

POWER RELAY

2 POLES-2A High insulation/wide gap

FTR-C1 Series

■ FEATURES

- 2 Poles, 2 form C
- Contact gap: more than 0.6mm
- High surge voltage: 2,500V between open contacts
5,000V between coil & contact
Complies with Telcordia (former Bellcore) 2nd level surge
- Dielectric strength: 1,500VAC between open contacts
3,000VAC between coil and contact
- Dimensions of large contact gap relay
Height: 9.3mm maximum (THT)
9.65mm maximum (SMT)
Length: 15mm maximum
Width: 7.5mm maximum
- Conforms to IEC60950/ EN60950/UL1950/CSA C 22.2
No. 950 working voltage 250V (supplementary)
- High insulation: Clearance: min 2.0mm (coil and contacts)
Creepage: min 2.5mm (coil and contacts)
- Low power consumption 280mW (latching type 140mW)
- RoHS compliant. Please see page 9 for more information



■ PARTNUMBER INFORMATION

[Example] FTR-C1 C A 012 G - B05
 (a) (b) (c) (d) (e) (f)

(a)	Relay type	FTR-C1 : FTR-C1-Series
(b)	Contact configuration	C : Through hole type G : Surface mount type S : Surface mount type reduced mounting area
(c)	Coil type / enclosure	A : Standard type B : Single coil latching type
(d)	Coil rated voltage	012 : 3.....24 VDC Coil rating table at page 3
(e)	Contact material	G : Gold plated silver palladium
(f)	Tape / reel version	Nil : Standard packaging (tube) B05 : Tape / reel package, only available for SMT type

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

E.g.: Ordering code: FTR-C1CA012G

Actual marking: C1CA012G

FTR-C1 SERIES

■ SPECIFICATION

Item		Non-latching FTR-C1 () A	Latching FTR-C1 () B
Contact Data	Configuration	2 form C	
	Construction	Bifurcated	
	Material	Gold plated silver palladium	
	Resistance (Initial)	Max. 150mΩ at 1A, 6VDC	
	Contact rating resistive	1A, 30VDC / 0.3A, 125VAC / 0.3A, 110VDC	
	Max. Switching Voltage	250VAC / 220VDC	
	Max. Switching Power	62.5VA / 30W	
	Max. Carry Current	2A	
	Min. Switching Load *	0.01mA, 10mVDC	
Life	Mechanical	Min. 10 x 10 ⁶ operations	
	Electrical (resistive)	Min. 100 x 10 ³ operations at 0.3A, 125VAC / 1A, 30VD	
Coil Data	Rated Power	280 to 300mW	140 to 180mW
	Operate Power	158 to 162mW	158 to 162mW
	Operating temp range	-40 to +85C (no frost)	
Timing Data	Operate (at nominal voltage)	Max. 6ms (without bounce)	
	Release (at nominal voltage)	Max. 6ms (without bounce)	
Insulation	Resistance (Initial)		Min. 1,000MΩ at 500VDC
	Dielectric strength	Open contacts	1,500VAC (50/60Hz) 1min
		Adjacent contacts	1,500VAC (50/60Hz) 1min
		Contacts to coil	3,000VAC (50/60Hz) 1min
	Surge strength	Contacts to coil	5,000V, 2 x 10μs
	Clearance	Open contacts	0.6mm
		Adjacent contacts	1.0mm
		Contacts to coil	2.0mm
	Creepage	Open contacts	0.6mm
		Adjacent contacts	1.0mm
		Contacts to coil	2.5mm
Other	Vibration Resistance	Misoperation>1us	10 to 55Hz double amplitude 3.3mm
		Endurance	10 to 55Hz double amplitude 5mm
	Shock	Misoperation>1us	Min. 500m/s ²
		Endurance	Min. 1,000m/s ²
	Weight	Approximately 2g	

* 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

Standard type

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release Voltage (VDC) *	Nominal Coil Power (mW)
003	3	32.1	2.25	0.3	280
4.5	4.5	72.3	3.38	0.45	
005	5	89.3	3.75	0.5	
012	12	514	9	1.2	
024	24	1,920	18	2.4	300

Latching type

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Set Voltage (VDC) *	Reset Voltage (VDC) *	Nominal Coil Power (mW)
003	3	64.0	+2.25	- 2.25	140
4.5	4.5	145	+3.38	- 3.38	
005	5	179	+3.75	- 3.75	
012	12	1,029	+9	- 9	
024	24	3,200	+18	- 18	180

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

* Specified operate values are valid for pulse wave voltage.

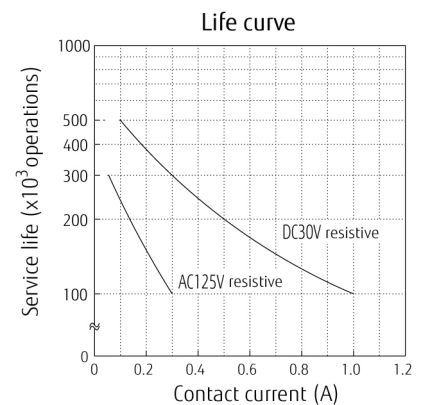
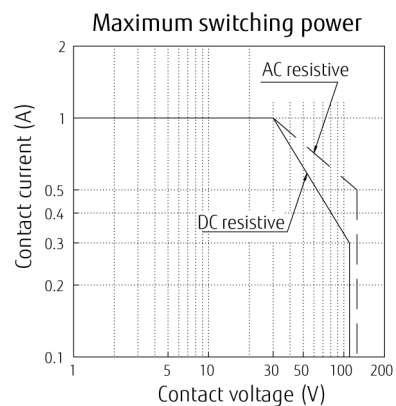
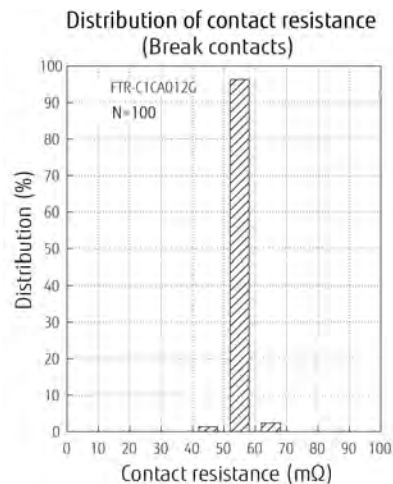
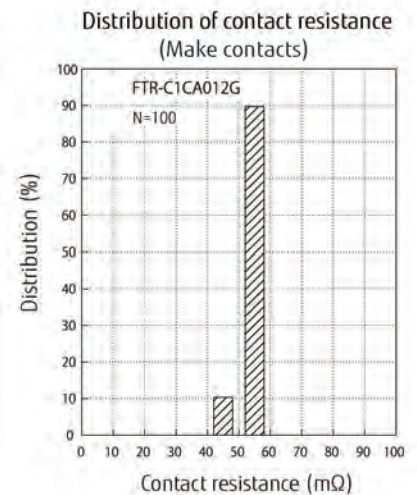
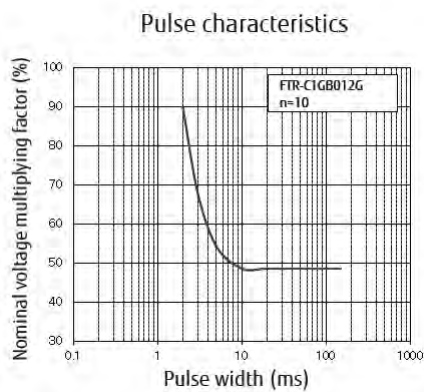
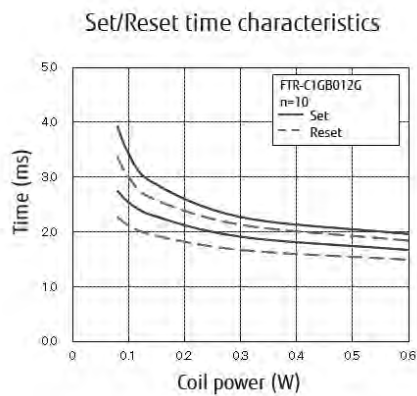
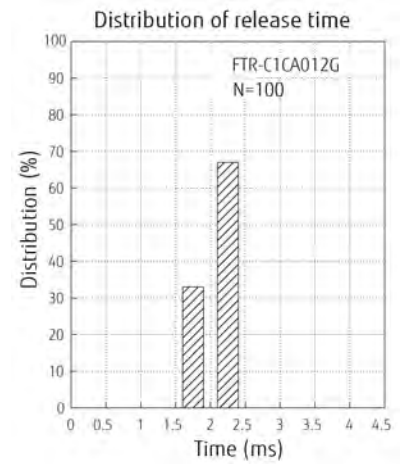
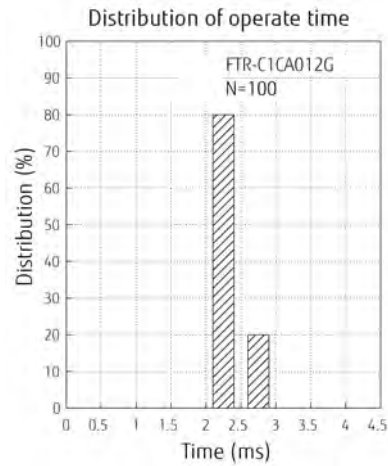
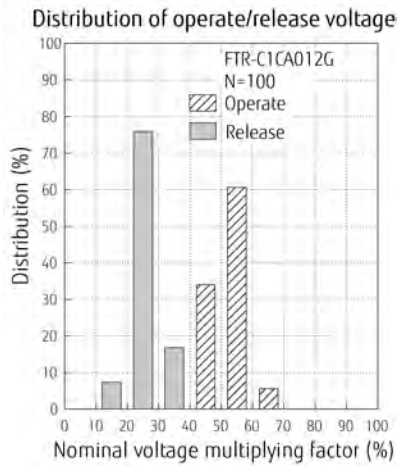
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508	Flammability: UL 94-V0 (plastics)
	E63615	0.3A, 125 VAC (general use) 1A, 30VDC (resistive)
CSA	C22.2 No. 14 LR 40304	2A, 30VDC (resistive) 0.3A, 110VDC (resistive)

Comply with Telcordia specifications and FCC part 68 and meet BSI EN60950-1:2006

Marking only for UL, CSA

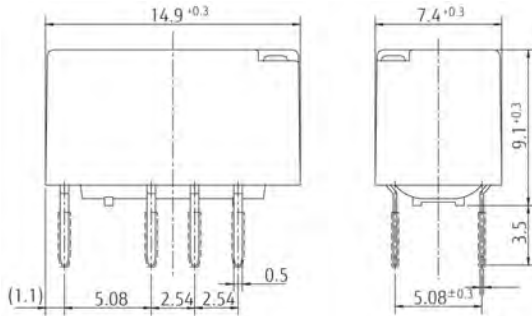
■ CHARACTERISTIC DATA



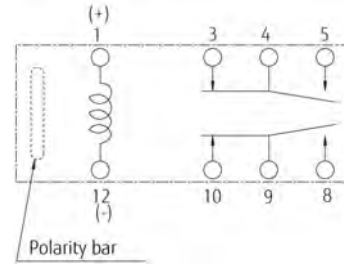
■ DIMENSIONS Unit: mm

Through hole type

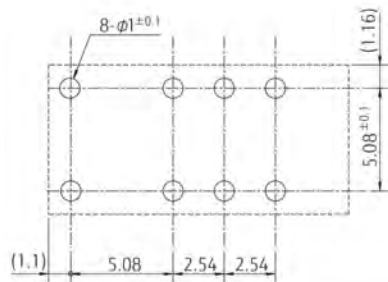
● Dimensions



● Terminal designations (BOTTOM VIEW) (de-energized position)



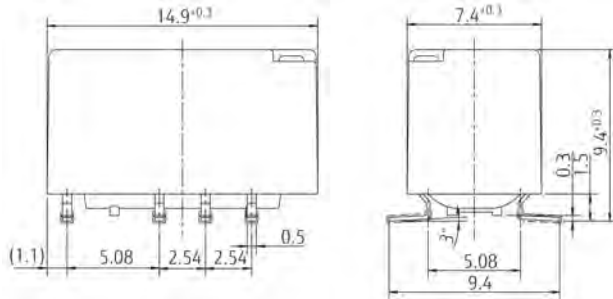
● Recommended mounting pad (BOTTOM VIEW)



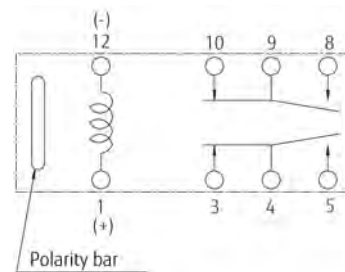
dimension tolerance ± 0.1 mm

Surface mount type

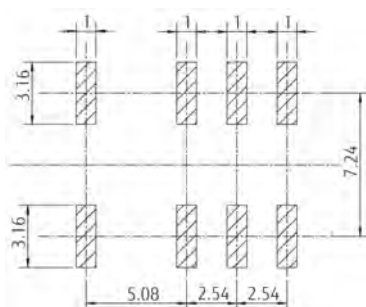
● Dimensions



● Terminal designations (TOP VIEW) (de-energized position)



● Recommended mounting pad (TOP VIEW)

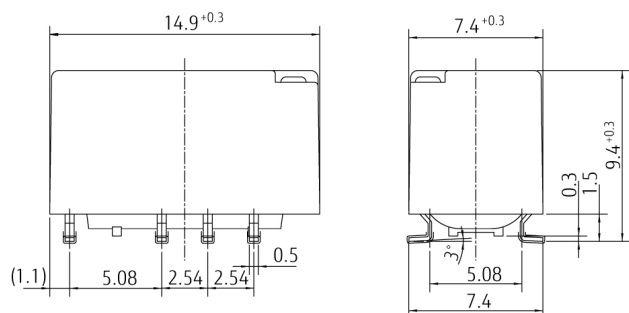


dimension tolerance ± 0.1 mm

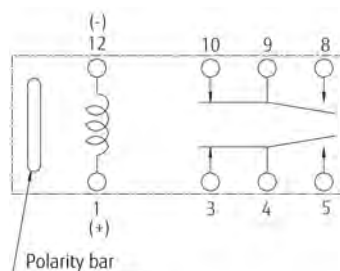
Note:
(...) : dimensions are reference

Space saving type

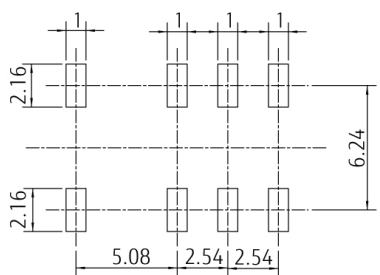
- **Dimensions**



- **Terminal designations (TOP VIEW)**
(de-energized position)



- **Recommended mounting pad (TOP VIEW)**



dimension tolerance ± 0.1 mm

Note:

(...) : dimensions are reference

■ RECOMMENDED SOLDERING CONDITIONS SMT

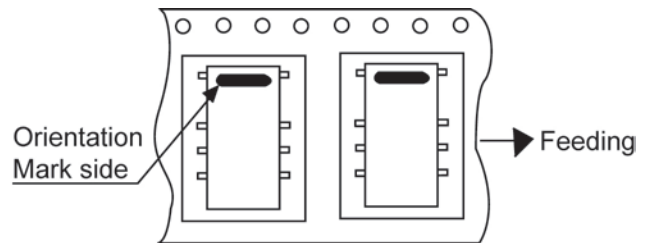
(TEMPERATURE PROFILE, please see page 9)

Note: 1. Temperature profiles show the temperature of PC board surface.
 2. Please perform soldering test with your actual PC board before mass production, since the temperatures of PC board surfaces vary according to the size of PC board, status of parts mounting and heating method.

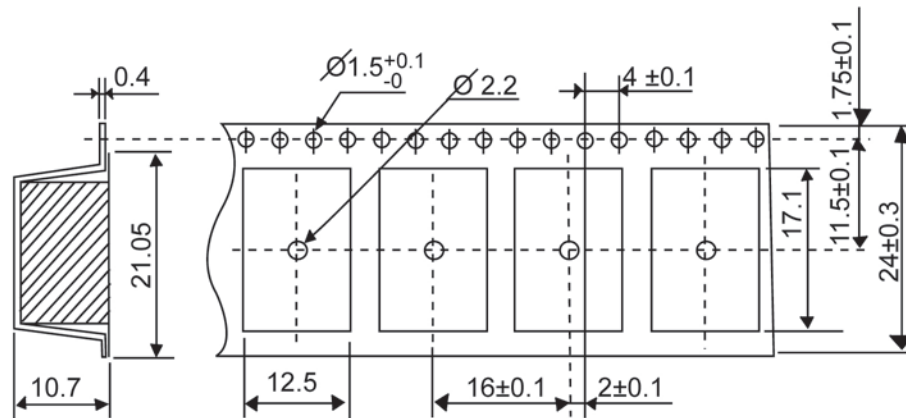
■ PACKAGING

Packaging method (only tape packaging is available)

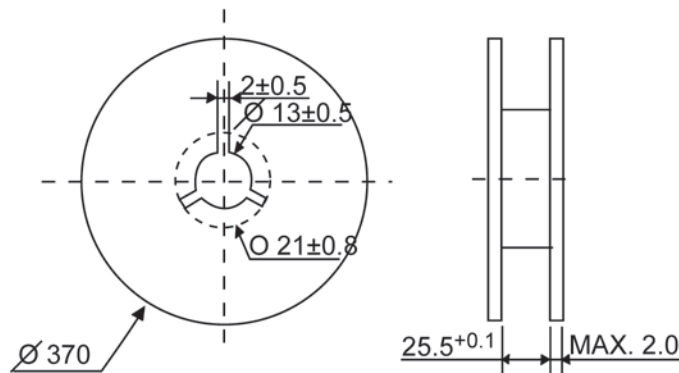
1. Taping standards: JIS C 0806 and RC-10092B (EIAJ)
2. Tape type: TB2416 or TE2416
3. Reel type: RD24D
4. Quantity of 1 reel: 500 pieces



Tape Dimensions:



Reel Dimensions:



Unit: mm

RoHS Compliance and Lead Free Information

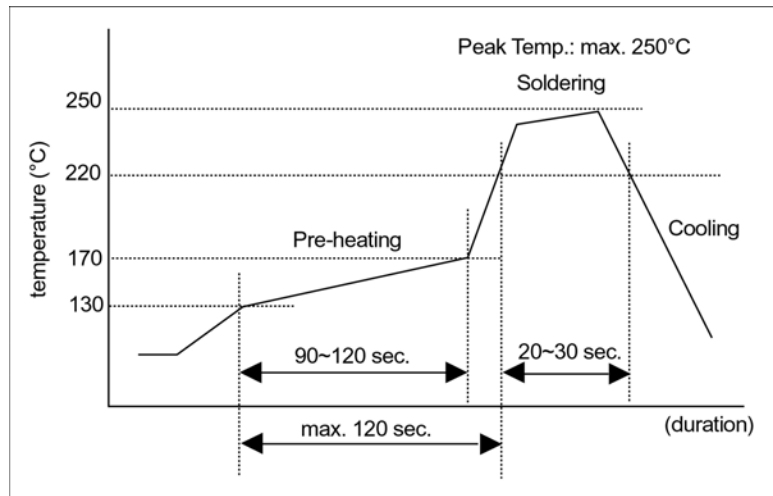
1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives.
As per Annex III of directive 2011/65/EU.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at:
<http://www.fujitsu.com/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 Condition

- Recommended solder Sn-3.0Ag-0.5Cu.

Reflow Solder condition for SMT



Flow Solder Condition:

Pre-heating: maximum 120°C within 9 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
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/>

©2013 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. December 04, 2013

Mouser Electronics

Authorized Distributor

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

[FCL Components:](#)

[FTR-C1GA4.5G](#) [FTR-C1CB005G](#) [FTR-C1GB4.5G](#) [FTR-C1CB024G](#) [FTR-C1GA024G-B05](#) [FTR-C1GB012G](#) [FTR-C1GB024G](#) [FTR-C1CA024G](#) [FTR-C1GB005G](#) [FTR-C1GB003G](#)