

COMPACT POWER RELAY

1 POLE - 30A (For Automotive Applications)

FBR53 Series

■ FEATURES

- Compact for high density packaging
- High contact capability (30A continuous)
- High temperature grade (-40°C to 125°C)
- Contact arrangement Form U (form A)
- 60A inrush
- Coil wire temp. class F



■ PARTNUMBER INFORMATION

[Example] FBR53 N D12 - Y
 (a) (b) (c) (d)

| | | |
|-----|--------------------|--|
| (a) | Relay type | FBR53 : FBR53 Series |
| (b) | Enclosure | N : Plastic sealed |
| (c) | Coil rated voltage | D12 : 9...12VDC Coil rating table at page 3 |
| (d) | Contact material | Y : Silver-tin oxide |

Actual marking does not carry the type name: "FBR"

E.g.: Ordering code: FBR53ND12-Y; Actual marking: 53ND12-Y

FBR53 SERIES

■ SPECIFICATION

| Item | FBR53 | | |
|--------------|------------------------------|--|--|
| Contact Data | Configuration | Form U | |
| | Material | Silver-tin oxide (AgSnO ₂) | |
| | Voltage drop | Max. 100 mV at 1A (12VDC open contact voltage) Average 1.5mΩ at 7A, 12VDC | |
| | Contact rating | 14VDC, 25A (resistive load) | |
| | Max. carrying current | 30A continuous (15A each contact) at 25 °C | |
| | Max. inrush current | 60A (30A each contact) at 25 °C | |
| | Min. switching load * | 6 VDC, 1A | |
| Life | Mechanical | Min.10 x 10 ⁶ operations (with no load for contact) | |
| | Electrical | Min.100 x 10 ³ operations, 14VDC, 20A (resistive load) | |
| Coil Data | Rated power | 600 mW | |
| | Operate power | 220 mW | |
| | Operating temperature range | -40 °C to +125 °C (no frost) | |
| | Storage temperature range | -40 °C to +125 °C (no frost) | |
| | Operating humidity | 45 to 85% RH | |
| | Coil wire temp. class | F | |
| Timing Data | Operate (at nominal voltage) | Max. 10 ms | |
| | Release (at nominal voltage) | Max. 5 ms (no diode) | |
| Insulation | Resistance (initial) | Minimum 100 M Ω | |
| | Dielectric strength | Open contacts | 500 VAC (50/60 Hz) 1min. |
| | | Contacts to coil | 500 VAC (50/60 Hz) 1min. |
| Other | Vibration resistance | Misoperation | 10 to 55Hz double amplitude 1.5mm, direction X, Y, Z |
| | | Endurance | 10 to 100Hz double amplitude 1.5mm, direction X, Y, Z No damage (mechanical and electrical) after test. Coil energizing: 1 hr each direction, Coil not energized: 1 hr each direction |
| | Shock | Misoperation | 100m/s ² (11ms), direction X, Y, Z |
| | | Endurance | 1,000m/s ² (11ms), direction X, Y, Z, each 6 shocks. No damage (mechanical and electrical) after test. Coil energizing: 3 shocks. Coil not energized: 3 shocks, total 36 shocks. |
| | Terminal | Solderability | At 270 ± 10 °C for 3 ± 0.5sec. |
| | | Strength | 9.8N (1 Kgf) Pull force in longitudinal direction for 10 sec. |
| | Weight | Approximately 6 g | |
| | Sealing | Sealed, cat III | |

* Minimum switching loads mentioned above are reference values. Please perform the confirmation test with actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

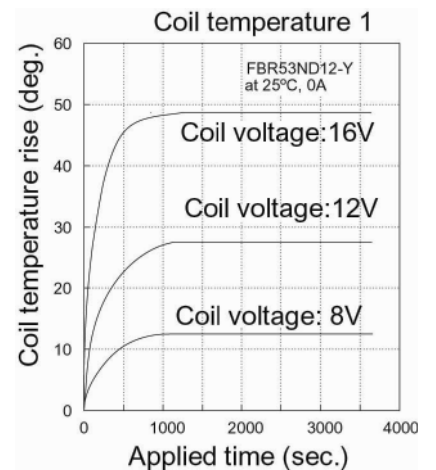
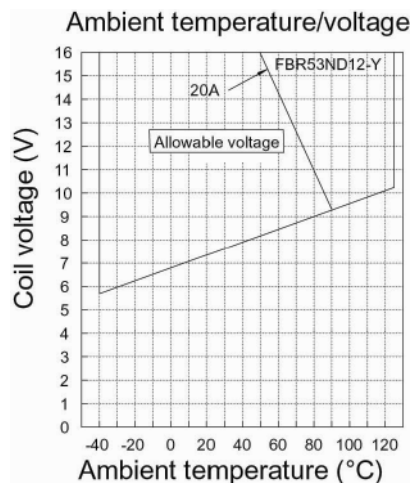
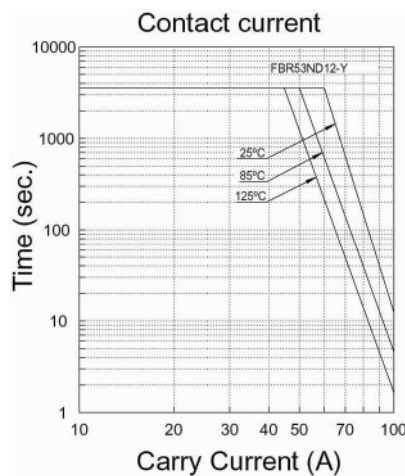
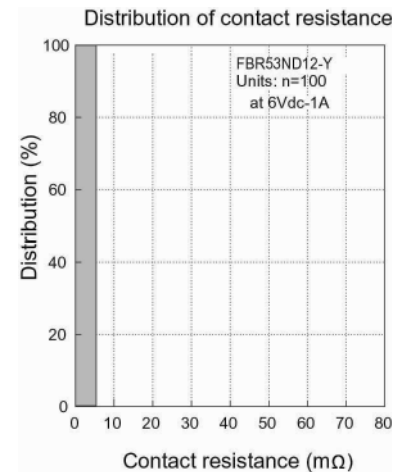
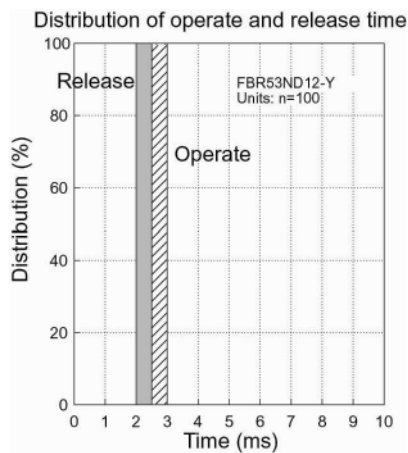
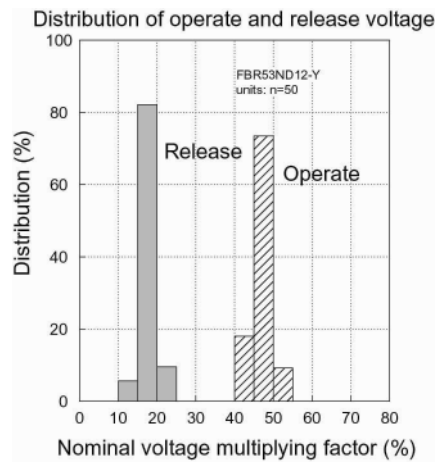
FBR53 SERIES

■ COIL RATING

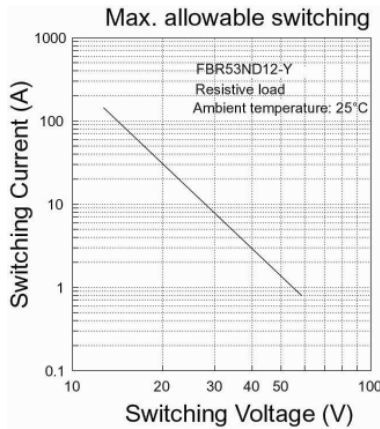
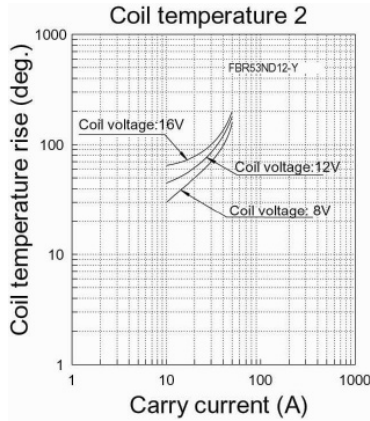
| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release Voltage (VDC) * |
|-----------|--------------------------|-------------------------------|------------------------------|------------------------------|
| D09 | 9 | 135 | 5.4 | 0.7 |
| | | | 6.8 (at 85 °C) | 0.9 (at 85 °C) |
| D10 | 10 | 180 | 6.3 | 0.8 |
| | | | 7.9 (at 85 °C) | 1.0 (at 85 °C) |
| D12 | 12 | 240 | 7.3 | 1.0 |
| | | | 9.2 (at 85 °C) | 1.3 (at 85 °C) |

Note: All values in the table are valid for 20°C and zero contact current, unless otherwise indicated.
 * Specified operate values are valid for pulse wave voltage.

■ REFERENCE DATA

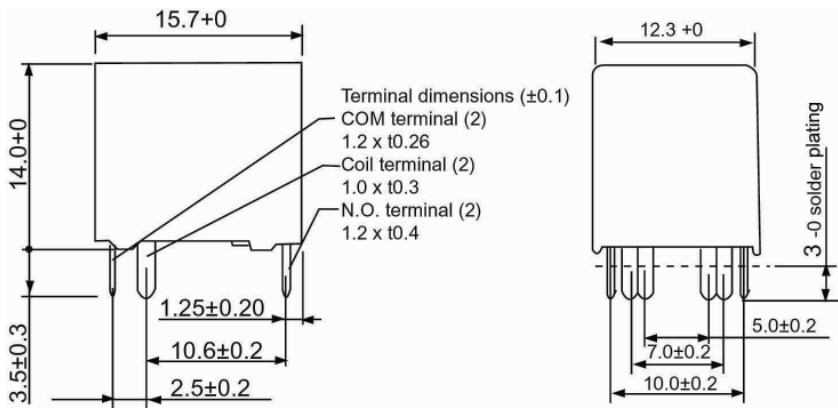


FBR53 SERIES

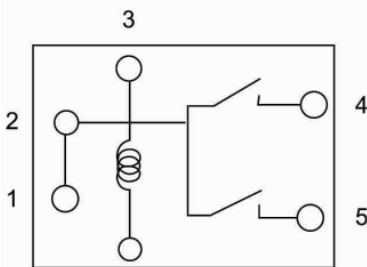


■ DIMENSIONS

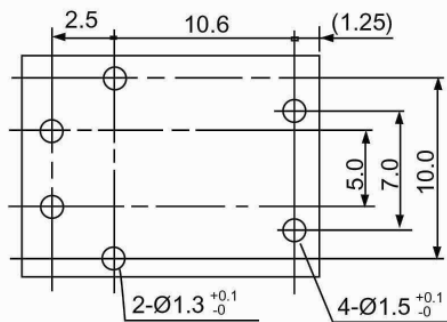
● Dimensions



● Schematics (BOTTOM VIEW)

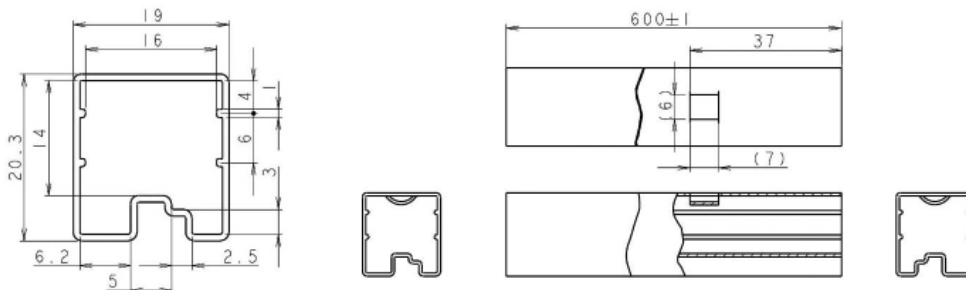


● Mounting hole layout (BOTTOM VIEW)



Unit: mm

● Tube carrier (pokayoke)



Unit: mm

RoHS Compliance and Lead Free Information

1. General Information

- All automotive relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All our automotive relays are lead-free.
- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified. This material has been verified to be compatible with PbSn assembly process.

2. Recommended Lead Free Solder Profile

- Recommended solder Sn-3.0Ag-0.5Cu.

Flow Solder condition:

Pre-heating: maximum 120°C
Soldering: dip within 5 sec. at
260°C solder bath

Solder by Soldering Iron:

Soldering Iron
Temperature: maximum 360°C
Duration: maximum 3 sec.

We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to through hole mounted electromechanical relays, unless otherwise indicated.

4. Tin Whiskers

- Dipped SnAgCu solder is known as presenting a low risk to tin whisker development. No considerable length whisker was found by our in house test.

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://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 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: fcal@fcal.fujitsu.com
Web: <http://www.fujitsu.com/sg/services/micro/components/>

©2011 Fujitsu Components Europe B.V. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

The contents, data and information in this datasheet are provided by Fujitsu Component Ltd. as a service only to its user and only for general information purposes.

The use of the contents, data and information provided in this datasheet is at the users' own risk.

Fujitsu has assembled this datasheet with care and will endeavor to keep the contents, data and information correct, accurate, comprehensive, complete and up to date.

Fujitsu Components Europe B.V. and affiliated companies do however not accept any responsibility or liability on their behalf, nor on behalf of its employees, for any loss or damage, direct, indirect or consequential, with respect to this datasheet, its contents, data, and information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof.

Nor do Fujitsu Components Europe B.V. and affiliated companies accept on their behalf, nor on behalf of its employees, any responsibility or liability for any representation or warrant of any kind, express or implied, including warranties of any kind for merchantability or fitness for particular use, with respect to these datasheets, its contents, data, information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Rev. January 10, 2011



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.