

POWER RELAY

1 POLE - 25A - 1.5mm contact gap

FTR-K3-WG Series

■ FEATURES

- 1 pole, 25A
- 1 Form A
- Contact gap 1.5mm
(Compliance with European photovoltaic standard VDE0126)
- High insulation in small package
(between coil and contact)
 - Insulation distance: Clearance > 6.4mm
Creepage > 9.5mm
 - Dielectric strength: 5,000VAC
 - Surge strength: 8,500V
- Coil holding voltage can be reduced up to 35% of nominal coil voltage (ambient temperature; +20 °C, contact current; 25A)
Power consumption at the lowest coil holding voltage; 96mW
* Coil holding voltage is the coil voltage after 100ms of applied nominal coil voltage
- Flammability UL94V-0 (plastics)
- Cadmium-free contacts
- Flux free, cat. RTII protection
- RoHS compliant
Please see page 6 for more information



■ PARTNUMBER INFORMATION

[Example] FTR-K3 A B 012 W - WG
 (a) (b) (c) (d) (e) (f)

(a)	Relay type	FTR-K3 : FTR-K3-Series
(b)	Contact configuration	A : 1 form A / PCB type
(c)	Coil power	B : Standard type (780mW)
(d)	Coil rated voltage	012 : 5.....48 VDC Coil rating table at page 3
(e)	Contact material	W : Silver alloy
(f)	Option code	WG : Contact gap 1.5mm

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

E.g.: Ordering code: FTR-K3AB012W-WG

Actual marking: K3AB012W-WG

FTR-K3-WG SERIES

■ SPECIFICATION

Item	FTR-K3-WG		
Contact Data	Configuration		1 form A
	Material		Silver alloy
	Resistance (initial)		Max. 100mΩ at 1A, 6VDC
	Contact rating		25A, 250VAC (resistive)
	Max. carrying current		25A
	Max. switching voltage		250VAC
	Max. switching power		6,250VA
	Max. switching current		25A
	Min. switching load *1		100mA, 5VDC (reference value)
Life	Mechanical		Min. 2 x 10 ⁶ operations
	Electrical (resistive)		25A / 250VAC, min. 100 x 10 ³ operations
	Electrical (inductive)		Endurance: 25A, 250VAC, cos φ = 0.8, min. 30 x 10 ³ operations Overload: 37.5A, 250VAC, cos φ = 0.8, min. 50 operations
Coil Data	Rated power (at 20 °C)		Approximately 780mW
	Operate power (at 20 °C)		Approximately 383mW
	Coil power at holding voltage		96mW (35% of nominal coil voltage)
	Holding voltage *2		35~120% of nominal coil voltage (25A at +20 °C) 40~80% of nominal coil voltage (25A at +85 °C)
	Operating temperature range		-40 °C to +60 °C (coil nominal voltage) -40 °C to +85 °C (holding voltage; 40~80% of nominal coil voltage)
Timing Data	Operate (at nominal voltage)		Max. 20ms (without bounce)
	Release (at nominal voltage)		Max. 10ms (no diode, without bounce)
Insulation	Contact gap (initial)		Min. 1.5 mm
	Resistance		Min. 1,000MΩ at 500VDC
	Dielectric strength	Open contacts	2,500VAC, 1min.
		Coil and contacts	5,000VAC, 1min.
	Surge strength	Coil to contacts	8,500V / 1.2 x 50μs standard wave
	Clearance / creepage		Min. 6.4mm / min. 9.5mm
Other	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.75 mm
		Endurance	10 to 55 to 10Hz single amplitude 0.75 mm
	Shock resistance	Misoperation	Min. 200m/s ² (11 ± 1ms)
		Endurance	Min. 1,000m/s ² (6 ± 1ms)
	Weight		Approximately 25 g

*1 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.

*2 Reduction of minimum coil holding voltage to maximum coil voltage range, after 100msec energizing with nominal coil voltage.

■ Care shall be taken on the heat generated on PC board when maximum carrying current exceeds 10A. Please perform the confirmation test with actual conditions.

FTR-K3-WG SERIES

■ COIL RATING

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *1	Must Release Voltage (VDC) *1	Min. Non Release Voltage (VDC) *1	Rated Power +/- 10% (mW)
005	5	32	3.5	0.5	1.75	Approx. 780 (96)*2
006	6	46	4.2	0.6	2.1	
009	9	105	6.3	0.9	3.15	
012	12	185	8.4	1.2	4.2	
018	18	415	12.6	1.8	6.3	
024	24	740	16.8	2.4	8.4	
048	48	2,955	33.6	4.8	16.8	

Note: All values in the table are valid for 20°C and zero contact current.

*1 Specified operate values are valid for pulse wave voltage.

*2 This value is the coil power at 35% of nominal voltage at 20°C.

! Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

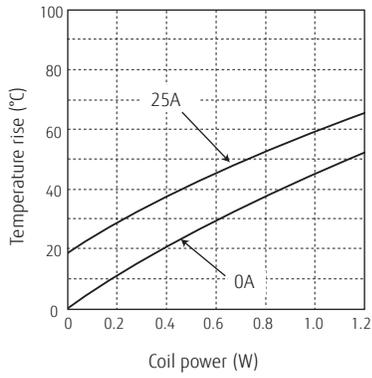
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 CSA22.2 No.14 (cULus) E63614	25A, 277VAC (General Use, at 85 °C) 1HP, 125VAC (at 60 °C) 2HP, 277VAC, 100x10 ³ (at 60 °C)
VDE	IEC/EN61810-1	25A, 250VAC (cosφ =1 at 85 °C)
CQC	GB15092.1 GB/T21711.1 17002165723	25A, 250VAC

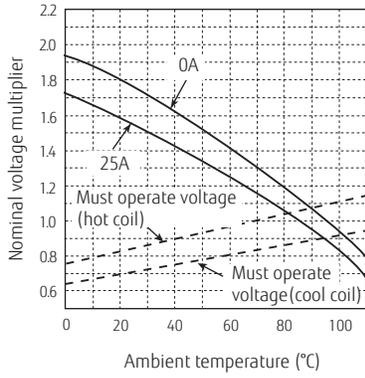
CHARACTERISTIC DATA

(Characteristic data is not guaranteed value but measured values of samples from production line.)

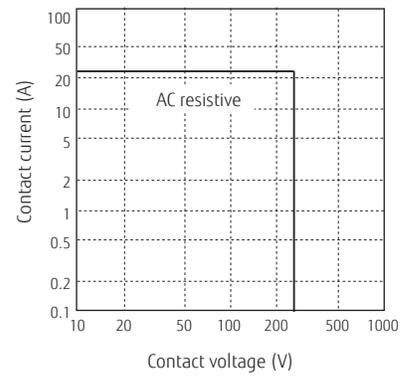
Coil temperature rise



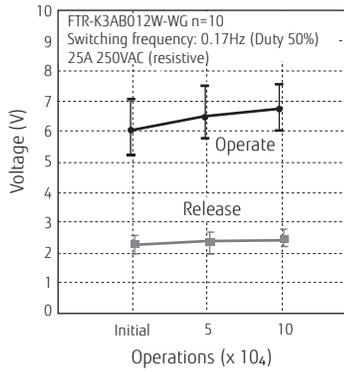
Operating range



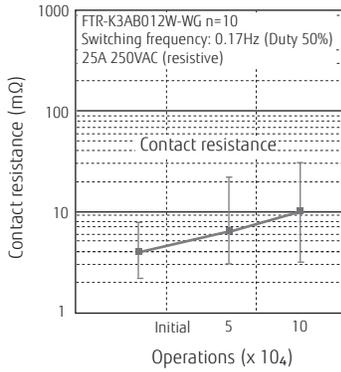
Maximum switching power



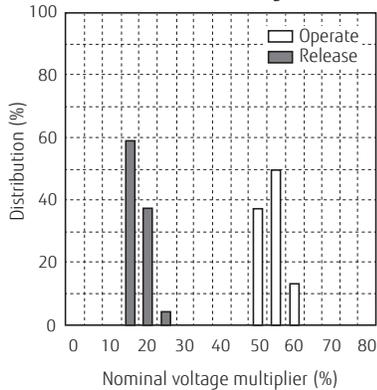
Electrical life test (resistive load)
Operate/release voltage



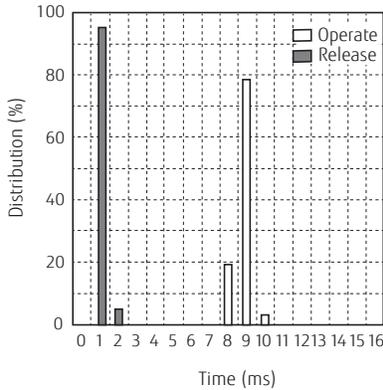
Electrical life test (resistive load)
Contact resistance



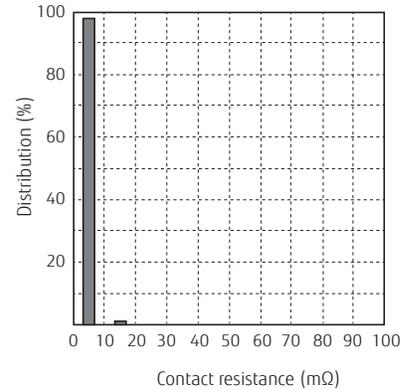
Distribution of operate/
release voltage



Distribution of operate/
release time



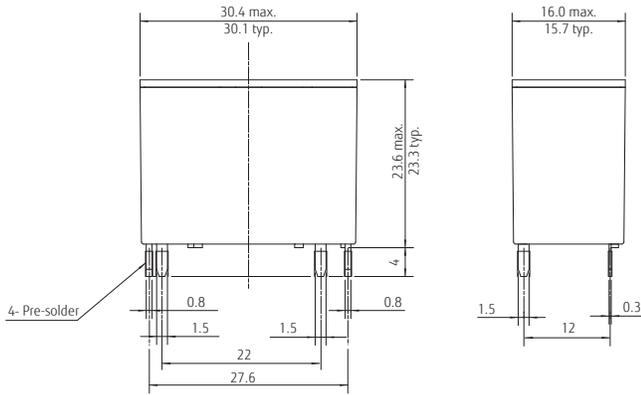
Distribution of contact resistance



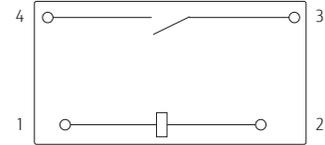
FTR-K3-WG SERIES

■ DIMENSIONS

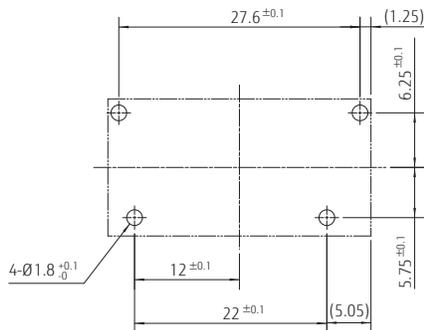
● Dimensions



● Schematics (BOTTOM VIEW)



● PC board mounting hole layout (BOTTOM VIEW)



- Dimensions of the terminals do not include thickness of pre-solder.
- Tolerance of PC board mounting hole layout : ±0.1 unless otherwise specified.

Unit; mm
(): Reference

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.

RoHS Compliance and Lead Free Information

1. General Information

- All signal and power 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 of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: <http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>
- 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 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 350-360°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

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/

North and South America

FUJITSU COMPONENTS AMERICA, INC
2290 North First Street, Suite 212
San Jose, CA 95131, USA
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: components@us.fujitsu.com
Web: 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: www.fujitsu.com/uk/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@sg.fujitsu.com
Web: www.fujitsu.com/sg/products/devices/components

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/

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/

Korea

FUJITSU COMPONENTS KOREA LIMITED
Alpha Tower #403, 645 Sampyeong-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/

©2019 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 with respect to these datasheets, its contents, data, information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Rev. June 14, 2019

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Fujitsu:

[FTR-K3AB012W-WG](#) [FTR-K3AB024W-WG](#)