FUJITSU THE POSSIBILITIES ARE INFINITE

POWER RELAY

1 POLE—3, 5, 10 A (Medium Load Control)

FBR160 SERIES

n FEATURES

- Compact with high power (3 A to 10 A)
- 6 types of contact materials available for home electronics and automotive applications
- Design conforms to the following safety standards
  UL114 File No. E63615
  UL508 File No. E63614
  CSA No. LR64026
  Japan Electric Appliance Control Law (150–300 V)
- For automatic assembly
  Tube packaging suitable for automatic insertion equipment is available

n ORDERING INFORMATION

[Example] FBR16 (a) 1 (b) S (c) E (d) D (e) 012 (f) H (g) CSA (h) –*** (i) –S (j)

(a)	Series Name	FBR16: FBR160 Series		
(b)	Contact Arrangement	1 : 1 form C (SPDT) 3 : 1 form A (SPST-NO)		
(c)	Enclosure	S : Flux free N : Plastic sealed		
(d)	Coil Rating	E : 360 mW type C : 500 mW type (refer to the SPECIFICATIONS)		
(e)	Coil	D : DC Coil		
(f)	Nominal Voltage	(Example) 012: 12 VDC coil 024: 24 VDC coil (refer to the COIL DATA CHART)		
(g)	UL Standard and Contact Material	UL 114 recognized	UL508 recognized	Material / Rating
		U	R	Silver (3A)
		UK	RK	Silver-cadmium oxide (3 A)
		UH	RH	Silver-cadmium oxide (5 A)
		UW	RW	Silver tin oxide alloy (5 A)
		UHB	RHB	Silver-cadmium oxide (AC 10 A)
		UWB	RWB	Silver tin oxide alloy (DC 10 A

(Continued)

(h)	CSA Standard	Nil : Non- CSA -CSA: CSA recognized, but only UL 114 or UL 508 types
(i)	Custom Designation	Suffix number for custom design
(j)	Package Style	Nil : Standard tray -S : Tube carrier

Note: The designation name is stamped on the top of the relay case as follows:
(Example) Designation ordered: FBR161NED012-H
Stamp: 161NED012-H

n COIL RATINGS

1. E (360 mW Coil type)

MODEL				Nominal voltage	Coil resistance (±10%)	Nominal current (at nominal voltage) approx.	Must operate voltage*	Must release voltage*	Maximum allowable voltage	Nominal power	Coil temperature rise
1 Form C type		1 Form A type									
Flux free	Plastic sealed	Flux free	Plastic sealed								
FBR161SED005	FBR161NED005	FBR163SED005	FBR163SED005	5 VDC	70 Ω	71 mA	80% max. of nominal voltage	10% min. of nominal voltage	210% of nominal voltage	Approx. 360 mW (at nominal voltage)	Approx. 30 deg (at nominal voltage)
FBR161SED006	FBR161NED006	FBR163SED006	FBR163SED006	6 VDC	100	60 mA					
FBR161SED009	FBR161NED009	FBR163SED009	FBR163SED009	9 VDC	225 Ω	40 mA					
FBR161SED012	FBR161NED012	FBR163SED012	FBR163SED012	12 VDC	400 Ω	30 mA					
FBR161SED024	FBR161NED024	FBR163SED024	FBR163SED024	24 VDC	1,600 Ω	15 mA					

Note: All values in the table are measured at 20°C.
*: Specified values are subject to pulse wave voltage.

2. C (50 mW Coil type)

MODEL				Nominal voltage	Coil resistance (±10%)	Nominal current (at nominal voltage) approx.	Must operate voltage*	Must release voltage*	Maximum allowable voltage	Nominal power	Coil temperature rise
1 Form C type		1 Form A type									
Flux free	Plastic sealed	Flux free	Plastic sealed								
FBR161SCD005	FBR161NCD005	FBR163SCD005	FBR163SCD005	5 VDC	50 Ω	100 mA	75% max. of nominal voltage	10% min. of nominal voltage	210% of nominal voltage	Approx. 500 mW (at nominal voltage)	Approx. 35 deg (at nominal voltage)
FBR161SCD006	FBR161NCD006	FBR163SCD006	FBR163SCD006	6 VDC	72 Ω	83 mA					
FBR161SCD009	FBR161NCD009	FBR163SCD009	FBR163SCD009	9 VDC	162 Ω	56 mA					
FBR161SCD012	FBR161NCD012	FBR163SCD012	FBR163SCD012	12 VDC	288 Ω	42 mA					
FBR161SCD024	FBR161NCD024	FBR163SCD024	FBR163SCD024	24 VDC	1,152 Ω	21 mA					
FBR161SCD048	FBR161NCD048	FBR163SCD048	FBR163SCD048	48 VDC	4,600 Ω	10 mA					

Note: All values in the table are measured at 20°C.
*: Specified values are subject to pulse wave voltage.

n SPECIFICATIONS

Item			—	-K	-H	-W	-HB	-WB
Contact	Arrangement and Style		1 form C or 1 form A, single contact					
	Material		Silver	Silver-cadmium oxide		Silver tin oxide alloy	Silver-cadmium oxide	Silver tin oxide alloy
	Resistance (initial)		Maximum 100 mΩ (silver contact at 0.5 A 6 VDC/other contacts at 1 A 6 VDC)					
	Ratings (resistive load)		3 A 120 VAC		5 A 120 VAC		10 A 120 VAC (N.O.) 7 A 120 VAC (N.C.)	
			3 A 28 VDC		5 A 28 VDC	5 A 28 VDC		10 A 28 VDC
	Maximum Carrying Current		5 A				10 A	
	Maximum Switching Power		360 VA or 84 W		600 VA or 140 W	140 W	1,200 VA	280 W
	Max. Switching Voltage*1		250 VAC or 125 VDC					
	Minimum Switching Load*2		0.3 W (30 mA 5 V)			0.3 W (50 mA 5 VDC)	0.5 W (10 mA 5 VDC)	0.5 W (10 mA 5 VDC)
Coil	Nominal Power		Approx. 360 mW (E coil type)/0.5 W (C coil type) (at 20°C)					
	Operating Temperature		–30°C to +80°C (no frost) *3					
	Operate Humidity		45 to 85% RH					
Time Value	Operate (at nominal voltage)		Maximum 10 msec					
	Release (at nominal voltage)		Maximum 5 msec					
Life	Mechanical		1 × 10⁷ operations minimum					
	Electrical (refer to the REFERENCE DATA)	DC	1 × 10⁵ operations minimum (at contact rating)					
		AC	1 × 10⁵ operations minimum (at contact rating)					
Other	Vibration Resistance		10 to 55 Hz (double amplitude of 1.5mm)					
	Shock Resistance	No contact opening	100 m/s² (11 ±1ms)					
		No damage	1,000 m/m² (6 ±1ms)					
	Weight		Approximately 11 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.
*3 Based on UL Class A coil insulation system.

n INSULATION

Item	FBR160 Series
Resistance (500VDC)	Min. 100MΩ
Dielectric Strength	Open contacts: 500VAC 1 min. Coil and contacts: 1,500VAC 1 min.

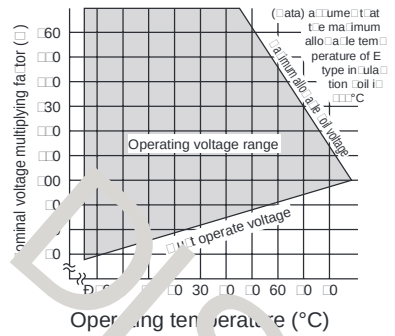
n SAFETY STANDARD AND FILE NUMBERS

Type	Compliance	Contact rating
UL	UL 114 E 63615 (U, UK, UH, UW, UHB, UWB) UL 508 E 63614 (R, RK, RH, RW, RHB, RWB)	Flammability: UL 94-V0 (plastics) [U, UK, R, RK] 3A, 120VAC/30VDC (resistive) 1/10 HP, 120VAC [UH, UW, RH, RW] 5A, 120 VAC/30VDC (resistive) 1/6 HP, 120VAC [UHB, UWB, RHB, RWB] 10A, 250 VAC/125VAC (N.O. resistive) 7A, 250 VAC / 125VAC (N.C. resistive) 10A, 30 VDC (resistive) 1/8HP, 250VAC/125VAC
CSA	C22.2 No. 14 LR 40004, LR61320 or LR 64026 (U, UK, UH, UW, UHB, UWB, R, RK, RH, RW, RHB, RWB)	

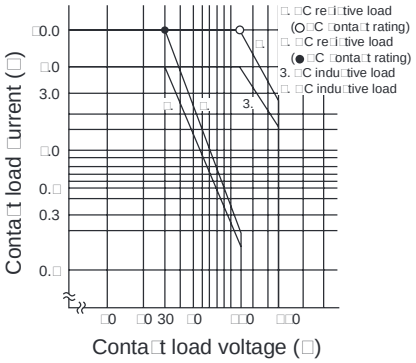
Also complies with VDE

n CHARACTERISTIC DATA

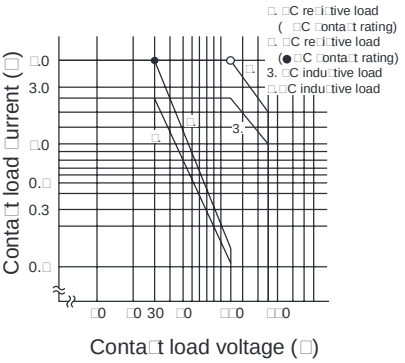
Range of operation temperature and voltage
E type [0.36 W type]



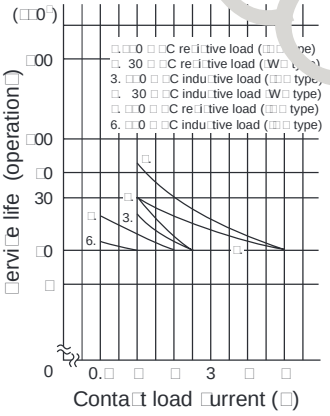
□a□imum □□it□□ing □apa□ity (□0 □ type)



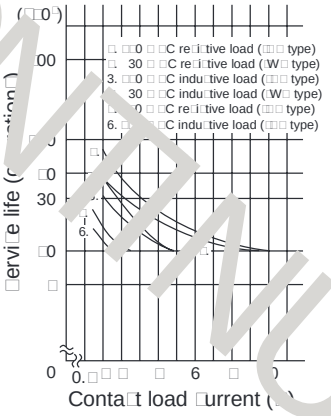
□a□imum □□it□□ing □apa□ity (□□ type)



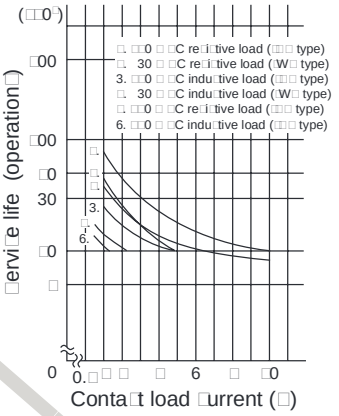
□ife □urve (□□ type)



□ife □urve
(□0 □ type□ma□e □ide (□.O.))

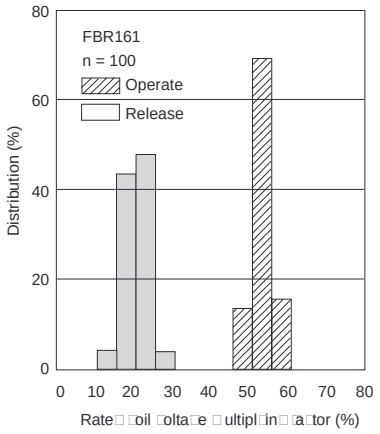


□ife □urve
(□0 □ type□□rea□e □ide (□.C.))

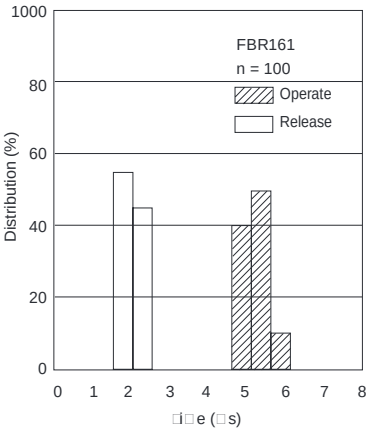


n REFERENCE DATA

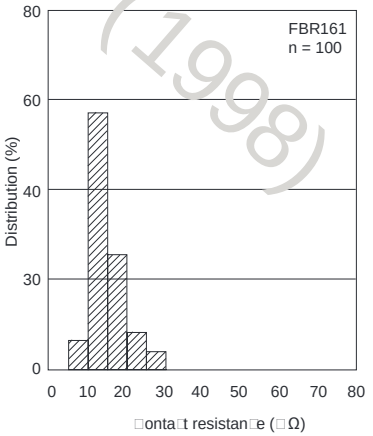
Distribution o□operate an□ release □olta□e



Distribution o□operate an□ release ti□e

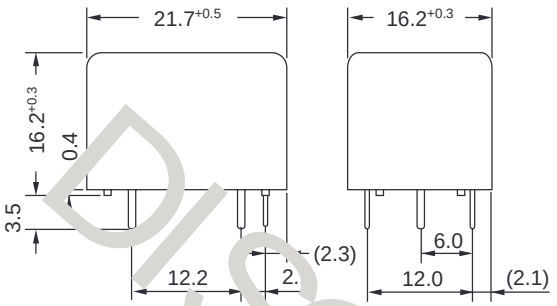


Distribution o□□onta□t resistan□e

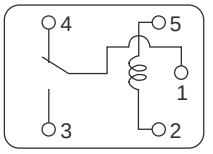


n DIMENSIONS

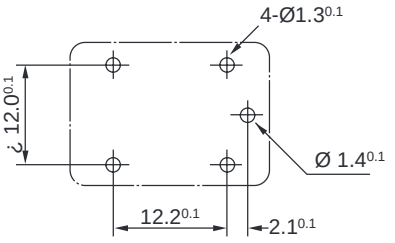
l □imen□ion□



l □□□em□ti□
(□□ □□□□ □□□□)

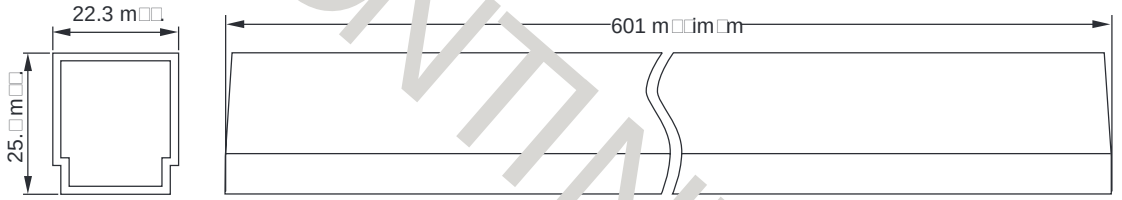


l □□ □o□r□ mo□ntin□ □o□e □yo□t
(□□ □□□□ □□□□)



Note : For 1 form A type, termin□□ No.4 i□ remo□e□.

l □□□e □□rrier



25 pie□e□t□□e

Unit: mm

Fujitsu Components International Headquarter Offices

Japan
Fujitsu Component Limited
Gotanda-Chuo Building
3-5, Higashigotanda 2-chome, Shinagawa-ku
Tokyo 141 8630, Japan
Tel: (81-3) 5449-7010
Fax: (81-3) 5449-2626
Email: promothq@fcl.fujitsu.com
Web: www.fcl.fujitsu.com

North and South America
Fujitsu Components America, Inc.
250 E. Caribbean Drive
Sunnyvale, CA 94089 U.S.A.
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: components@us.fujitsu.com
Web: http://us.fujitsu.com/components/

Europe
Fujitsu Components Europe B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: (31-23) 5560910
Fax: (31-23) 5560950
Email: info@fceu.fujitsu.com
Web: emea.fujitsu.com/components/

Asia Paci¿c
Fujitsu Components Asia Ltd.
102E Pasir Panjang Road
#01-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcal@fcal.fujitsu.com
Web: http://www.fujitsu.com/sg/services/micro/components/