

MINIATURE RELAY

1 POLE—1 to 2 A (FOR SIGNAL SWITCHING)

FBR20 SERIES

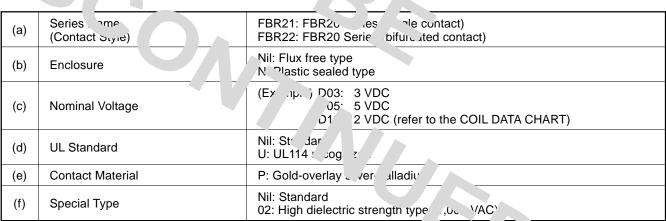
■ FEATURES

- Microminiature size
 Two FBR20 Series relays can be munted the pace required for a single FBR210 Series relay
- 2 A carrying current
- Strong shock resistance
 Even with 500 m/s² shock, FBR20 Series relays never m³ an operation.
- Easy pattern design
 Separate location of drive (c '1) and jut at a notact) terminals allows easy PC board pattern de ju.
- Formed terminals for temporary mounting

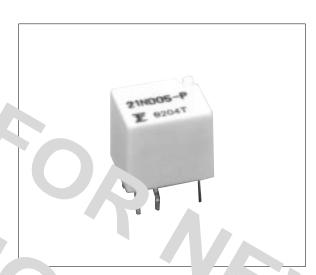
 The uniquely designed terminals allow Fb. 20 3er. relays to be mounted temporarily on PC boards.
- Conforms to FCC68.302 (high dielectric strength type
- UL recognized (File No. E63615)
- Tube packaging



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$$\frac{FBR21}{a_J} \frac{N}{(b)} \frac{D12}{(c)} \frac{U}{(d)} - \frac{C}{(e)} \frac{-02}{(f)}$$



Note: The designation name is stamped on the top of the relay case as follows: (Example) Designation ordered: FBR21D05-P
Stamp: 21D05-P



■ SAFETY STANDARD AND FILE NUMBERS

UL114 (File No. E63615)

Nominal voltage	Contact rating				
1.5 to 24 VDC	1 A 24 VDC resistive 0.5 A 30 VAC resistive				

■ SPECIFICATIONS

Item			Single contact type	Bifurcated contact type				
Contact	Arrangem	ent	1 form C (SPDT)					
	Material		Gold-overlay silver-palladium					
	Resistanc	e (initial)	Maximum 100 mΩ (at 0.1 A 6 VDC)					
	Rating (re	sistive)	0.5 A 120 VAC or 1 A 24 VDC (resistive load)					
	Maximum	Carrying Current	2 A					
	Maximum	Switching Power	60 VA or 24 W					
	Maximum	Switching Voltage*1	125 V					
	Maximum	Switching Current	1 A					
	Minimum (reference	Switching Load*2	Plastic sealed 1 mA 1V Flux free 1 mA 5V	Plastic sealed 0.1V 100μA Flux free 1V, 1mA				
	Capacitan (reference		Approximately 2 pF (between coil and contacts) Approximately 1 pF (between open contacts)					
Coil	Nominal P	Power (at 20°C)	Approximately 0.3 W					
	Operate P	Power (at 20°C)	Approximately 0.192 W maximum					
	Operating Temperature		-30°C to +65°C (no frost) (refer to the CHARACTERISTIC DATA)					
	Operating	Humidity	45 to 85%RH					
Time Value	Operate (a	at nominal voltage)	Maximum 5 ms					
	Release (a	at nominal voltage)	Maximum 2 ms					
Insulation	Resistanc	e (initial)	Minimum 100 MΩ (at 500 VDC)					
	Dielectric Strength	Between coil and contacts	500 VAC for 1 minute (standard) 1,000 VAC for 1 minute (high dielectric strength type)					
		Between open contacts	500 VAC 1 minute					
	Surge Stre (high diele	ength ectric strength)	1,500 V (10 × 700 μs) (between coil and contacts)	1,500 V 750 V 10μs 700μs				
Life	Mechanica	al	5 × 10 ⁶ operations minimum					
	Electrical (refer to the	REFERENCE DATA)	2 × 10 ⁵ operations minimum (at contact rating)					
Other	Vibration I	Resistance	10 to 55 Hz (double amplitude of 3.0 mm)					
	Shock	Misoperation	500 m/s² (11±1 ms)					
	Resistanc	e Endurance	1,000 m/s ² (11± ¹ ms)					
	Weight		Approximately 1.7 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.

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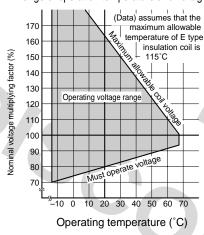
■ COIL DATA CHART

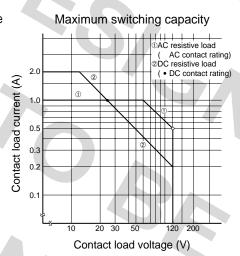
MODEL				Coil	Nominal current	Must	Must	Maximum		Coil	
Single contact type Bifu		Bifurcated of	Bifurcated contact type		resistance			release voltage	allowable	Nominal power	temperature
Flux free	Plastic sealed	Flux free	Plastic sealed	voltage	_10 /6	approx.	voitage	voitage	voitage	P 01	rise
FBR21D01-P	FBR21ND01-P	FBR22D01-P	FBR22ND01-P	1.5 VDC	7.5 W	200 mA					
FBR21D03-P	FBR21ND03-P	FBR22D03-P	FBR22ND03-P	3 VDC	30 W	100 mA					
FBR21D05-P	FBR21ND05-P	FBR22D05-P	FBR22ND05-P	5 VDC	83 W	60 mA	80% max.	5% min.	160% of	Approx	Annroy
FBR21D06-P	FBR21ND06-P	FBR22D06-P	FBR22ND06-P	6 VDC	120 W	50 mA	of nominal voltage	of nominal voltage	nominal	Approx.	Approx. 45 deg (at nominal)
FBR21D09-P	FBR21ND09-P	FBR22D09-P	FBR22ND09-P	9 VDC	270 W	33 mA	vollage	vollage	voltage	(at nominal voltage)	voltage)
FBR21D12-P	FBR21ND12-P	FBR22D12-P	FBR22ND12-P	12 VDC	480 W	25 mA					
FBR21D18-P	FBR21ND18-P	FBR22D18-P	FBR22ND18-P	18 VDC	1,080 W	17 mA					
FBR21D24-P	FBR21ND24-P	FBR22D24-P	FBR22ND24-P	24 VDC	1,920 W	12.5 mA					

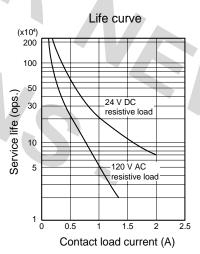
Note: All values in the table are measured at 20°C.

■ CHARACTERISTIC DATA

Range of operation temperature and voltage

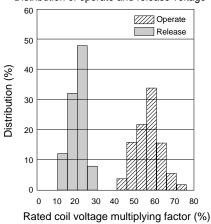


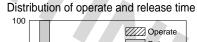


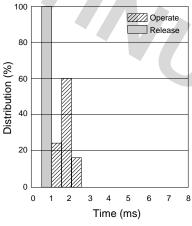


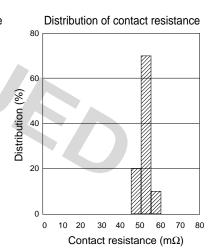
■ REFERENCE DATA

Distribution of operate and release voltage





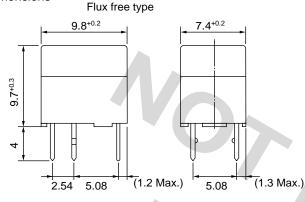




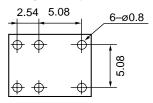
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■ DIMENSIONS

Dimensions



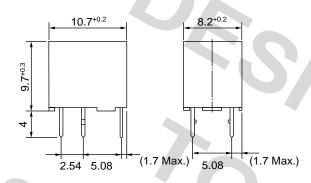
●PC board mounting hole layout (BOTTOM VIEW)



●Schematics (BOTTOM VIEW)



Plastic sealed type



Tube carrier



Flux free type:50pcs/Tube Plastic sealed type:40pcs/Tube

Unit: mm

15h

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