

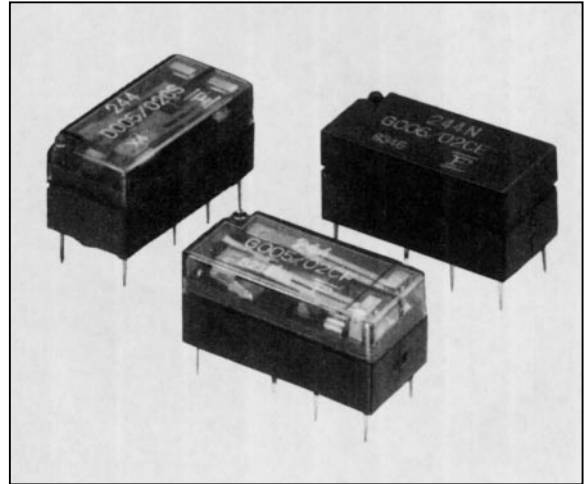
MINIATURE RELAY

2 POLES-1 to 2 A (FOR SIGNAL SWITCHING)

FBR240 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: FBR240 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

FBR240 SERIES

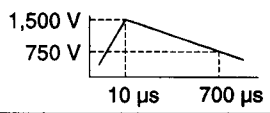
■ SAFETY STANDARD & FILE NUMBERS

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 contact		Bifurcated contact	
	Material	Gold-overlay silver	Gold-overlay silver-Palladium	Gold-overlay silver	Gold-overlay silver-Palladium
	Resistance (initial)	Max. 100 mΩ (at 0.1 A 6 VDC)			
	Ratings	0.5 A 120 VAC or 1 A 30 VDC (resistive load)			
	Max. Carrying Current	2 A			
	Max. Switching Power	60 AV or 30 W			
	Max. Switching Voltage* ¹	220 VAC or 150 VDC			
	Max. 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)	Approx. 0.5 W/0.58 W (Standard), Approx. 0.55 W (G type)			
	Operate Power (at 20°C)	Approx. 0.28 W (Standard), Approx. 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)	Max. 6 ms (Not including bounce time)			
	Release (at Nominal voltage)	Max. 3 ms (Not including bounce time)			
Insulation	Resistance (initial)	Min. 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 (Between coil and contacts)	1,500 V/10 × 700 μs				
Life	Mechanical	20 × 10 ⁶ ops. min.			
	Electrical (Refer to the REFERENCE DATA)	DC	500 × 10 ³ ops. min. (at contact rating)		
AC		100 × 10 ³ ops. min. (at contact rating)			
Other	Vibration Resistance	10 to 55 Hz (double amplitude of 1.5 mm)			
	Shock Resistance	Misoperation	200 m/s ² (11 ± 1 ms)		
		Endurance	1,000 m/s ² (11 ± 1 ms)		
Unit Mass	Approx. 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 atmosphere. The minimum switching load varies with the switching frequency and operation environment.

FBR240 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
Flux free	Plastic sealed								
FBR244D003/02□	FBR244ND003/02□	3 VDC	18 Ω	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 Ω	100 mA					
FBR244D006/02□	FBR244ND006/02□	6 VDC	72 Ω	83 mA					
FBR244D009/02□	FBR244ND009/02□	9 VDC	162 Ω	56 mA					
FBR244D012/02□	FBR244ND012/02□	12 VDC	290 Ω	41 mA					
FBR244D024/02□	FBR244ND024/02□	24 VDC	1,150 Ω	21 mA					
FBR244D048/02□	FBR244ND048/02□	48 VDC	4,000 Ω	12 mA			580 mW	53 deg	

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

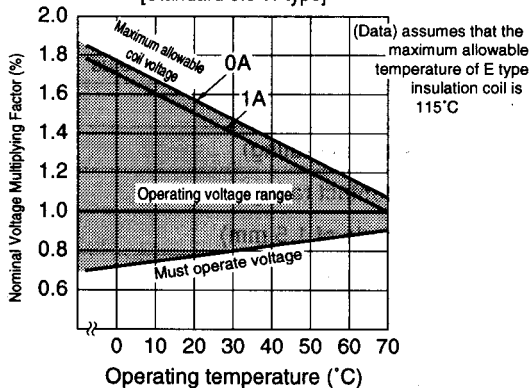
2. G TYPE

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
Flux free	Plastic sealed								
FBR244G005/02□	FBR244ND005/02□	4.5 VDC	36 Ω	125 mA	3.1 VDC	0.20 VDC	Approx. 550 mW (at nominal voltage)	Approx. 280 mW max.	Approx. 50 deg (at nominal voltage)
FBR244G006/02□	FBR244NG006/02□	6 VDC	66 Ω	91 mA	4.0 VDC	0.27 VDC			
FBR244G009/02□	FBR244NG009/02□	9 VDC	140 Ω	64 mA	6.0 VDC	0.38 VDC			
FBR244G012/02□	FBR244NG012/02□	12 VDC	280 Ω	43 mA	8.1 VDC	0.55 VDC			
FBR244G024/02□	FBR244NG024/02□	24 VDC	1,050 Ω	23 mA	15.8 VDC	1.06 VDC			
FBR244G048/02□	FBR244NG048/02□	48 VDC	4,100 Ω	11 mA	30.5 VDC	2.12 VDC			

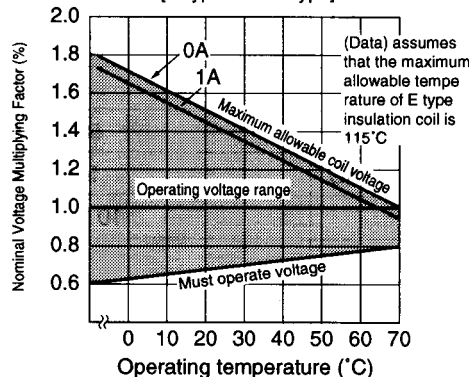
Note: All values in the table are measured at 20°C.

CHARACTERISTIC DATA

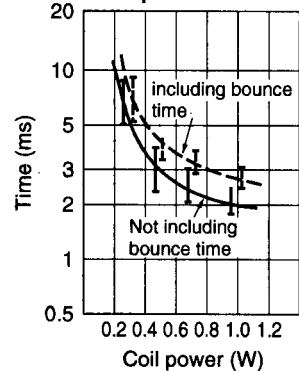
Range of operation temperature and voltage
[Standard 0.5 W type]

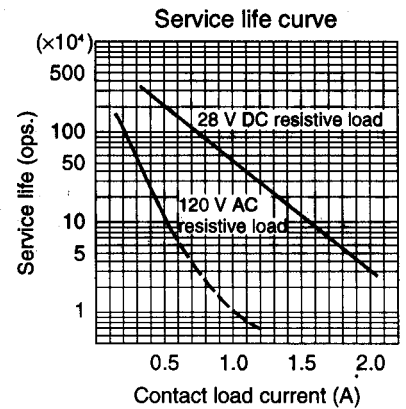
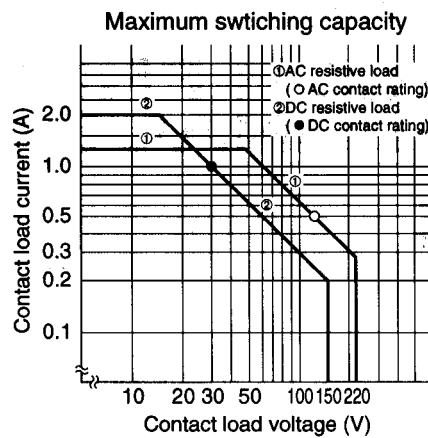
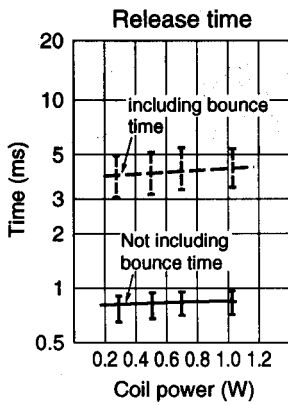


Range of operation temperature and voltage
[G type 0.55 W type]

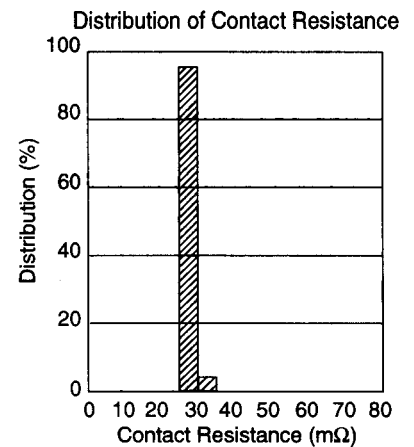
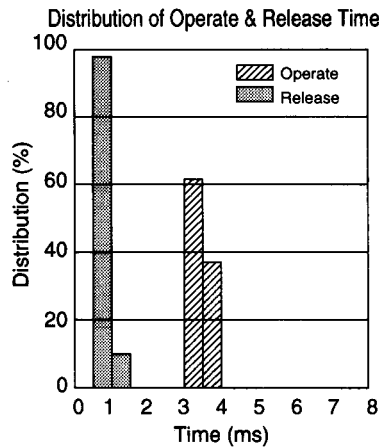
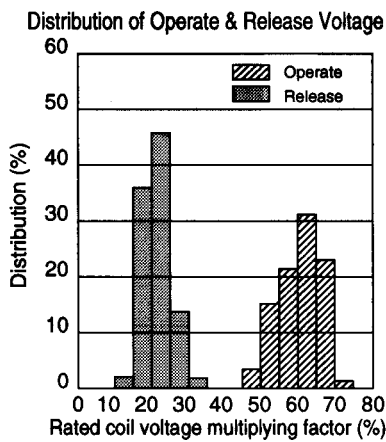


Operate time



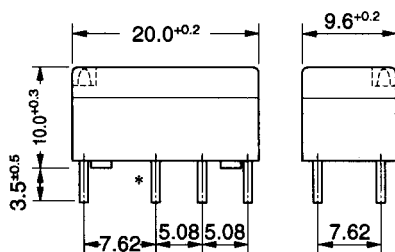


REFERENCE DATA

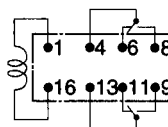


DIMENSIONS

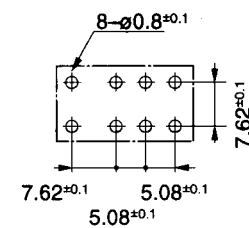
Dimensions



Schematics (BOTTOM VIEW)

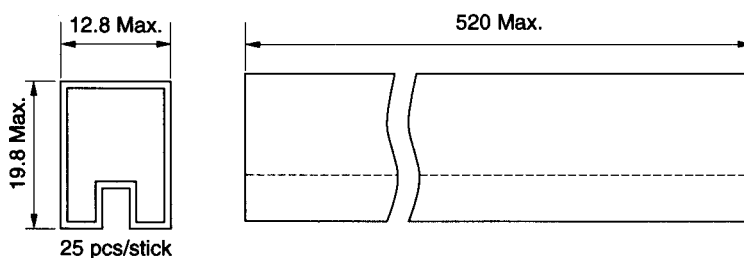


PC board mounting hole layout (BOTTOM VIEW)



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

Stick carrier



Unit: mm