

# MINIATURE RELAY

## 2 POLES—1 to 2 A (FOR SIGNAL SWITCHING)

### FBR244 SERIES

#### ■ FEATURES

- Gold-overlay bifurcated contact  
Contact material and shape especially suitable for signal switching; assures reliability at low level switching.
- Conforms to FCC68 standards  
High voltage relays are also available with dielectric strength greater than 1,000 VAC and surge strength greater than 1,500 V.
- Formed terminals for temporary mounting  
Kink terminals enable FBR240 Series relays to be mounted temporarily on a PC board.
- Automatic mounting  
Shipped in carrier case plastic magazine suitable for automatic mounting.
- UL and CSA recognized



#### ■ ORDERING INFORMATION

[Example]  $\frac{\text{FBR244}}{\text{(a)}} \frac{\text{N}}{\text{(b)}} \frac{\text{D}}{\text{(c)}} \frac{\text{012}}{\text{(d)}} / \frac{\text{02C}}{\text{(e)}} \frac{\text{S}}{\text{(f)}} \frac{\text{-2}}{\text{(g)}} \frac{\text{-CSA}}{\text{(h)}}$

(a)	Series Name	FBR244: FBR244 Series
(b)	Enclosure	Nil : Flux free type N : Plastic sealed type
(c)	Coil Type	D : Standard (nominal power 0.5 W type) G : G type (nominal power 0.55 W type)
(d)	Nominal Voltage	(Example) Standard (Example) G type 003: 3 VDC 005: 4.5 VDC 012: 12 VDC 009: 9 VDC (refer to the COIL DATA CHART)
(e)	Contact Arrangement	02C : 2 form C (DPDT)
(f)	Contact Style and Contact Material	T : Bifurcated, gold-overlay silver contact E : Bifurcated, gold-overlay silver-palladium contact S : Single, gold-overlay silver contact P : Single, gold-overlay silver-palladium contact
(g)	Special Type	Nil : Standard -2 : High dielectric strength type
(h)	Safety Specification	Nil : Standard -UL : UL114 recognized -CSA: UL114 + CSA recognized

Note: The designation name is stamped on the top of the relay case as follows:  
(Example) Designation ordered: FBR244D012/02CE  
Stamp: 244D012/02CE

# FBR244 SERIES

## ■ SAFETY STANDARD AND FILE NUMBERS

UL114 (File No. E63615)

C22.2 No. 14 (File No. LR40304 or LR64026)

Nominal voltage	Contact rating
3 to 48 VDC	2 A 28 VDC resistive 0.5 A 120 VAC resistive

## ■ SPECIFICATIONS

Item		S contact	P contact	T contact	E contact
Contact	Arrangement	2 form C (DPDT)			
	Style	Single		Bifurcated	
	Material	Gold-overlay silver	Gold-overlay silver-palladium	Gold-overlay silver	Gold-overlay silver-palladium
	Resistance (initial)	Maximum 100 mΩ (at 0.1 A 6 VDC)			
	Ratings	0.5 A 120 VAC or 1 A 30 VDC (resistive load)			
	Maximum Carrying Current	2 A			
	Maximum Switching Power	60 AV or 30 W			
	Max. Switching Voltage*1	220 VAC or 150 VDC			
	Maximum Switching Current	1.25 A (AC) or 2 A (DC)			
	Min. applicable load*2 (Reference)	Plastic sealed	1 mA 5 VDC	1 mA 1 VDC	1 mA 1 VDC
Flux free		5 mA 5 VDC	1 mA 5 VDC	1 mA 5 VDC	1 mA 1 VDC
Coil	Nominal Power (at 20°C)	Approximately 0.5 W to 0.58 W (standard), approximately 0.55 W (G type)			
	Operate Power (at 20°C)	Approximately 0.28 W (standard), approximately 0.25 W (G type)			
	Operating Temperature	-30°C to +70°C (no frost) (refer to the CHARACTERISTIC DATA)			
	Operating Humidity	45 to 85%RH			
Time Value	Operate (at nominal voltage)	Maximum 6 ms			
	Release (at nominal voltage)	Maximum 3 ms			
Insulation	Resistance (initial)	Minimum 100 MΩ (at 500 VDC)			
	Dielectric Strength	Between coil and contacts	500 VAC 1 minute (standard) 1,000 VAC 1 minute (high dielectric strength type)		
		Between open contacts	500 VAC 1 minute		
Surge Strength	1,500 V (at 10 × 700 μs)				
Life	Mechanical	20 × 10 <sup>6</sup> operations minimum			
	Electrical (refer to the REFERENCE DATA)	DC	500 × 10 <sup>3</sup> operations minimum (at contact rating)		
		AC	100 × 10 <sup>3</sup> operations minimum (at contact rating)		
Other	Vibration Resistance	10 to 55 Hz (double amplitude of 1.5 mm)			
	Shock Resistance	Misoperation	200 m/s <sup>2</sup> (11 ± <sup>1</sup> ms)		
		Endurance	1,000 m/s <sup>2</sup> (11 ± <sup>1</sup> ms)		
	Weight	Approximately 4.5 g			

\*1 If the switching voltage exceeds the rated contact voltage, reduce the current. The current values vary according to the type of load.

\*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 operation environment.

# FBR244 SERIES

## COIL DATA CHART

### 1. STANDARD (D type)

MODEL		Nominal voltage	Coil resistance $\pm 10\%$	Nominal current (at nominal voltage) approx.	Must operate voltage	Must release voltage	Nominal power	Operate power	Coil temperature rise
□ S, P, T, E									
Flux free	Plastic sealed								
FBR244D003/02□	FBR244ND003/02□	3 VDC	18 $\Omega$	167 mA	75% max. of nominal voltage	10% min. of nominal voltage	Approx. 500 mW (at nominal voltage)	Approx. 280 mW max.	Approx. 45 deg (at nominal voltage)
FBR244D005/02□	FBR244ND005/02□	5 VDC	50 $\Omega$	100 mA					
FBR244D006/02□	FBR244ND006/02□	6 VDC	72 $\Omega$	83 mA					
FBR244D009/02□	FBR244ND009/02□	9 VDC	162 $\Omega$	56 mA					
FBR244D012/02□	FBR244ND012/02□	12 VDC	290 $\Omega$	41 mA					
FBR244D024/02□	FBR244ND024/02□	24 VDC	1,150 $\Omega$	21 mA					
FBR244D048/02□	FBR244ND048/02□	48 VDC	4,000 $\Omega$	12 mA			580 mW	53 deg	

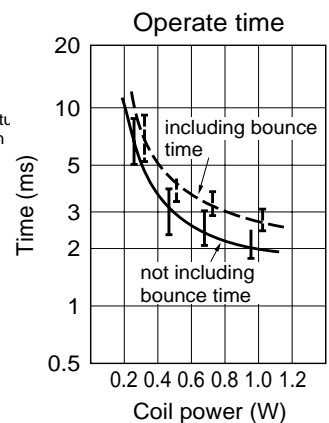
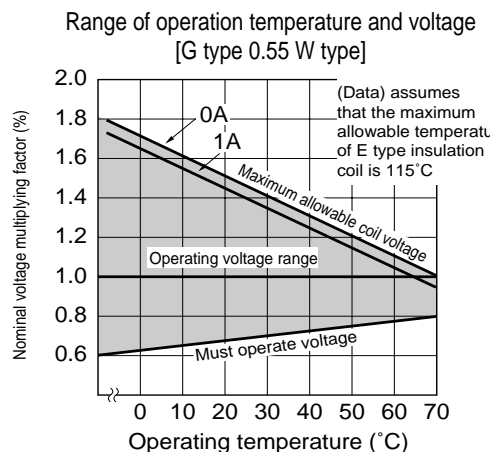
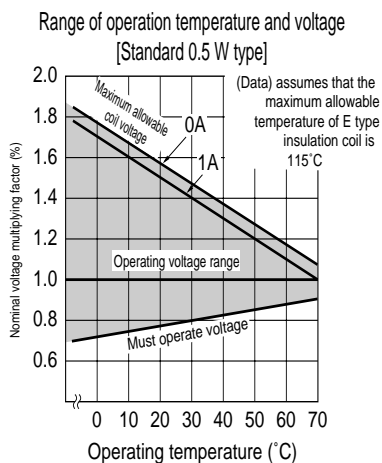
Note: All values in the table are measured at 20°C.

### 2. G TYPE

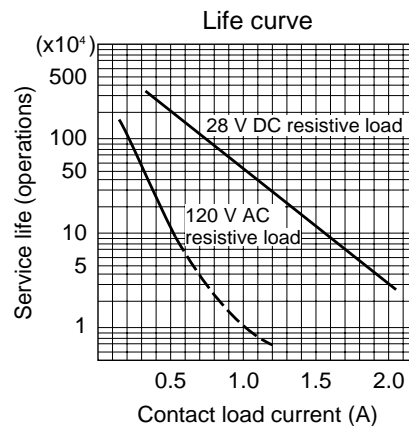
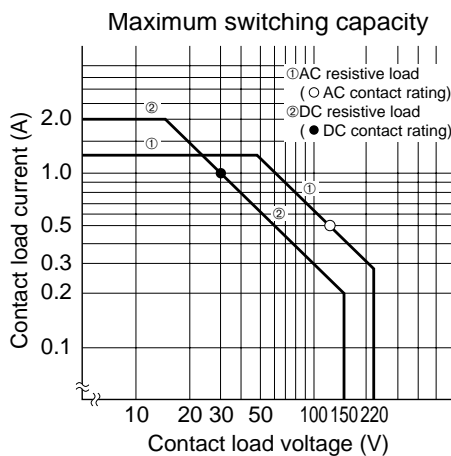
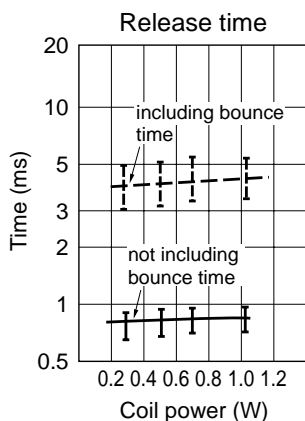
MODEL		Nominal voltage	Coil resistance $\pm 10\%$	Nominal current (at nominal voltage) approx.	Must operate voltage	Must release voltage	Nominal power	Operate power	Coil temperature rise
□ S, P, T, E									
Flux free	Plastic sealed								
FBR244G005/02□	FBR244NG005/02□	4.5 VDC	36 $\Omega$	125 mA	3.1 VDC	0.20 VDC	Approx. 550 mW (at nominal voltage)	Approx. 250 mW max.	Approx. 50 deg (at nominal voltage)
FBR244G006/02□	FBR244NG006/02□	6 VDC	66 $\Omega$	91 mA	4.0 VDC	0.27 VDC			
FBR244G009/02□	FBR244NG009/02□	9 VDC	140 $\Omega$	64 mA	6.0 VDC	0.38 VDC			
FBR244G012/02□	FBR244NG012/02□	12 VDC	280 $\Omega$	43 mA	8.1 VDC	0.55 VDC			
FBR244G024/02□	FBR244NG024/02□	24 VDC	1,050 $\Omega$	23 mA	15.8 VDC	1.06 VDC			
FBR244G048/02□	FBR244NG048/02□	48 VDC	4,100 $\Omega$	11 mA	30.5 VDC	2.12 VDC			

Note: All values in the table are measured at 20°C.

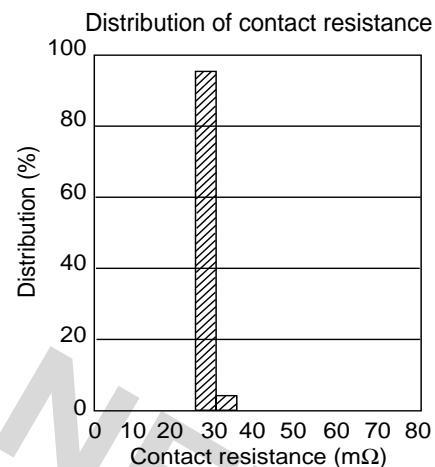
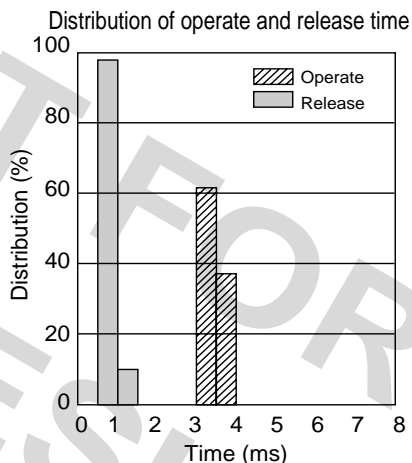
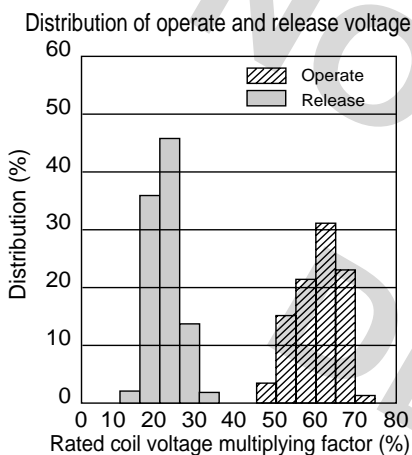
## CHARACTERISTIC DATA



# FBR244 SERIES

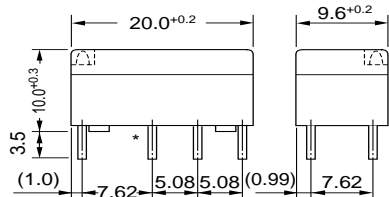


## REFERENCE DATA

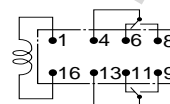


## DIMENSIONS

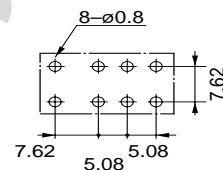
### Dimensions



### Schematic (BOTTOM VIEW)

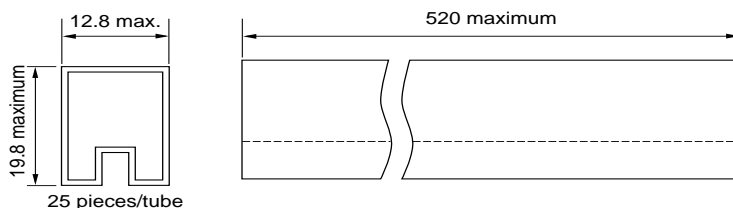


### PC board mounting hole layout (BOTTOM VIEW)



\*:The terminals marked with an asterisk are kinked for temporary mounting on PC board.

### Tube carrier



Unit: mm

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DESIGNS