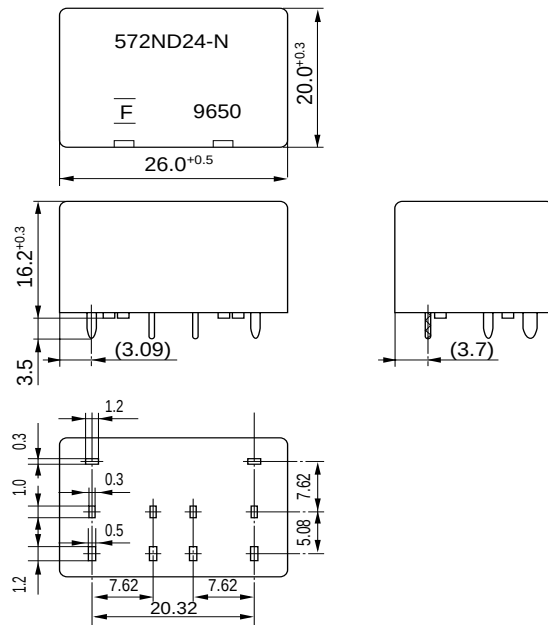


# FBR572, 582 SERIES

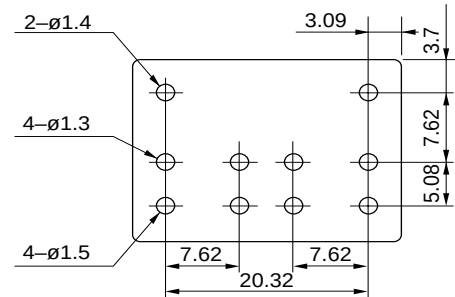
## ■ DIMENSIONS

[FBR572 type]

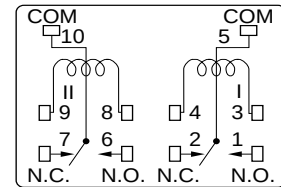
### ● Dimensions



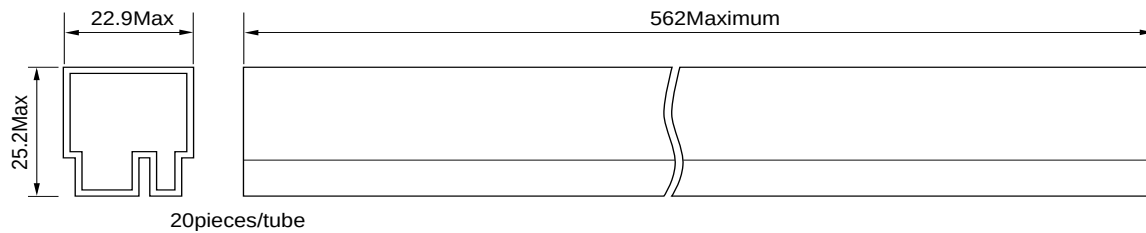
### ● PC board mounting hole layout (BOTTOM VIEW)



### ● Schematic (BOTTOM VIEW)



### ● Tube carrier



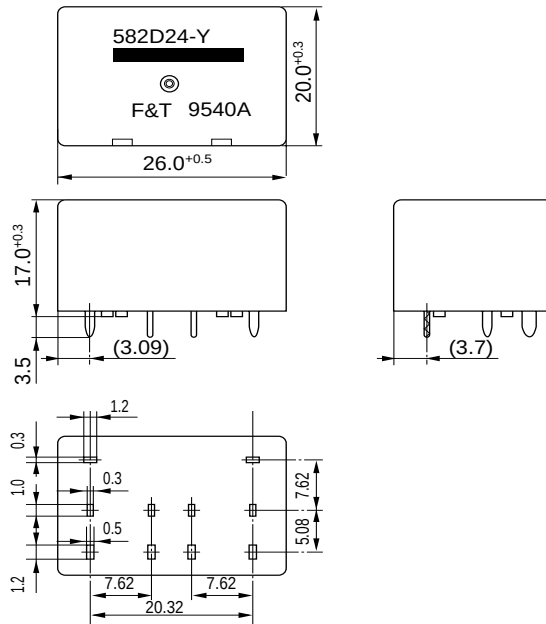
Unit: mm

# FBR572, 582 SERIES

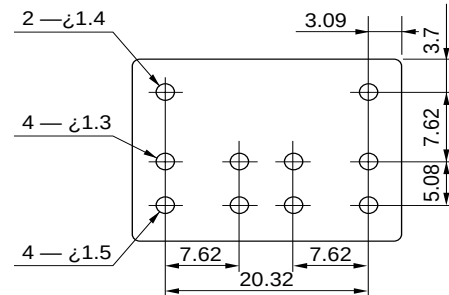
## ■ DIMENSIONS

[FBR582 type]

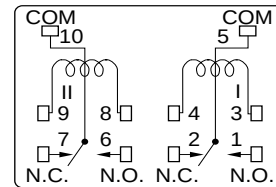
### ● Dimension



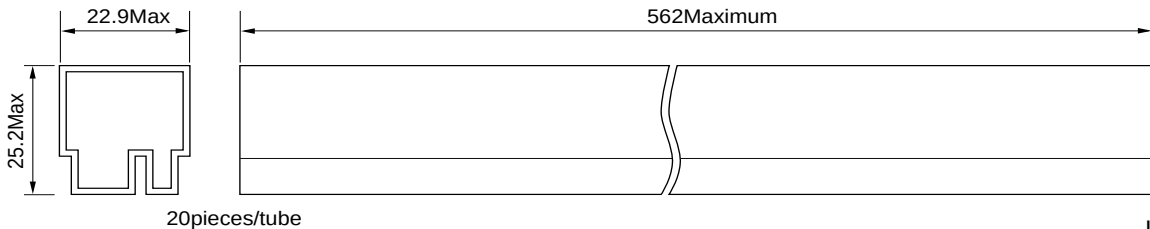
### ● PC board mounting hole layout (BOTTOM VIEW)



### ● Schematic (BOTTOM VIEW)



### ● Tube carrier



Unit: mm

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