

AUTOMOTIVE RELAY

1 POLE – 30A

FTR-G3 Series

RoHS Compliant

■ FEATURES

- Compact for high density packaging
- World smallest in 30A class relays*
- 30A fuse rate
- Minimum 100,000 operations at 14V 30A
- Through hole reflow soldering capability. Flow soldering type is also available.
- Plastic sealed or flux proof
- No polarity on coil terminals

* Internal investigation as of March 2023



■ APPLICATIONS

Control of power window, power seat, tilt steering, door lock, wiper, sunroof etc.

■ PART NUMBERS

[Example] FTR-G3 C N 012 W1 - RW
 (a) (b) (c) (d) (e) (f)

(a)	Relay type	FTR-G3 series
(b)	Contact arrangement	A : 1a (1 form A) C : 1c (1 form C)
(c)	Contact gap	N : 0.25 mm
(d)	Nominal coil voltage	012 : 12VDC
(e)	Contact material	W1 : Silver tin oxide indium
(f)	Soldering	Nil : Flow soldering (reflow is not available) RW : Reflow capable (Through hole reflow, plastic sealed type) VH : Reflow capable (Through hole reflow, flux proof type)

Note: Actual marking does not carry the type name: "FTR" and option code for reflow capable type.
 E.g.: Ordering code: FTR-G3CN012W1-RW, actual marking: G3CN012W1.

FTR-G3 Series

■ SPECIFICATIONS

Item		Specifications	Remarks / Conditions
Contact Data	Arrangement	1a (1 form A), 1c (1 form C)	
	Material	Silver tin oxide indium	
	Construction	Single	
	Rating	30A 14VDC	Locked motor load
	Max. carrying current	40.5A, 30 minutes	At 20°C, nominal coil voltage, relay shall be mounted on PCB, double layer PC board, copper foil thickness 4oz.(140μm), copper foil width 3.76 x (1 ± 5%)mm each, copper foil length 50mm ± 1m
	Max. inrush current	35A 16VDC	Reference
	Min. switching load*1	1A 12VDC	Reference
	Voltage drop	Max. 100mV	At 1A 12VDC
Coil	Rated power consumption	Approx. 640mW	At 20°C
	Operating temperature range	-40°C to +125°C	No frost
Time	Operate	Max. 10ms	At nominal voltage, without bounce
	Release	Max. 5ms	At nominal voltage, without bounce, without diode
Life	Mechanical	Min. 10 x 10 ⁶ operations	
	Electrical	Min. 100 x 10 ³ operations	At rated contact rating
Insulation	Insulation resistance		Min. 100MΩ
	Dielectric withstanding voltage	Open contacts	500VAC (50/60Hz), 1 minute
		Coil-contact	500VAC (50/60Hz), 1 minute
Others	Vibration resistance	Misoperation	10 to 200Hz, acceleration 44m/s ² (4.5G) constant acceleration
		Endurance	10 to 200Hz, acceleration 44m/s ² (4.5G) constant acceleration
	Shock resistance	Misoperation	100m/s ² (11 ± 1ms)
		Endurance	1,000m/s ² (6 ± 1ms)
	Dimensions / Weight		6.6 x 13.7 x 14.0 mm / Approx. 4.0g

*: 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.

❗ Care shall be taken on the heat generated on PC board when maximum carrying current exceed 10A.

FTR-G3 Series

COIL DATA

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Nominal Power (W)
012	12	225	7.3 (at 20°C) 10.4 (at 125°C)	1.0 (at 20°C) 1.5 (at 125°C)	Approx. 0.64

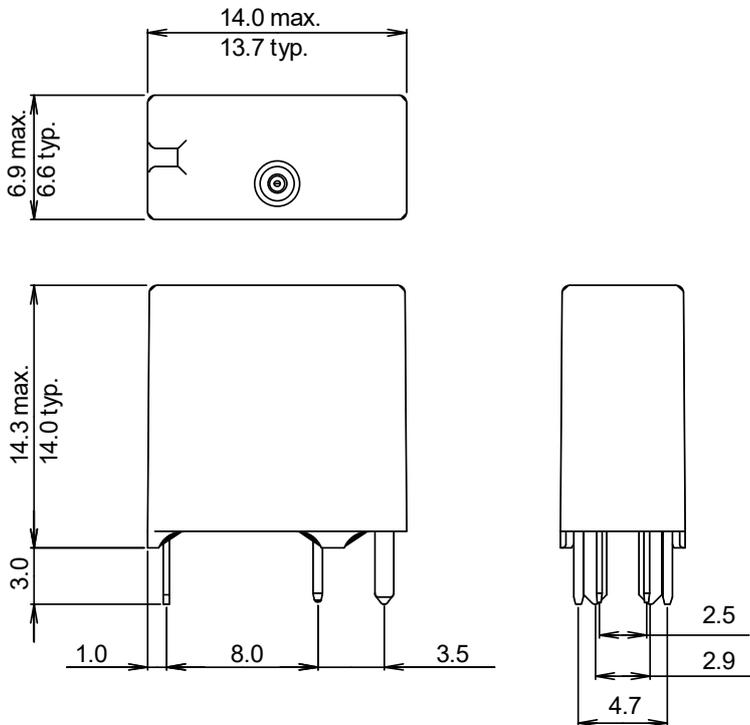
Note: All values in the table are valid at 20°C and zero contact current unless otherwise specified.

Note: Please use at rated coil voltage.

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

DIMENSIONS

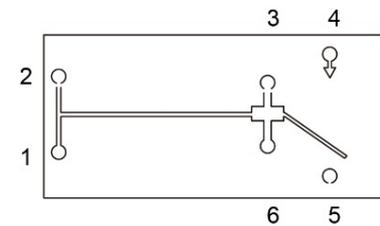
Dimensions (1c, 1a)



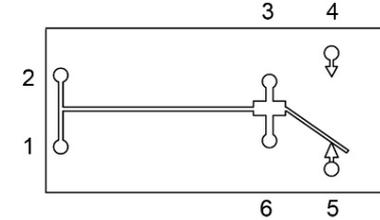
Schematics

(BOTTOM VIEW)

- 1a (FTR-G3AN)

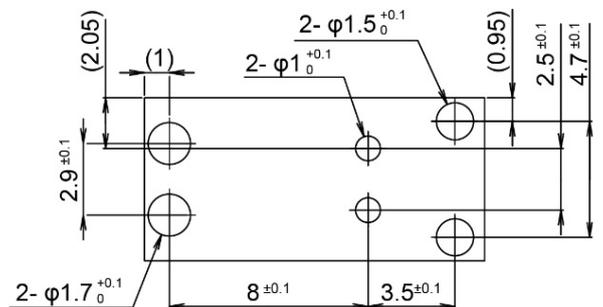


- 1c (FTR-G3CN)



PC Board Mounting Hole Layout (1a, 1c)

(BOTTOM VIEW)



- Dimensions of the terminals do not include thickness of pre-solder.
- Dimensions do not include tolerances.
- No. 5 terminal of 1a type is a dummy terminal.

Unit: mm
(): Reference

FTR-G3 Series

CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- Reflow soldering is prohibited for flow soldering type.
- 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

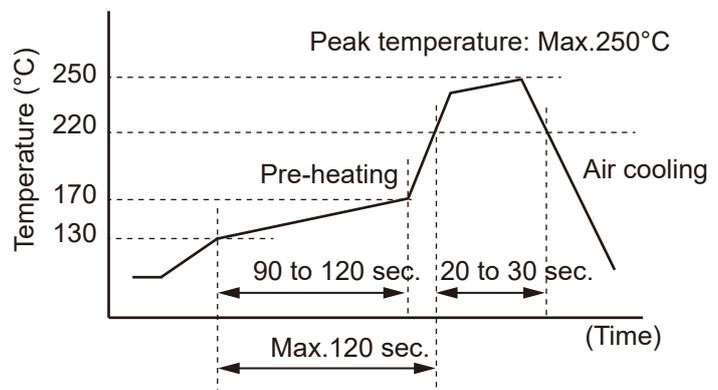
Solder by Soldering Iron:

Soldering Iron: 30-60W
Temperature: maximum 340-360°C
Duration: maximum 3 sec.

Reflow Solder Condition:

(Applicable only for reflow capable type)

Recommended reflow soldering profile
IRS (infrared reflow soldering)



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.

FTR-G3 Series

Contact

Japan

FUJITSU COMPONENT LIMITED
Shinagawa Seaside Park Tower
12-4, Higashi-shinagawa 4-chome,
Tokyo 140 0002, Japan
Tel: +81-3-3450-1682
Email: fcl-contact@cs.fcl-components.com

North and South America

FUJITSU COMPONENTS AMERICA
350 Cobalt Way, M/S 160
Sunnyvale, CA 94085 U.S.A.
Tel: +1-408-745-4900
Email: fcai.components@fcl-components.com

Europe

FUJITSU COMPONENTS EUROPE
Diamantlaan 25
2132 WV Hoofddorp, Netherlands
Tel: +31-23-556-0910
Email: info@fcl-components.eu

Asia Pacific

FUJITSU COMPONENTS ASIA.
No. 20 Harbour Drive, #07-01B
Singapore 117612
Tel: +65-6375-8560
Email: fcal@fcl-components.com

China

FUJITSU ELECTRONIC COMPONENTS
(SHANGHAI)
Unit 4306, InterContinental Business Center
100 Yu Tong Road, Shanghai 200070, China
Tel: +86-21-3253 0998
Email: fcsch@fcl-components.com

Hong Kong

FUJITSU COMPONENTS HONG KONG
Unit 2313, Seapower Tower, Concordia
Plaza, No.1 Science Museum Road,
TST, Kowloon, Hong Kong
Tel: +852-2881-8495
Email: fcal@fcl-components.com

Web: www.fcl.fujitsu.com/en/

© 2023 Fujitsu Component Limited. 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 system, 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 services, 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 Component Limited 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 Component Limited 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. April 17, 2023.