

MINIATURE RELAY

1 POLE— 1 to 2 A (FOR SIGNAL SWITCHING)
1 to 3 A (FOR AUTOMOTIVE SWITCHING)

FBR211 SERIES

■ FEATURES (FOR SIGNAL APPLICATIONS)

- 2 A maximum carrying current
Capable of 2 A maximum continuous carrying current in the contact
- Superior reliability gold-overlay contacts
P type: Gold-overlay silver-palladium contacts
- International terminal pitch of one inch grid terminal layout
- High sensitivity, low power dissipation types also available
Standard: 0.45 W (A or B type) types also available
High sensitivity: 0.2 W (C or E type) types also available
- Conforms to FCC 68.302 (high dielectric strength type)
- UL recognized (File number E63615)
- CSA recognized (File number LR64026)



■ FEATURES (FOR AUTOMOTIVE APPLICATIONS)

- Suitable for automotive applications of solenoid load controls, car audio, etc.
- Capable of 3 A/1 hour maximum carrying current in the contact.
- High sensitivity, high temperature types also available.
Standard: -30°C to +60°C (A or B type) types also available
High sensitivity: -30°C to +80°C (C or E type) types also available

■ ORDERING INFORMATION

[Example] FBR211 S A D012 U - P 2 (-CSA)
 (a) (b) (c) (d) (e) (f) (g) (h)

(a)	Series Name	FBR211
(b)	Enclosure	S: Flux free type N: Plastic sealed type
(c)	Coil Power and Schematics	A: Standard A type } (nominal power 0.45 W type) B: Standard B type } C: High sensitivity C type } (nominal power 0.2 W type) E: High sensitivity E type }
(d)	Nominal Voltage	(Example) D003: 3 VDC D012: 12 VDC (refer to the COIL DATA CHART)
(e)	UL Standard	Nil : Standard U : UL114 recognized
(f)	Contact Material	P : Gold-overlay silver-palladium M : Gold-overlay silver (Signal relay only)
(g)	Special Type	Nil : Standard 2 : High dielectric strength type (Signal relay only)
(h)	CSA Standard	Nil : Standard -CSA : UL114 + CSA recognized (e) is U (Signal relay only)

Note: The designation name is stamped on the top of the relay case as follows:

(Example) Designation ordered: FBR211SAD005-P

Stamp: 211SAD005-P

■ SAFETY STANDARD AND FILE NUMBERS

UL114 (File No. E63615)

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

Nominal voltage	Contact rating
1.5 to 24 VDC	1 A 28 VDC resistive 0.5 A 30 VAC resistive

FBR211 SERIES

COIL DATA CHART

1. STANDARD (A or B 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
A type		B type									
Flux free	Plastic sealed	Flux free	Plastic sealed								
FBR211SAD001-□	FBR211NAD001-□	FBR211SBD001-□	FBR211NBD001-□	1.5 VDC	5 Ω	300 mA	70% max. of nominal voltage	10% min. of nominal voltage	150% of nominal voltage	Approx. 450 mW (at nominal voltage)	Approx. 45 deg (at nominal voltage)
FBR211SAD003-□	FBR211NAD003-□	FBR211SBD003-□	FBR211NBD003-□	3 VDC	20 Ω	150 mA					
FBR211SAD005-□	FBR211NAD005-□	FBR211SBD005-□	FBR211NBD005-□	5 VDC	56 Ω	89 mA					
FBR211SAD006-□	FBR211NAD006-□	FBR211SBD006-□	FBR211NBD006-□	6 VDC	80 Ω	75 mA					
FBR211SAD009-□	FBR211NAD009-□	FBR211SBD009-□	FBR211NBD009-□	9 VDC	180 Ω	50 mA					
FBR211SAD012-□	FBR211NAD012-□	FBR211SBD012-□	FBR211NBD012-□	12 VDC	320 Ω	38 mA					
FBR211SAD024-□	FBR211NAD024-□	FBR211SBD024-□	FBR211NBD024-□	24 VDC	1,280 Ω	19 mA					

Note: All values in the table are measured at 20°C. Thermal resistance = 100°C/W.

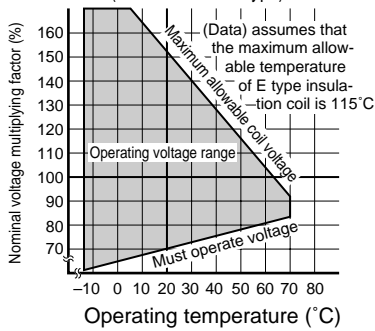
2. HIGH SENSITIVITY (C or E type)

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
C type		E type									
Flux free	Plastic sealed	Flux free	Plastic sealed								
FBR211SCD001-□	FBR211NCD001-□	FBR211SED001-□	FBR211NED001-□	1.5 VDC	12 Ω	125 mA	70% max. of nominal voltage	10% min. of nominal voltage	225% of nominal voltage	Approx. 200 mW (at nominal voltage)	Approx. 25 deg (at nominal voltage)
FBR211SCD003-□	FBR211NCD003-□	FBR211SED003-□	FBR211NED003-□	3 VDC	45 Ω	67 mA					
FBR211SCD005-□	FBR211NCD005-□	FBR211SED005-□	FBR211NED005-□	5 VDC	120 Ω	42 mA					
FBR211SCD006-□	FBR211NCD006-□	FBR211SED006-□	FBR211NED006-□	6 VDC	180 Ω	33 mA					
FBR211SCD009-□	FBR211NCD009-□	FBR211SED009-□	FBR211NED009-□	9 VDC	400 Ω	23 mA					
FBR211SCD012-□	FBR211NCD012-□	FBR211SED012-□	FBR211NED012-□	12 VDC	700 Ω	17 mA					
FBR211SCD024-□	FBR211NCD024-□	FBR211SED024-□	FBR211NED024-□	24 VDC	2,800 Ω	9 mA					

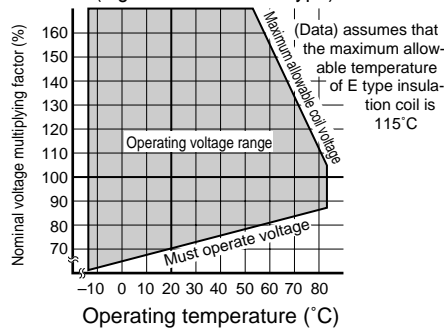
Note: All values in the table are measured at 20°C. Thermal resistance = 125°C/W.

CHARACTERISTIC DATA

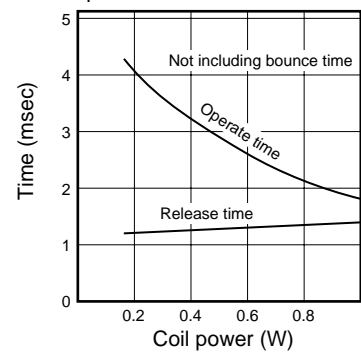
Range of operation temperature and voltage
(Standard 0.45 W type)



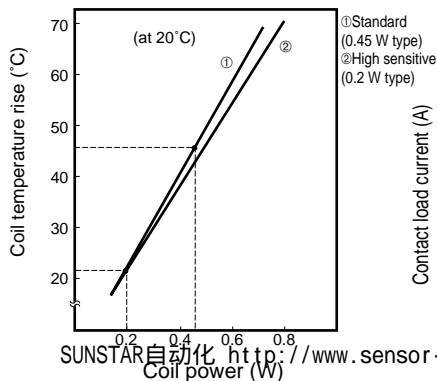
Range of operation temperature and voltage
(high sensitive 0.2 W type)



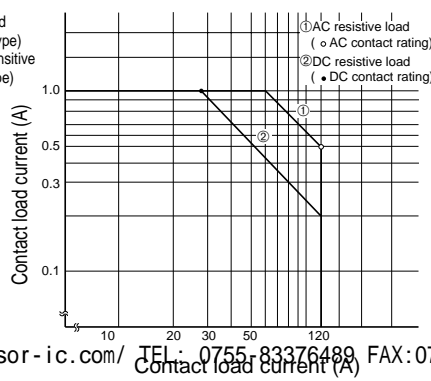
Operate and release time data



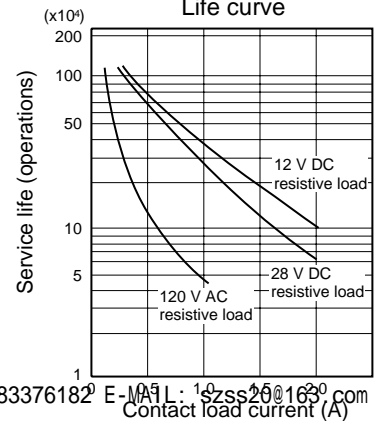
Coil temperature rise data



Maximum switching capacity

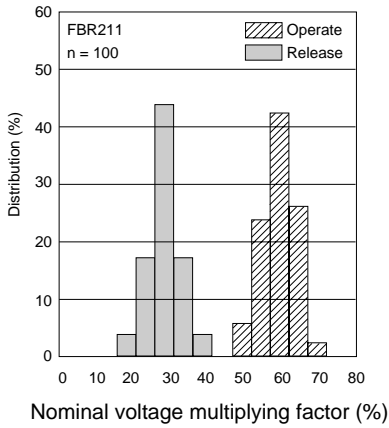


Life curve

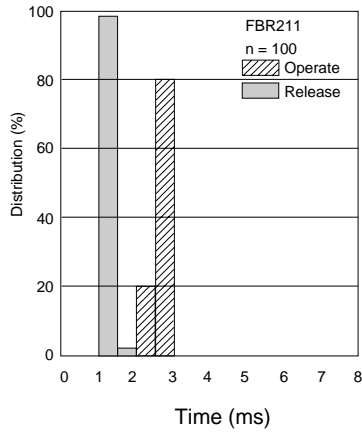


REFERENCE DATA

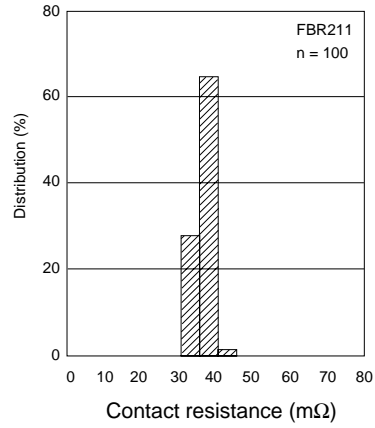
Distribution of operate and release voltage



Distribution of operate and release time



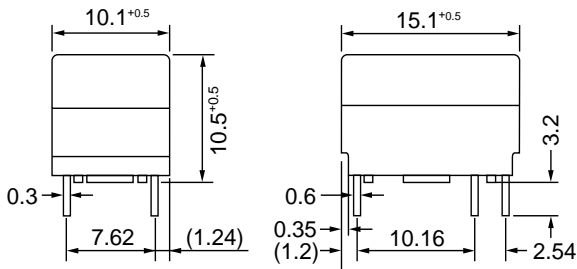
Distribution of contact resistance



DIMENSIONS

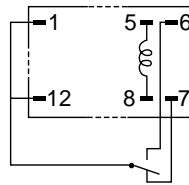
1. STANDARD (Flux free type)

●Dimensions

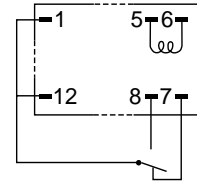


●Schematics (BOTTOM VIEW)

(A type or C type)

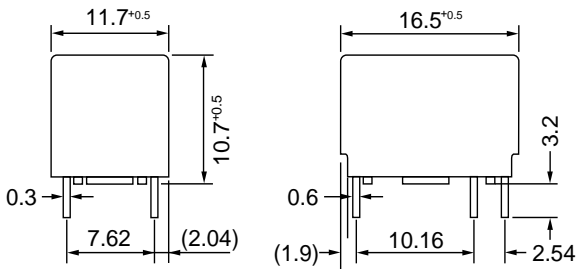


(B type or E type)



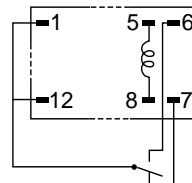
2. N-TYPE (Plastic sealed type)

●Dimensions

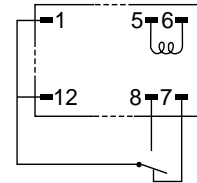


●Schematics (BOTTOM VIEW)

(A type or C type)

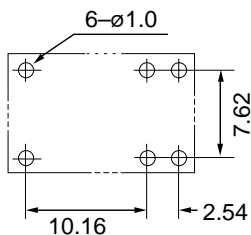


(B type or E type)



3. PC BOARD MOUNTING HOLE LAYOUT

●PC board mounting hole layout (BOTTOM VIEW)



Unit: mm

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