

POWER RELAY

1 POLE - 3A/5A Slim Type Relay

FTR-F3 Series

■ FEATURES

- High density mounting
Slim type with 7mm width and 142mm² mounting space
- High insulation
Insulation distance: minimum 6mm between coil and contact (conforms to IEC 60065)
Dielectric strength: 4KV
Surge strength: 10KV
- Glow wire compliant type available which satisfies GWT required fo relay in IEC/EN60335-1
- Cadmium free contact for eco-program
- Safety standards
UL, CSA, VDE, CQC
- Plastic sealed relay, RTIII
- RoHS compliant
Please see page 6 for more information



■ PARTNUMBER INFORMATION

[Example] $\frac{\text{FTR-F3}}{\text{(a)}} \frac{\text{A}}{\text{(b)}} \frac{\text{A}}{\text{(c)}} \frac{\text{012}}{\text{(d)}} \frac{\text{E}}{\text{(e)}} - \frac{\text{HA}}{\text{(f)}} - \frac{\text{GW}}{\text{(g)}}$

(a)	Relay type	FTR-F3	: FTR-F3-Series
(b)	Contact configuration	A	: 1 form A (SPST-NO)
(c)	Coil type (power)	A	: 200mW
(d)	Coil rated voltage	012	: 5.....24 VDC Coil rating table at page 3
(e)	Contact material	E	: AgNi
(f)	Contact rating	Nil HA KS	: 3A type flux free : 5A type sealing confirmed : 3A type sealing confirmed
(g)	Special type	GW	: Comply with GWEPT (IEC60695-2-11)

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

E.g.: Ordering code: FTR-F3AA012E-HA

Actual marking: F3AA012E

5A 250V~ 5A 30VDC marked on relay

FTR-F3 SERIES

■ SPECIFICATION

Item	FTR-F3		
	FTR-F3AA()E		FTR-F3AA()E-HA
Contact Data	Configuration	1 form A (SPST-NO)	
	Construction	Single	
	Material	AgNi	
	Resistance (initial)	Max. 100mOhm at 1A, 6VDC	
	Contact rating (resistive)	3A, 125VAC, 30VDC	5A, 250VAC, 30VDC
	Max. carrying current	5A	
	Max. switching voltage	277VAC, 30VDC	
	Max. switching power	750VA, 90W	1,250VA, 150W
	Min. switching load *	10 mA, 5VDC	
Life	Mechanical	Min. 5 x 10 ⁶ operations	
	Electrical (at rated load)	Min. 200 x 10 ³ operations	Min. 100 x 10 ³ operations
Coil Data	Rated power (20 °C)	200mW	
	Operate power	113mW	
	Operating temperature range	-40 °C to +70 °C (no frost)	
Timing Data	Operate (at nominal voltage)	Max. 10ms (without bounce, no diode)	
	Release (at nominal voltage)	Max. 10ms (without bounce, no diode)	
Insulation	Resistance (initial)	Min. 1,000MOhm at 500VDC	
	Dielectric strength	Open contacts	750VAC (50/60Hz) 1min
		Contacts to coil	4,000VAC (50/60Hz) 1min
	Surge strength	Contacts to coil	10,000V / 1.2 x 50µs standard wave
	Clearance	6mm	
	Creepage	6mm	
	EN61810-1, VDE0435	Voltage	250V
Pollution degree		2	
Material group		III	
Other	Vibration resistance	Misoperation	10 to 55 to 10 Hz single amplitude 0.75mm
		Endurance	10 to 55 to 10 Hz single amplitude 0.75mm
	Shock	Misoperation	Min. 100m/s ² (11±1ms)
		Endurance	Min. 1,000m/s ² (6±1ms)
	Weight	Approximately 4g	
	Sealing	Plastic sealed RTIII	

* 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.

■ COIL RATING

200mW type

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release Voltage (VDC) *	Rated Power (mW)
005	5	125	3.75	0.5	200
006	6	180	4.5	0.6	
009	9	405	6.75	0.9	
012	12	720	9	1.2	
018	18	1,620	13.5	1.8	
024	24	2,880	18	2.4	

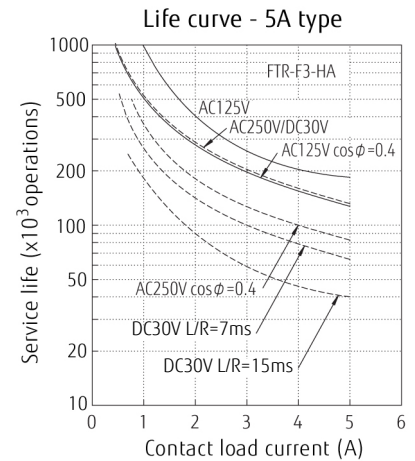
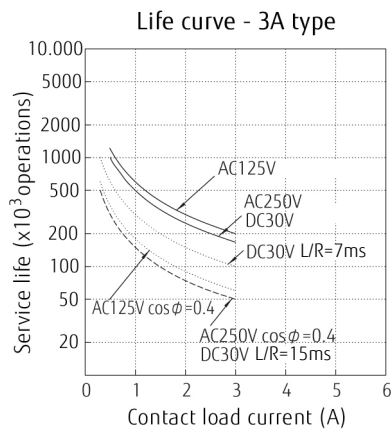
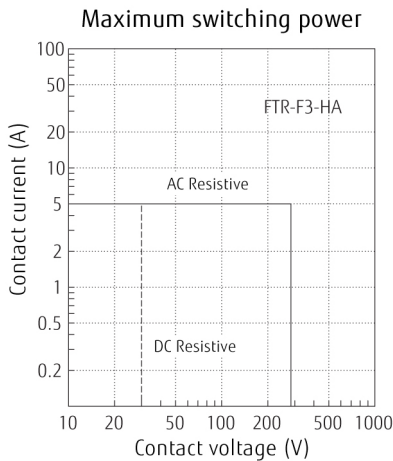
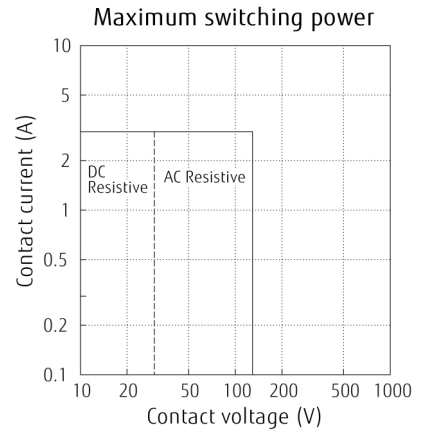
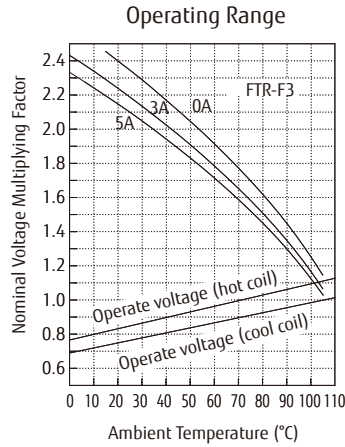
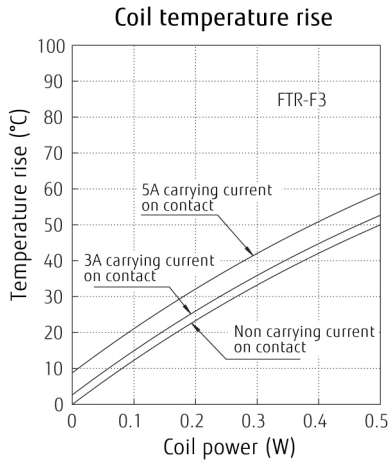
Note 1: All values given in the coil table(s) are valid at 20°C ambient temperature, at zero contact current, without pre-energizing and are specified at pulse wave voltage.

Note 2: When applying a higher than rated coil voltage, please refer to the "coil temperature rise" and "operating range". Reference graphs for the effects on the relay operating behaviour.

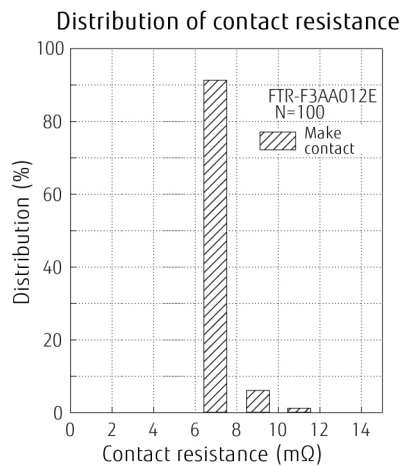
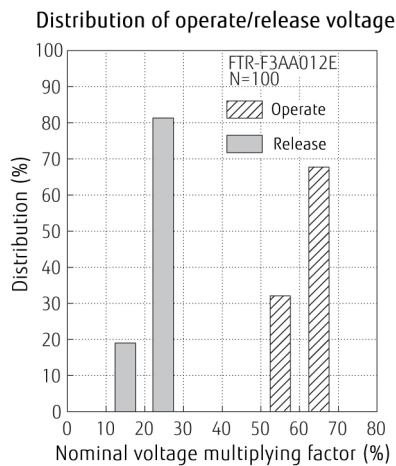
■ SAFETY STANDARDS

Type	Compliance	Contact rating	
		FTR-F3	FTR-F3-HA
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics)	
CSA	C22.2 No. 14 LR 40304	5A, 30VDC/277VAC (resistive) 6A, 277VAC (resistive) 3A, 30 VDC/ 277 VAC (resistive) 1/10 HP, 125VAC 1/8 HP, 277VAC Pilot duty: D300	3A, 30VDC/277VAC (resistive) 6A, 277VAC (resistive) 5A, 30 VDC/ 277 VAC (resistive) 1/10 HP, 250VAC (UL only), 1/10HP 125VAC 1/8 HP, 277VAC Pilot duty: D300
VDE	IEC61810-1	3A, 250 VAC, $\cos\phi = 1$ 3A, 30 VDC, L/R=0ms	5A, 250 VAC, $\cos\phi = 1$ 5A, 30 VDC, L/R=0ms
CQC	GB/T21711.1, GB15092.1 1002049449, 04001010925, 17002164382	3A 250VAC/30VDC (except-KS type)	5A 250VAC/30VDC

CHARACTERISTIC DATA (Reference)



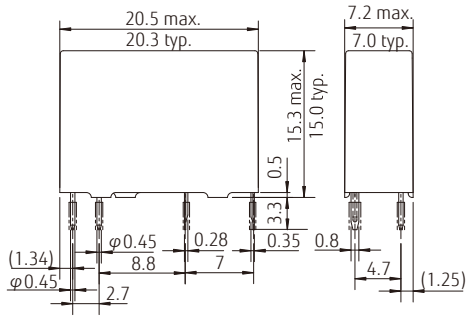
REFERENCE DATA



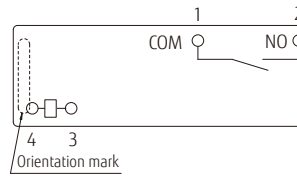
■ DIMENSIONS

Standard type

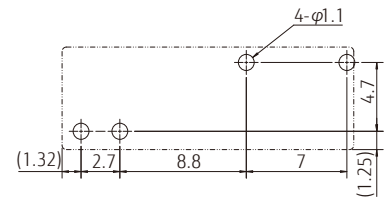
● Dimensions



● Schematics (BOTTOM VIEW)



● PC board mounting hole layout (BOTTOM VIEW)



Unit: mm

CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- Reflow soldering is prohibited.
- Do not use relays in the atmosphere with sulfide gas, chloride gas or nitric oxide. Contact resistance may increase.
- Do not use silicon or silicon-containing product or materials near relays. It may cause contact failure.

GENERAL INFORMATION

1. ROHS Compliance

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU, including commission delegated directive 2015/863.

2. Recommended lead free solder condition

- 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.
- Recommended solder for assembly: Sn-3.0Ag-0.5Cu.

Flow Solder Condition:

Pre-Heating: maximum 120 °C
within 90 sec.

Soldering: dip within 5 sec. at 255°C±5°C solder bath

Relay must be cooled by air immediately after soldering

Solder by Soldering Iron:

Soldering Iron: 30-60W

Temperature: maximum 340-360 °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 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

<p>Japan FUJITSU COMPONENT LIMITED Shinagawa Seaside Park Tower 19F, 12-4, Higashi-shinagawa 4-chome, Shinagawa-ku, Tokyo, 140-0002, Japan Tel: (81-3) 3450-1682 Fax: (81-3) 3474-2385 Email: fcl-contact@cs.jp.fujitsu.com Web: www.fujitsu.com/jp/fcl/</p>	<p>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@sg.fujitsu.com Web: www.fujitsu.com/sg/products/devices/components</p>	<p>Korea FUJITSU COMPONENTS KOREA LIMITED Alpha Tower #403, 645 Sampoong-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, 13524 Korea Tel: (82) 31-708-7108 Fax: (82) 31-709-7108 Email: fcal@sg.fujitsu.com www.fujitsu.com/sg/products/devices/components/</p>
<p>North and South America FUJITSU COMPONENTS AMERICA, INC 1230 E. Arques Ave. M/S 160 Sunnyvale, CA. 94085, USA Tel: (1-408) 745-4900 Fax: (1-408) 745-4970 Email: components@us.fujitsu.com Web: us.fujitsu.com/components</p>	<p>China FUJITSU ELECTRONIC COMPONENTS (SHANGHAI) CO., LTD. Unit 4306, InterContinental Center 100 Yu Tong Road, Shanghai 200070, China Tel: (86-21) 3253 0998 Fax: (86-21) 3253 0997 Email: fcsh@cn.fujitsu.com Web: www.fujitsu.com/cn/products/devices/components/</p>	
<p>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: www.fujitsu.com/uk/components</p>	<p>Hong Kong FUJITSU COMPONENTS HONG KONG CO., LTD Unit 506, Inter-Continental Plaza No.94 Granville Road, Tsim Sha Tsui, Kowloon, Hong Kong Tel: (852) 2881-8495 Tex: (852) 2894-9512 Email: fcal@sg.fujitsu.com Web: www.fujitsu.com/sg/products/devices/components/</p>	

© 2020 Fujitsu Components Europe B.V. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

Fujitsu Products are intended for general use, including without limitation, in personal, household and office environments, in buildings and for ordinary use in the industry. Fujitsu Products are not intended to be used in applications where extremely high safety is required ("High Safety Required Applications"), such as, but not limited to, applications in nuclear facilities, in aircraft automatic flight control, in air traffic control, in mass transit system control, in missile launch systems, in weapon systems, in medical equipment for life support or any application involving a direct serious risk of physical injury or death.

Please do not use Fujitsu Products without securing the sufficient safety and reliability required for the High Safety Required Applications.

In addition, Fujitsu shall not be liable against the customer and/or any third party for any claims or damages arising in connection with the use of Fujitsu Products in the High Safety Required Applications.

Fujitsu warrants that its Products, if properly used and serviced, will conform to their specification and will be free from defects in material and workmanship for twelve months from delivery.

The implied warranties of merchantability and fitness for a particular purpose and all other warranties, representations and conditions, express or implied by statute, trade usage or otherwise, except as set forth in this warranty, are excluded and shall not apply to the Products delivered.

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 with respect to these datasheets, its contents, data, information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Rev. May 25, 2020