

# SIGNAL RELAY

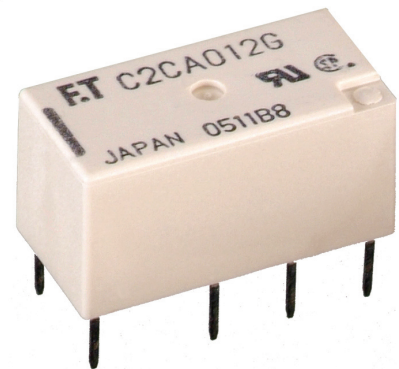
## 2 POLES - 2A High Isolation Wide Contact Gap

### 2.0mm Contact Gap

## FTR-C2 Series

### ■ FEATURES

- DPDT 2A
- Contact gap: more than 2.0mm
- Conforms to IEC60950 / EN60950 / UL1950/  
CSA C22.2 No.950  
Working voltage 250V
- INSULATION  
Clearance: 2.0 mm (between open contacts, coil and contacts,  
contact sets)  
Creepage: 2.5 mm (between open contacts, coil and contacts,  
contact sets)
- HIGH RELIABILITY  
Bifurcated contacts
- Power consumption 300 mW
- Latching types available
- RoHS compliant.  
Please see page 7 for more information



### ■ PARTNUMBER INFORMATION

[Example]      FTR-C2   C   A   012   G  
                   (a)    (b)   (c)   (d)   (e)

|     |                    |  |
|-----|--------------------|--|
| (a) | Relay type         | FTR-C2: FTR-C2 Series                                |
| (b) | Terminal type      | <b>C</b> : Through hole<br><b>G</b> : Surface mount  |
| (c) | Coil type          | <b>A</b> : Standard type<br><b>B</b> : Latching type |
| (d) | Coil rated voltage | 012 : 3.....24 VDC<br>Coil rating table at page 3    |
| (e) | Contact material   | <b>G</b> : Gold plated silver alloy                  |

Note: 500 relays per reel for SMT versions

Remarks: Actual marking on relay would not carry code FTR and be as below:

Ordering code: FTR-C2CA012G-B05      Actual marking: C2CA012G

Note: \* Only SMT version

# FTR-C2 SERIES

## ■ SPECIFICATION

| Item              |                               |                     | Standard type  | Latching type |
|-------------------|-------------------------------|---------------------|--|---------------|
|                   |                               |                     | FTR-C2 ( ) A   | FTR-C2 ( ) B  |
| Contact Data      | Configuration                 |                     | 2 form C   |               |
|                   | Construction                  |                     | Bifurcated contacts  |               |
|                   | Material                      |                     | Gold overlay silver palladium (stationary contact)<br>Silver palladium (movable contact) |               |
|                   | Resistance (initial)          |                     | Maximum 150 mΩ at 1 A, 6 VDC   |               |
|                   | Contact rating (resistive)    |                     | 0.3A, 125VAC / 1A, 30VDC   |               |
|                   | Max. carrying current         |                     | 2A   |               |
|                   | Max. switching voltage        |                     | 250 VAC / 220VDC   |               |
|                   | Max. switching power          |                     | 62.5VA / 30W   |               |
|                   | Min. switching load *         |                     | 0.01A, 10mVDC  |               |
| Life              | Mechanical                    |                     | 10 x 10 <sup>3</sup> operations minimum (at 10 Hz)                                       |               |
|                   | Electrical                    | DC contact rating   | 100 x 10 <sup>3</sup> operations minimum   |               |
|                   |                               | AC contact rating   | 100 x 10 <sup>3</sup> operations minimum   |               |
| Coil Data         | Rated Power                   |                     | 300 mW   | 150 mW        |
|                   | Operate Power                 |                     | 169 mW   | 85 mW         |
|                   | Operating temperature range   |                     | -40 °C to +85 °C (no frost)  |               |
| Timing Data       | Operate (no bounce)           |                     | ≤ 15 ms (at nominal voltage)   |               |
|                   | Release (no diode, no bounce) |                     | ≤ 15 ms (at nominal voltage)   |               |
| Insulation        | Resistance (initial)          |                     | ≥ 1,000MΩ at 500VDC  |               |
|                   | Dielectric strength           | Open contacts       | 1,500VAC (50/60Hz) 1min  |               |
|                   |                               | Contacts to coil    | 1,500VAC (50/60Hz) 1min  |               |
|                   |                               | Adjacent contacts   | 2,000VAC (50/60Hz) 1min  |               |
|                   | Surge strength                | Coil to contacts    | 2,500V/ 2 x 10μs standard wave   |               |
|                   | Clearance                     | Adjacent contacts   | 2.0 mm   |               |
|                   |                               | Open contacts       | 2.0 mm   |               |
|                   |                               | Coil and contacts   | 2.0 mm   |               |
|                   | Creepage                      | Adjacent contacts   | 2.0 mm   |               |
| Open contacts     |                               | 2.0 mm              |  |               |
| Coil and contacts |                               | 2.5 mm              |  |               |
| Other             | Vibration resistance          | Misoperation        | 10 to 55Hz double amplitude 3.3mm  |               |
|                   |                               | Endurance           | 10 to 55Hz double amplitude 5.0mm  |               |
|                   | Shock                         | Misoperation        | 300m/s <sup>2</sup>  |               |
|                   |                               | Endurance           | 1,000m/s <sup>2</sup>  |               |
|                   | Weight                        | Approximately 3.79g |  |               |

\* 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.

# FTR-C2 SERIES

## ■ COIL RATING

Standard type

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release-Voltage (VDC) * | Max. Coil Voltage (VDC) | Rated Power (mW) |
|-----------|--------------------------|-------------------------------|------------------------------|------------------------------|-------------------------|------------------|
| 003       | 3                        | 30                            | 2.25                         | 0.3                          | 7.2                     | 300              |
| 005       | 5                        | 83.3                          | 3.75                         | 0.5                          | 12                      |                  |
| 012       | 12                       | 480                           | 9                            | 1.2                          | 28.8                    |                  |
| 024       | 24                       | 1,920                         | 18                           | 2.4                          | 57.6                    |                  |

Latching type (1 coil)

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release-Voltage (VDC) * | Max. Coil Voltage (VDC) | Rated Power (mW) |
|-----------|--------------------------|-------------------------------|------------------------------|------------------------------|-------------------------|------------------|
| 003       | 3                        | 60                            | +2.25                        | 2.25                         | 7.2                     | 150              |
| 005       | 5                        | 167                           | +3.75                        | 3.75                         | 12                      |                  |
| 012       | 12                       | 960                           | +9                           | 9                            | 28.8                    |                  |
| 024       | 24                       | 3,840                         | +18                          | 18                           | 57.6                    |                  |

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

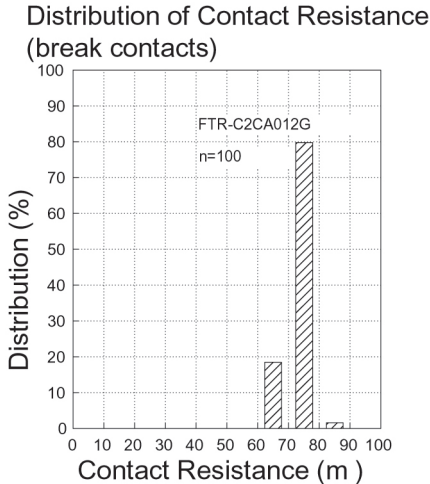
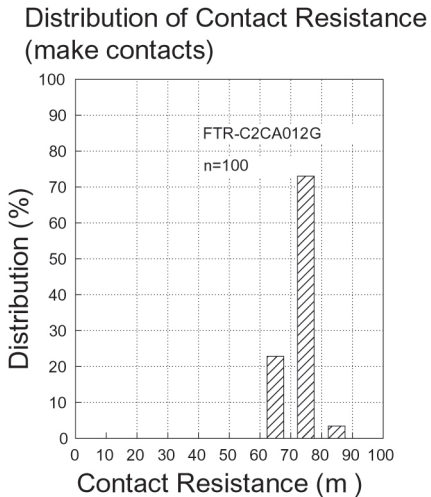
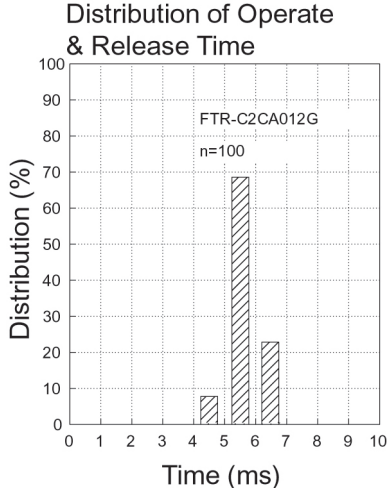
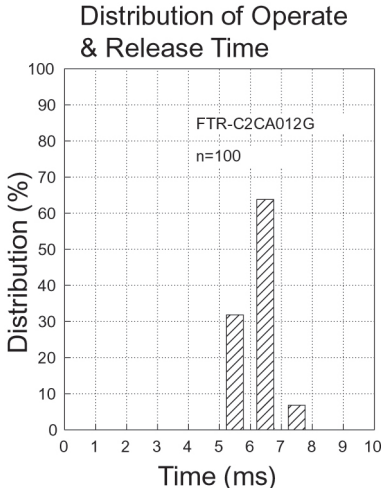
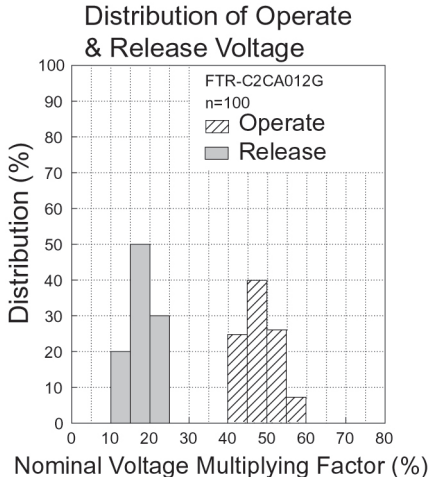
\* Specified operate values are valid for pulse wave voltage.

## ■ SAFETY STANDARDS

| Type | Compliance               | Contact rating                        |
|------|--------------------------|---------------------------------------|
| UL   | UL 508                   | Flammability: UL 94-V0 (plastics)     |
|      | E 63615                  | 0.3A, 125VAC (resistive)<br>1A, 30VDC |
| CSA  | C22.2 No. 14<br>LR 40304 | 0.3A, 110VDC                          |

# FTR-C2 SERIES

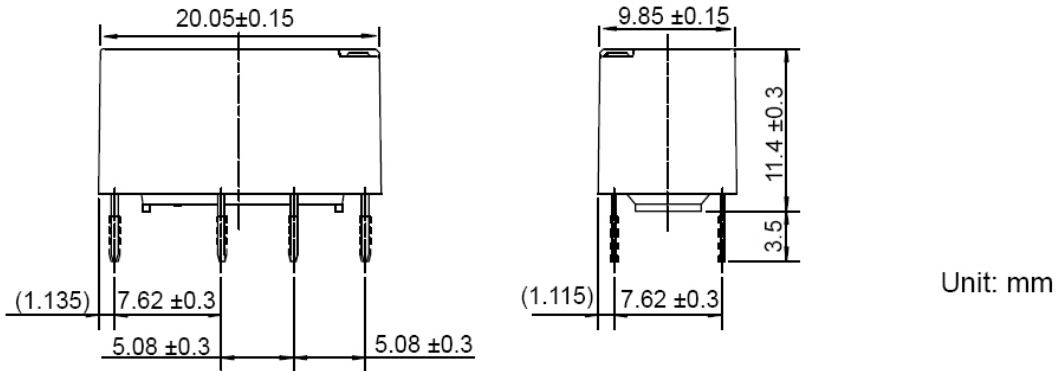
## ■ REFERENCE DATA



# FTR-C2 SERIES

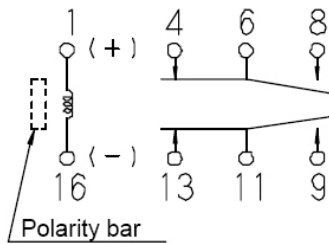
## ■ DIMENSIONS AND SCHEMATICS

Through hole type

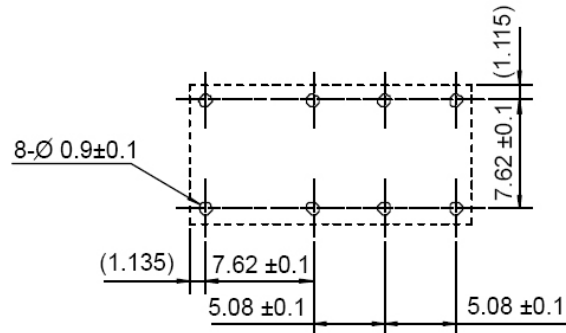


## ■ TERMINAL DESIGNATIONS

(Bottom view de-energized position)

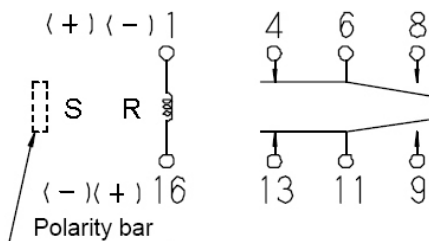


## ■ RECOMMENDED MOUNTING PAD



## Single Coil Latching Type

(Bottom view reset position)



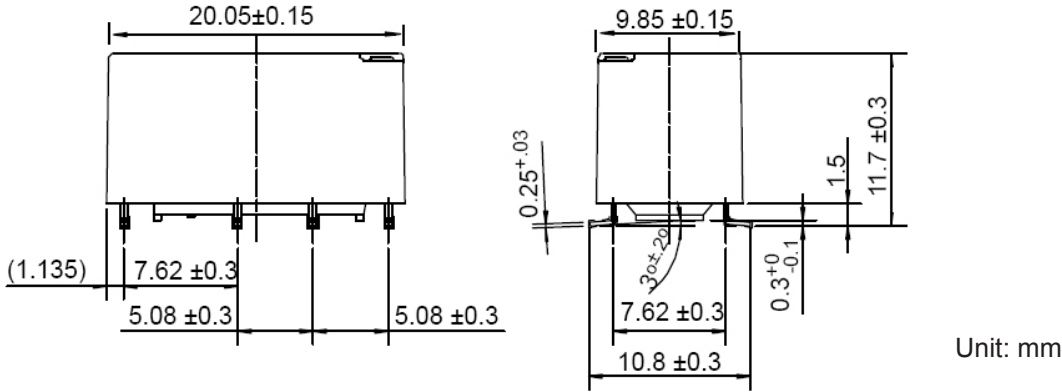
S: shows polarity of set position  
R: shows polarity of reset position

Unit: mm

# FTR-C2 SERIES

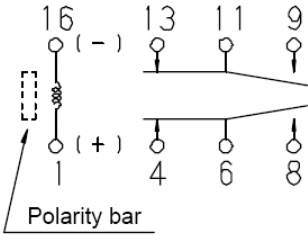
## ■ DIMENSIONS AND SCHEMATICS

Surface mount type

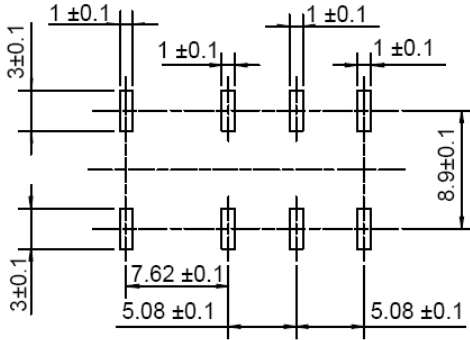


## ■ TERMINAL DESIGNATIONS

(Top view de-energized position)

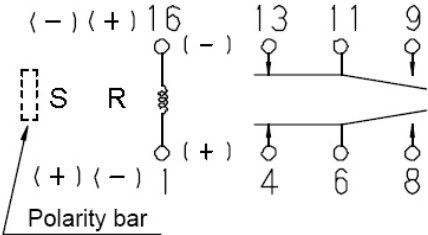


## ■ RECOMMENDED MOUNTING PAD



## Single Coil Latching Type

(Top view reset position)



S: shows polarity of set position  
R: shows polarity of reset position

Unit: mm

## RoHS Compliance and Lead Free Information

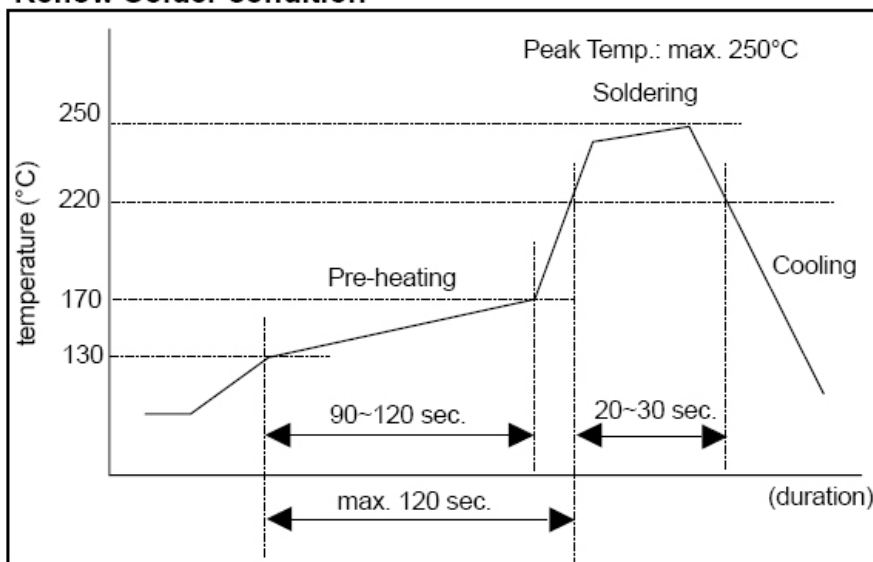
### 1. General Information

- 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.

#### Reflow Solder condition



#### Flow Solder condition:

Pre-heating: maximum 120°C  
Soldering: dip within 5 sec. at 260°C solder bath

#### Solder by Soldering Iron:

Soldering Iron  
Temperature: maximum 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 parts mounting and heating method.

**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.

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