

COMPACT POWER RELAY

1 POLE—30 A

(FOR AUTOMOTIVE APPLICATIONS)

FBR51, 52 SERIES

■ FEATURES

- Compact and lightweight structure
(42% of the volume of the FBR160 relay)
- High current contact capacity
(carrying current: 35 A/10 minutes, 25 A/1 hour)
- High resistance to vibration and shock
- Improved heat resistance and extended operation range
- Two contact gap options
(FBR51: 0.3 mm, FBR52: 0.6 mm)
- Three types of contact material



■ ORDERING INFORMATION

[Example] FBR51 N D12 - W1 **
 (a) (b) (c) (d) (e)

(a)	Series Name	FBR51 : Standard type (contact gap 0.3 mm) FBR52 : Wider contact gap type (contact gap 0.6 mm)
(b)	Enclosure	N : Plastic sealed type
(c)	Nominal Voltage	D06 : 6 VDC D09 : 9 VDC D10 : 10 VDC D12 : 12 VDC
(d)	Contact Material	W1 : Silver-tin oxide indium (high power type) WL : Silver-tin oxide indium (lamp loads, see applications table) WF : Silver-tin oxide indium (flasher loads)
(e)	Custom Designation	To be assigned custom specification

FBR51, 52 SERIES

■ SPECIFICATIONS

Item		Specifications		
		W1 contact	WL contact	WF contact
Contact	Arrangement	1 form C	1 form A (SPST)	1 form A (SPST)
	Material	Silver-tin oxide indium (high power type)	Silver-tin oxide indium	Silver-tin oxide indium
	Voltage Drop (resistance)	Maximum 100mV (at 1A 12 VDC)		
	Rating	14 VDC 25 A (motor free load)	120 Watt lamp at 14 VDC	80 Watt lamp at 14 VDC
	Maximum Carrying Current	35A / 10 minutos, 10A / 1hr (25°C, 100% rated coil voltage)		
	Maximum Inrush Current (reference)	60 A	80 A	
	Max. Switching Current (reference)	35 A 16 VDC		
	Min. Switching Load*1 (reference)	6 VDC 1A		
Coil	Operating Temperature Range	-40°C to +85°C (no frost)		
	Storage Temperature Range	-40°C to +100°C (no frost)		
Time Value	Operate (at nominal voltage)	Maximum 10ms		
	Release (at nominal voltage)	Maximum 5ms		
Life	Mechanical	10 x 10 ⁶ operations minimum		
	Electrical	2 x 10 ⁵ ops min. 14 VDC 25A Locked motor load	1.0 x 10 ⁵ ops min. 115 Watts lamp, 14 VDC	2.5 x 10 ⁶ ops min. Inrush 11A 14VDC (0.35 sec - ON / 0.35 sec - OFF)
Other	Vibrations Resistance	10 to 55 Hz (double amplitude of 1.5mm)		
	Shock Resistance	Misoperation	10m/s ²	
		Endurance	1,000 m/s ²	
	Weight	Approximately 6g		

*1 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 operating environment.

FBR51, 52 SERIES

■ COIL DATA CHART

1. FBR51 Series

Model			Nominal Voltage	Coil resistance (±10%) (at 20°C)	Must operate voltage	Thermal resistance
W 1 contact	WL Contact	WF contact				
FBR51ND06-W1	FBR51ND06-WL	FBR51ND06-WF	6 VDC	60	3.6VDC (at 20°C) 4.5VDC (at 80°C)	73°C/W
FBR51ND09-W1	FBR51ND09-WL	FBR51ND09-WF	9 VDC	135	5.4VDC (at 20°C) 6.8VDC (at 80°C)	
FBR51ND10-W1	FBR51ND10-WL	FBR51ND10-WF	10 VDC	180	6.3VDC (at 20°C) 7.9VDC (at 80°C)	
FBR51ND12-W1	FBR51ND12-WL	FBR51ND12-WF	12 VDC	240	7.3VDC (at 20°C) 9.2VDC (at 80°C)	

2. FBR52 Series

MODEL	Nominal voltage	Coil resistance (±10%) (at 20°C)	Must operate voltage	Thermal resistance
W1 contact				
FBR52ND06-W1	6 VDC	45 Ω	3.6 VDC (at 20°C) 4.5 VDC (at 85°C)	65°C/W
FBR52ND09-W1	9 VDC	100 Ω	5.4 VDC (at 20°C) 6.8 VDC (at 85°C)	
FBR52ND10-W1	10 VDC	135 Ω	6.3 VDC (at 20°C) 7.9 VDC (at 85°C)	
FBR52ND12-W1	12 VDC	180 Ω	7.3 VDC (at 20°C) 9.2 VDC (at 85°C)	

FBR51, 52 SERIES

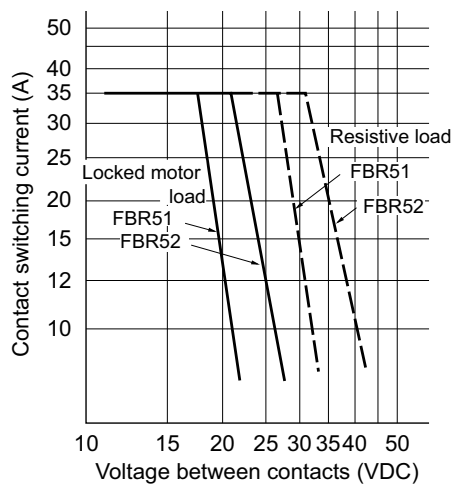
■ SUITABLE APPLICATIONS

Application	Normal load current (12 VDC system)	Description	Recommended model (example)	
			For 16 V or less motor load voltage	For instantaneous 20 V or more load voltage
Power Windows	20 to 25 A (switching at motor locking)	forward and reverse motor control	FBR51N□ -W1	FBR52N□ -W1
Automatic Door Lock	18 to 25 A (switching at motor locking)	forward and reverse motor control	FBR51N□ -W1	FBR52N□ -W1
Tilt-Lock Wheel	20 A (switching at motor locking)	forward and reverse motor control	FBR51N _n -W1	FBR52N _n -W1
Sunroof	20 to 30 A (switching at motor locking)	forward and reverse motor control	FBR51N □ -W1	FBR52N □ -W1
Adjustable Door Mirror	3 to 5 A (switching at motor locking)	forward and reverse motor control	FBR51N □ -W1	
Automatic Antenna	8 to 12 A (INRUSH) break 2 A maximum (motor-free)	forward and reverse motor control	FBR51N□ -W1	
Auto-Cruise	2 to 3 A	power shutoff and solenoid	FBR51N□-W1	
Lamp loads	120 Watts	for up to 100K operations	FBR51N□-WL	
Others	Car Audio System, etc.		FBR51N□-W1	

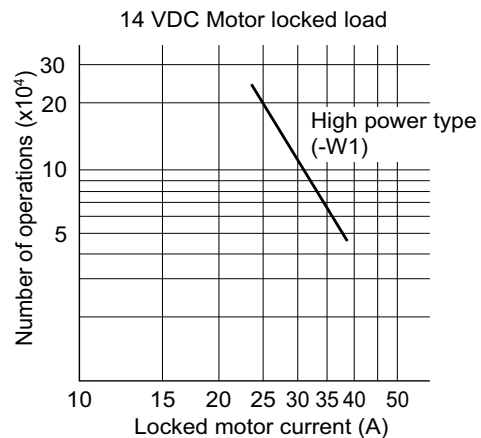
- For the load condition where higher voltage would be encountered during contact break, FBR52 series with wider contact gap is recommended.

■ CHARACTERISTIC DATA

1. MAXIMUM BREAK CAPACITY



2. LIFE



FBR51, 52 SERIES

3. LIFE TEST (EXAMPLE)

- Test item
14 V DC-20 A
motor lock 200,000
operations minimum
(FBR52□-W1 type)

- Test circuit



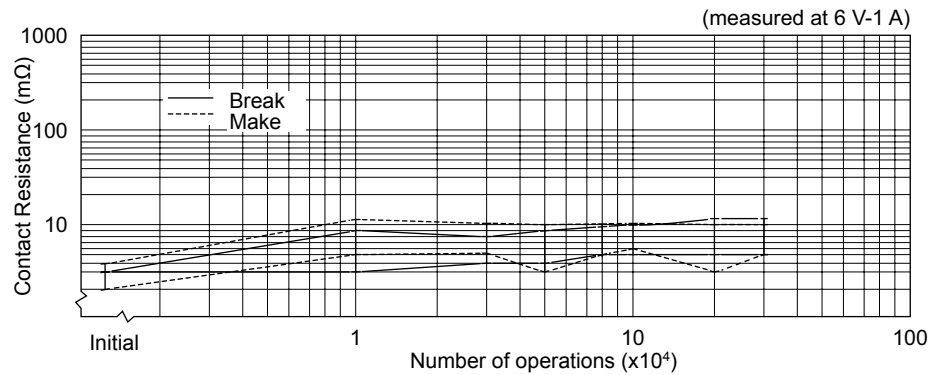
- Shift of pick-up drop-out voltage



- Current wave form

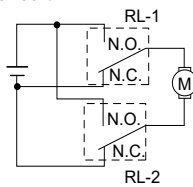


- Shift of contact resistance

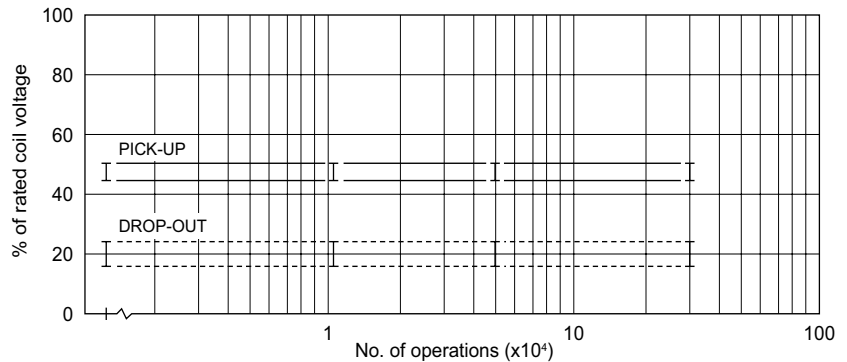


- Test item
14 V DC-25 A
Motor lock
200,000 operations minimum
(FBR51 □-W1 type)

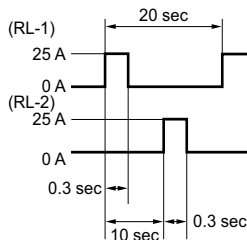
- Test circuit



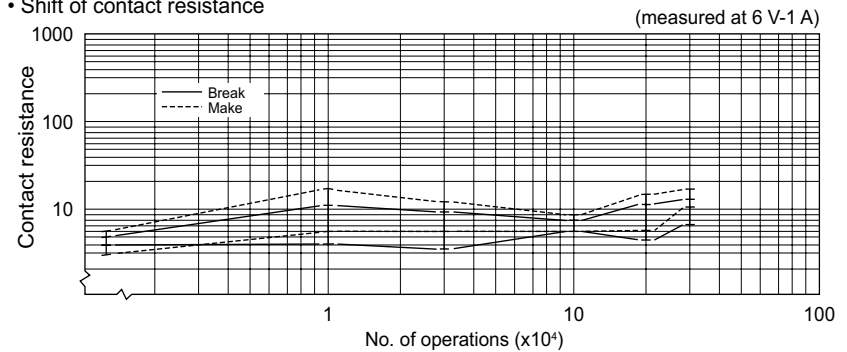
- Shift of pick-up and drop-out voltage



- Current wave form



- Shift of contact resistance



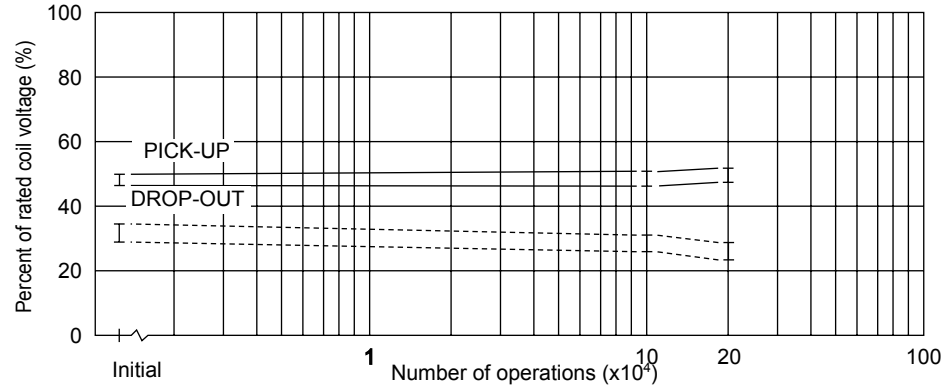
FBR51, 52 SERIES

- Test item
14 V DC-80 A (120W)
lamp load 100,000
operations minimum
(FBR51 \bar{n} -WL type)

- Test circuit



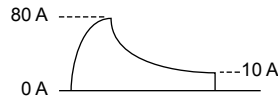
- Shift of pick-up drop-out voltage



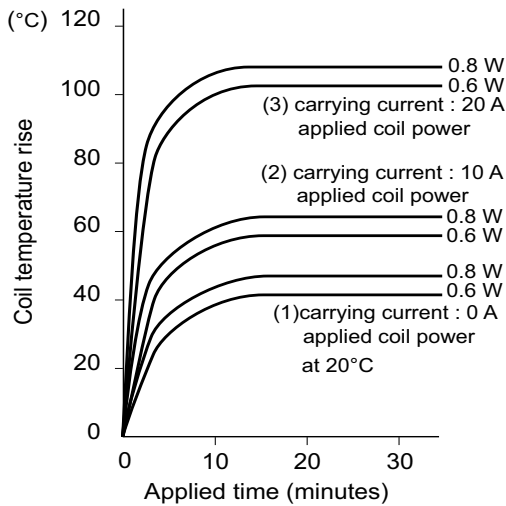
- Shift of contact resistance



- Current wave form



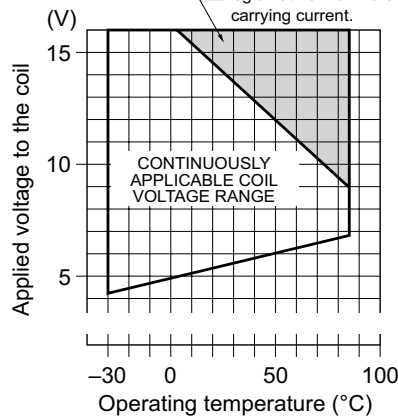
4. COIL TEMPERATURE RISE



5. OPERATING COIL VOLTAGE RANGE (EXAMPLE)

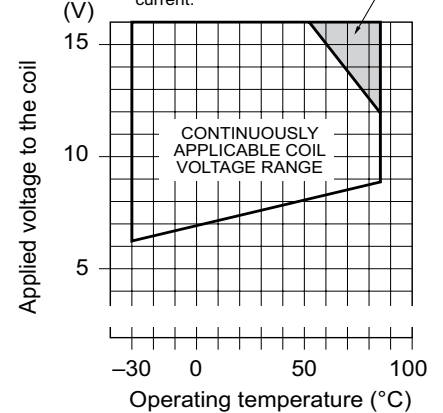
[FBR51ND09-□]

NOTE : Intermittent coil operation is required in this region at 20 A or more carrying current.



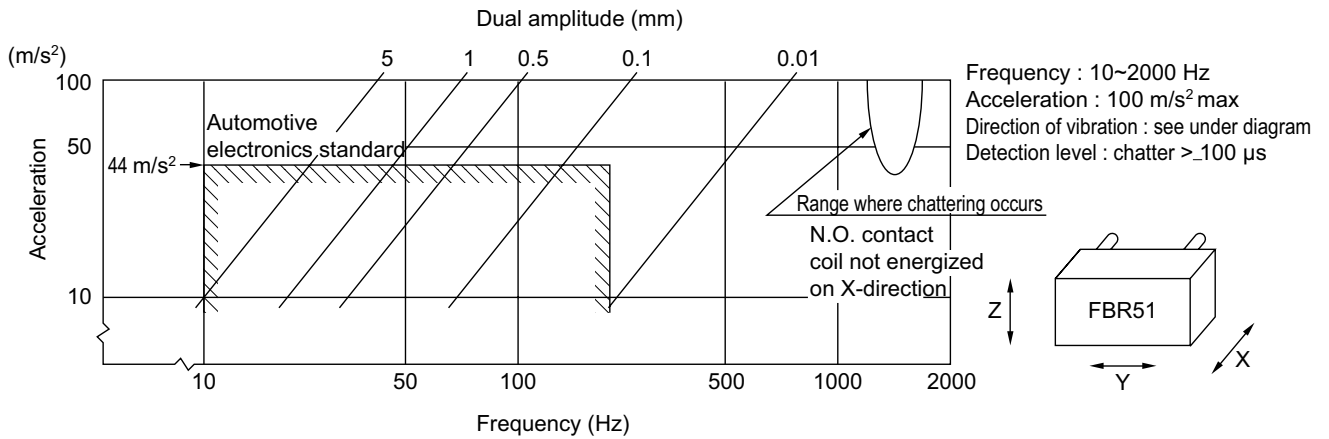
[FBR51ND12-□]

NOTE : Intermittent coil operation is required in this region at 20 A or more carrying current carrying current.



FBR51, 52 SERIES

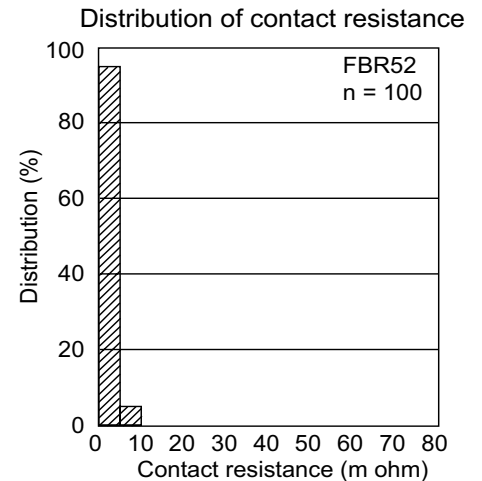
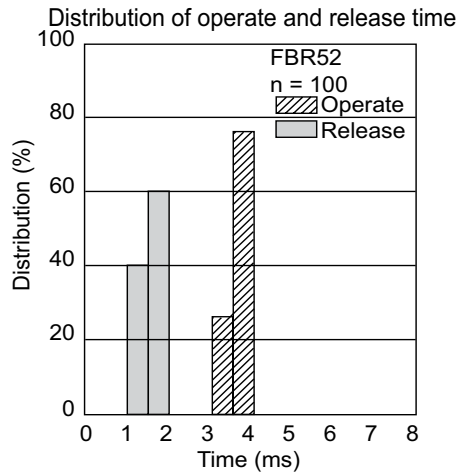
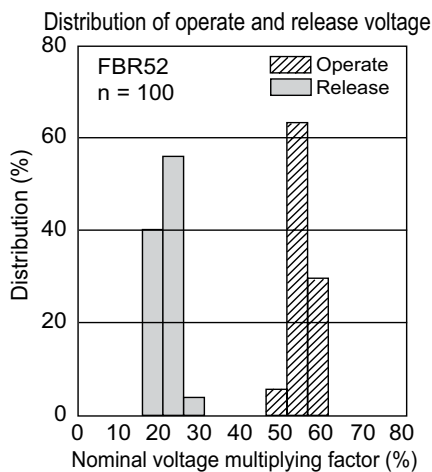
6. VIBRATION RESISTANCE CHARACTERISTICS



7. SHOCK RESISTANCE CHARACTERISTICS



REFERENCE DATA



FBR51, 52 SERIES

■ DIMENSIONS

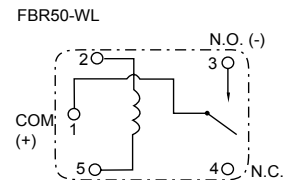
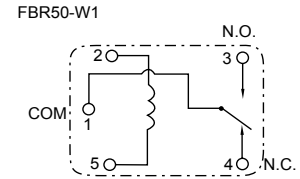
● Dimensions



● PC board mounting hole layout (BOTTOM VIEW)

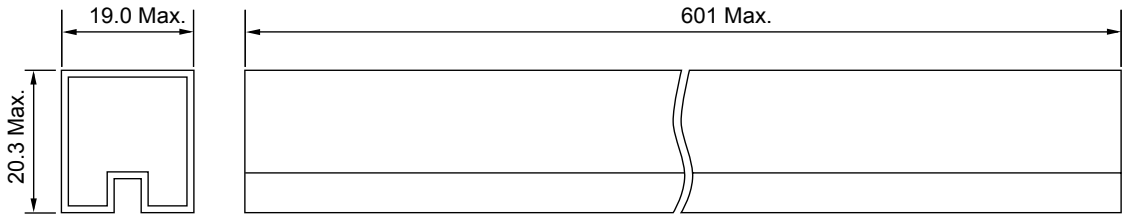


● Schematics (BOTTOM VIEW)



Refer to the test circuit at CHARACTERISTIC DATA for connection, and polarity.

● Tube carrier



45 pcs/tube

Unit : mm

Fujitsu Components International Headquarter Offices

Japan

Fujitsu Component Limited
 Gotanda-Chuo Building
 3-5, Higashigotanda 2-chome, Shinagawa-ku
 Tokyo 141, Japan
 Tel: (81-3) 5449-7010
 Fax: (81-3) 5449-2626
 Email: promothq@ft.ed.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://www.fujitsu.com/us/services/edevices/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 Pacific

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

©2008 Fujitsu Components America, Inc. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

Fujitsu Components America or its affiliates do not warrant that the content of datasheet is error free. In a continuing effort to improve our products Fujitsu Components America, Inc. or its affiliates reserve the right to change specifications/datasheets without prior notice.
 Rev. January 4, 2008.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: org@lifeelectronics.ru