■ SPECIFICATION

Item			Non-latching FTR-C1 ( ) A	Latching FTR-C1 ( ) B
Contact Data	Configuration		2 form C	
	Construction		Bifurcated	
	Material		Gold plated silver palladium (stationary contact) Silver palladium (movable contact)	
	Resistance (Initial)		Max. 150mΩ at 1A, 6VDC	
	Contact rating resistive		1A, 30VDC / 0.3A, 125VAC	
	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
	Pulse width		-	Min. 20ms
	Operating temp range		-40°C to +85°C (no frost)	
	Storage temperature / humidity		-40°C to +85°C / 5% to 85% RH (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 55 to 10 Hz single amplitude 1.65mm	
		Endurance	10 to 55 to 10 Hz single amplitude 2.5mm	
	Shock	Misoperation>1us	Min. 500m/s^2 (11+/-1ms)	
		Endurance	Min. 1,000m/s^2 (6+/-1ms)	
	Weight		Approximately 2g	
	Sealing		RT III (plastic sealed)	

* Minimujm 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.
Note: Please use at rated coil voltage. Please perform the confirmation test with actual conditions.

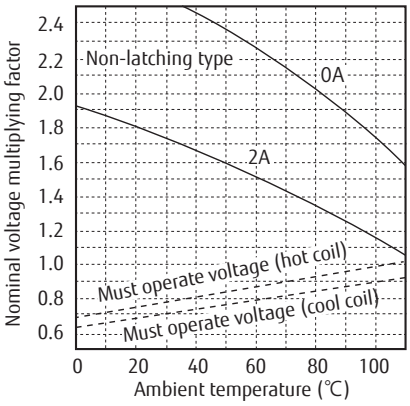
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 E63615	Flammability: UL 94-V0 (plastics) 0.3A, 125 VAC (general use) (UL) 0.5A, 125VAC (CSA) 2A, 30VDC (general use) 0.3A, 110VDC (general use)
CSA	C22.2 No. 14 LR 40304	

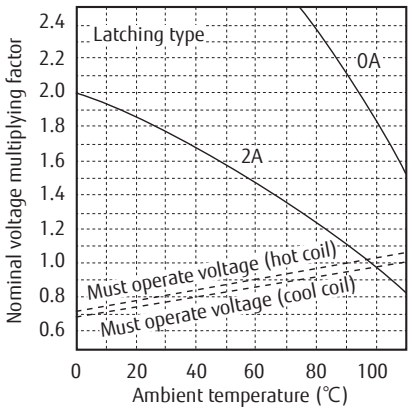
Comply with Telcordia specifications and meet BSI
Marking only for UL, CSA

■ CHARACTERISTIC DATA

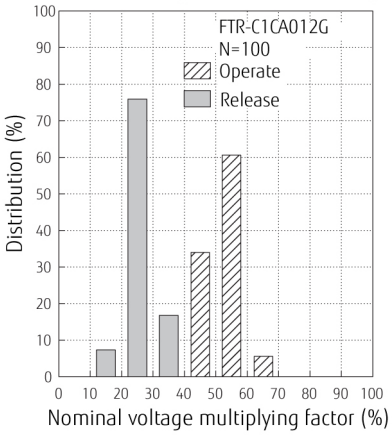
Operating range



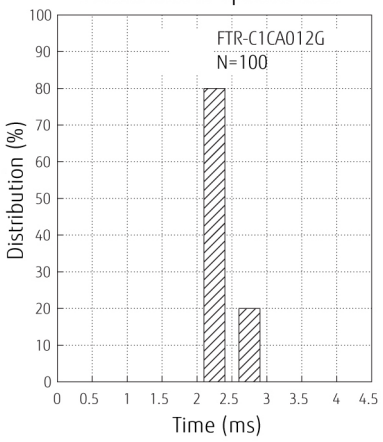
Operating range



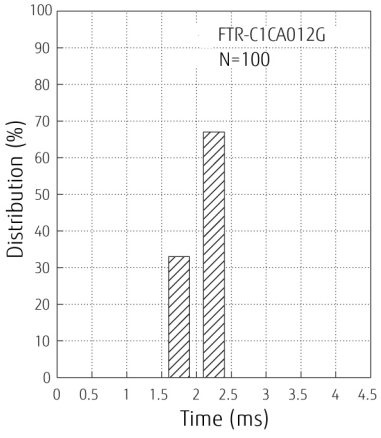
Distribution of operate/release voltage



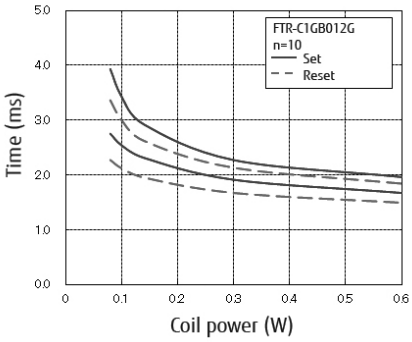
Distribution of operate time



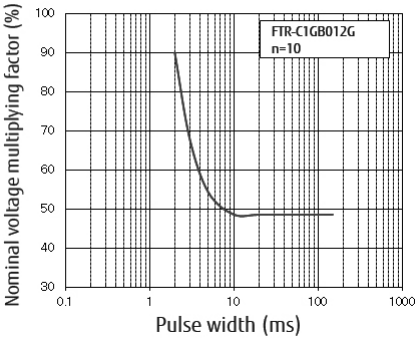
Distribution of release time



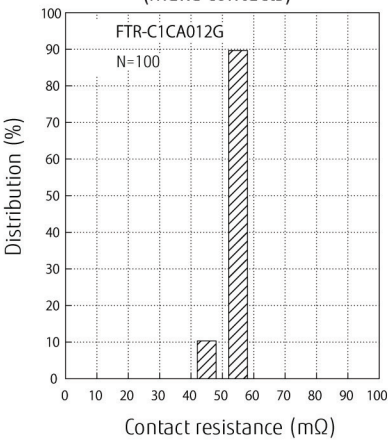
Set/Reset time characteristics



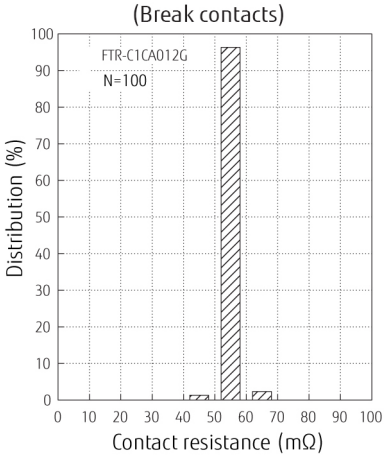
Pulse characteristics



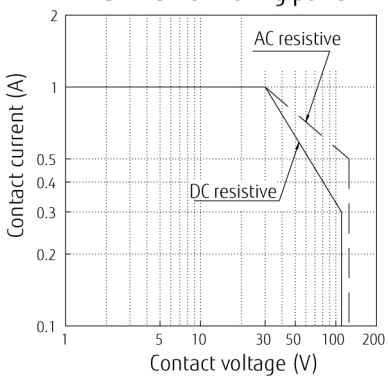
Distribution of contact resistance
(Make contacts)



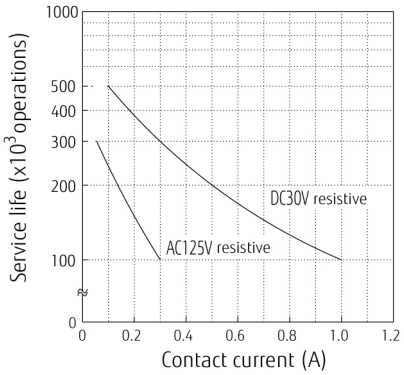
Distribution of contact resistance
(Break contacts)



Maximum switching power



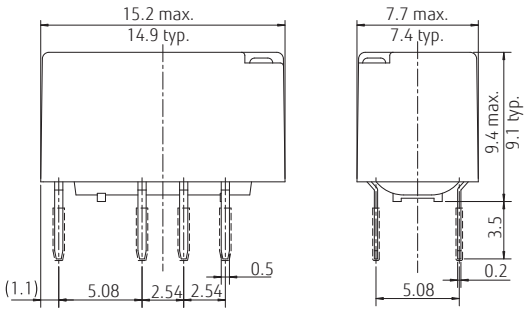
Life curve



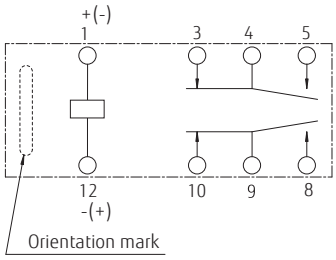
■ DIMENSIONS

Through hole type

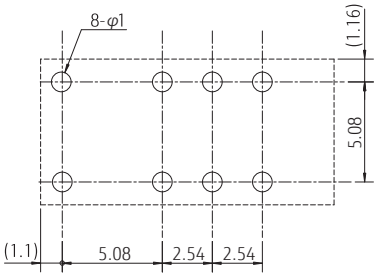
● Dimensions



● Schematics
(BOTTOM VIEW)

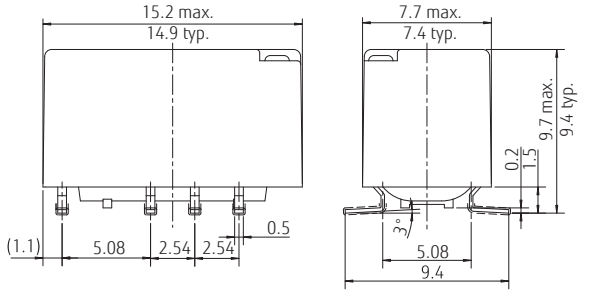


● Recommended PCB layout
(BOTTOM VIEW)

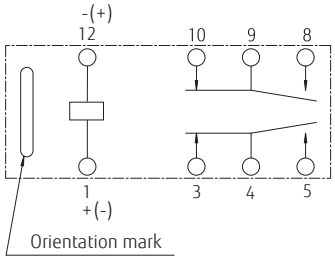


Surface mount type

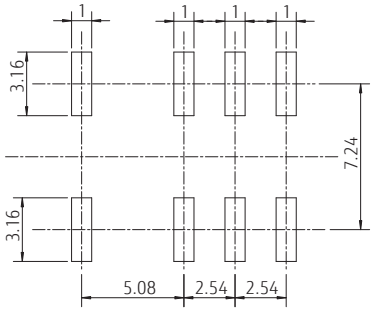
● Dimensions



● Schematics
(TOP VIEW)

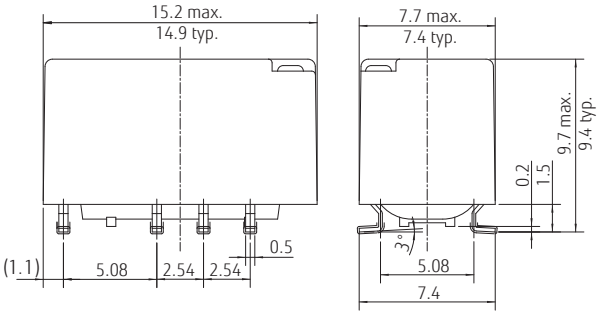


● Recommended PCB layout
(TOP VIEW)

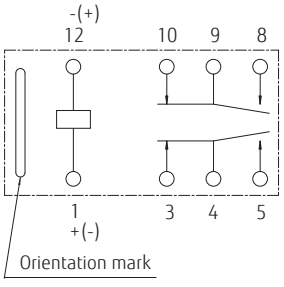


Surface mount (space saving) type

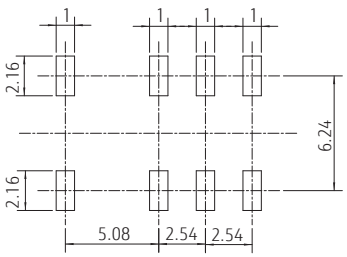
● Dimensions



● Schematics
(TOP VIEW)



● Recommended PCB layout
(TOP VIEW)



Note: (...) : dimensions are reference
Unit: mm
Note: Dimensions of the terminals do not include thickness of pre-solder.
Note: Dimensions do not include tolerances. Please ask specification in case you need tolerances.
Note: Tolerance of PCB layout: ±0.1 unless otherwise specified.

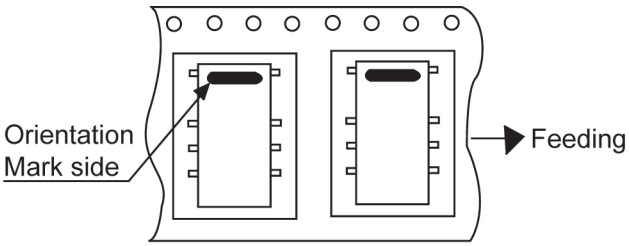
■ RECOMMENDED SOLDERING CONDITIONS SMT

(TEMPERATURE PROFILE, please see page 9)

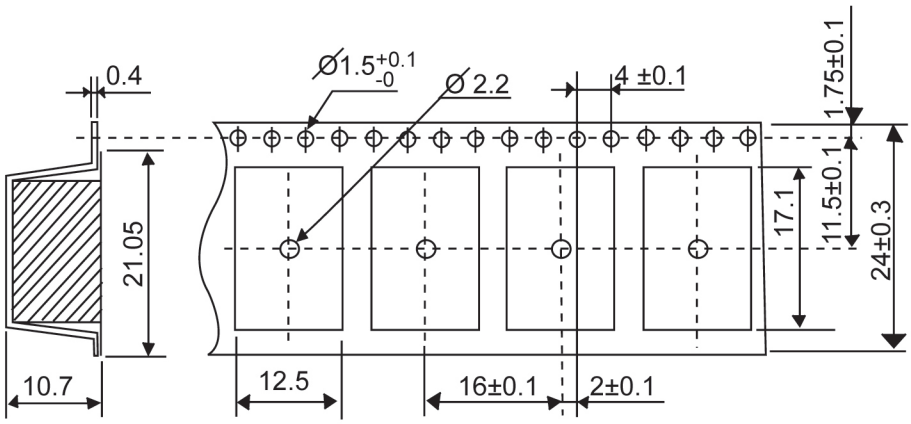
Note: 1.Temperature profiles show the temperature of PC board surface.
2. Please perform soldering test with your actual PC board before mass production, since the temperatures of PC board surfaces vary according to the size of PC board, status of parts mounting and heating method.

■ TAPE & REEL PACKAGING SPECIFICATION

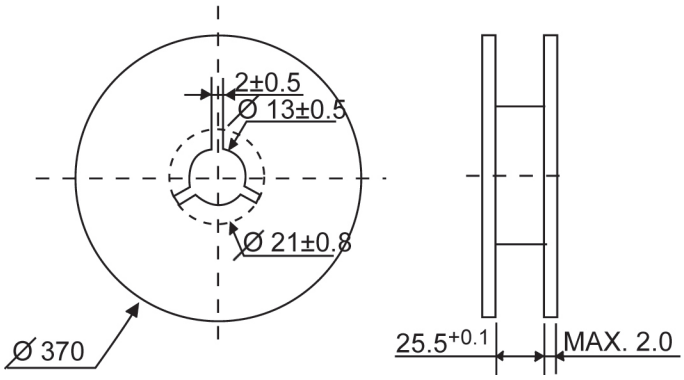
1. Taping standards: JIS C 0806 and RC-10092B (EIAJ)
2. Tape type: TB2416 or TE2416
3. Reel type: RD24D
4. Quantity of 1 reel: 500 pieces



Tape Dimensions:



Reel Dimensions:



Unit: mm

RoHS Compliance and Lead Free Information

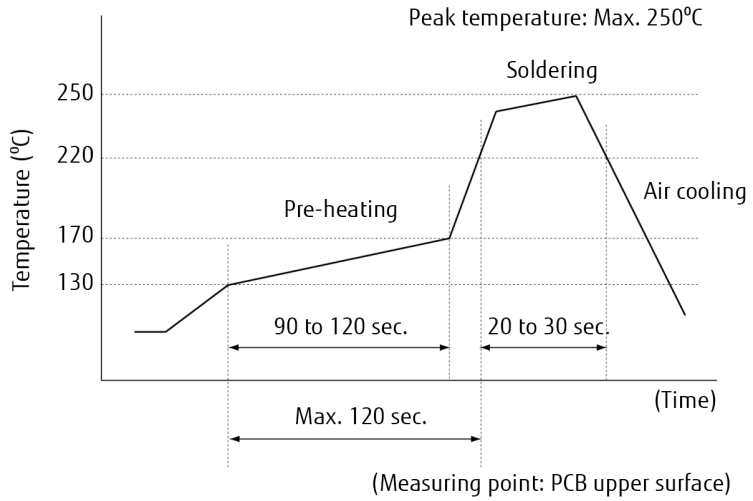
1. General Information

- 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.
- Characteristic data is not guaranteed values but measured values of samples from production line.

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 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 Temperature:	30-60W maximum 340-360˚C
Duration:	maximum 3 sec.

REFLOW

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 can vary, depending on the size of PC board, status of partsmounting and heating method.

We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- SMT versions of FTR-C1 relays in Tape & Reel package will be shipped in Moisture Barrier Bag(MBB).
- Moisture Sensitivity Level (MSL) of FTR-C1 relay is indicated on the packing caution label.
- Relays must be stored in the unopened MBB at storage conditions <40C/90%RH for a maximum 1 year
- SMT versions of FTR-C1 relays in tube packing will not be shipped in MBB. Therefore, these relays shall be dried by baking before reflow soldering process according to IPC/JEDEC J-STD-033.

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.

Cautions

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- 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.

Notes for latching relay

- Latching relays are shipped in the state set, but state may change due to shock during transportation or mounting. Before using the relays, it is advisable to bring the relays in necessary state (set or reset) and program a circuit sequence. Otherwise, it will or will not operate simultaneously with power activation.
- Please connect relay coils according to specified polarity.
- Do not apply voltage to both set coil and reset coil at a time.

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: fcsh@cn.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: fcal@sg.fujitsu.com
Web: www.fujitsu.com/sg/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/