

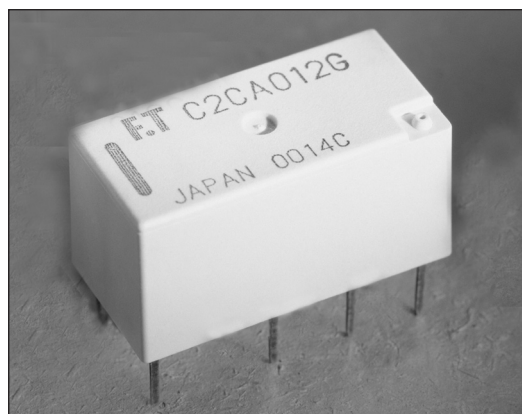
ULTRA MINIATURE RELAY SIGNAL RELAY

FTR-C2 Series

RoHS compliant

■ FEATURES

- Dimensions of large contact gap relay
 - Height: 11.8 mm maximum (THT)
12 mm maximum (SMT)
 - Length: 20.2 mm maximum
 - Width: 10 mm maximum
- Conforms to IEC60950 / EN60950 / UL1950/ CSA C22.2 No.950 spacing & high breakdown voltage
- Recognized by UL/CSA and Bsi
 - UL: File E63615 Vol. 2 Sec.4
 - CSA: Master contract 169663 Certificate 1088921
 - Clearance: 2.0 mm (between open contacts, coil and contacts, contact sets)
 - Creepage: 2.0 mm (between open contacts, coil and contacts, contact sets)
- HIGH RELIABILITY
 - Bifurcated contacts
- Low power consumption 300 mV
- RoHS Compliant since production



■ ORDERING INFORMATION

[Example] FTR-C2 C A 012 G -B 05*
 (a) (b) (c) (d) (e) (f) (g)

(a)	Series Name	FTR-C2
(b)	Terminal Appearance	C: Through hole type G: Surface mount type
(c)	Operation Function	A: Standard type B: Latching type
(d)	Coil Number	Nominal Voltage
(e)	Contact Material	G: Silver alloy
(f)	Relay enclosing direction	B: standard enclosing direction
(g)	Number of relays per reel	05: 500 (standard)

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

Ordering code Actual marking
 FTR-C2CA03G → C2CA03G

*only SMT version

FTR-C2 Series

■ COIL DATA CHART

Standard type

Model	Nominal Voltage	Coil Resistance ($\pm 10\%$)	Must Operate Voltage	Must Release Voltage	Nominal Operating Power ($\pm 10\%$)
FTR-C2 () A003G	3 VDC	30.0 Ω	2.25 VDC	0.3 VDC	300 mW
FTR-C2 () A005G	5 VDC	83.3 Ω	3.75 VDC	0.5 VDC	300 mW
FTR-C2 () A012G	12VDC	480.0 Ω	9.00 VDC	1.2 VDC	300 mW
FTR-C2 () A024G	24 VDC	1,920.0 Ω	18.00 VDC	2.4 VDC	300 mW

Single coil latching type

Model	Nominal Voltage	Coil Resistance ($\pm 10\%$)	Set Voltage Ω	Reset Voltage	Nominal Operating Power ($\pm 10\%$)
FTR-C2 () B003G	3 VDC	60.0 Ω	2.25 VDC	2.25 VDC	150 mW
FTR-C2 () B005G	5 VDC	167.0 Ω	3.75 VDC	3.75 VDC	150 mW
FTR-C2 () B0012G	12VDC	960.0 Ω	9.00 VDC	9.00 VDC	150 mW
FTR-C2 () B024G	24 VDC	3,840.0 Ω	18.00 VDC	18.00 VDC	150 mW

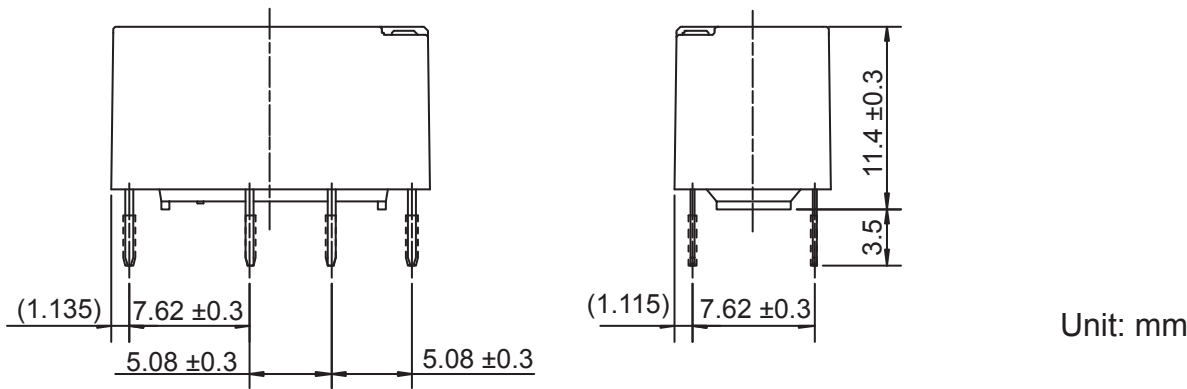
Note: All values in the table are measured at 20°C.

■ SPECIFICATIONS

Item		FTR-C2CA ()G FTR-C2GA-()G	
Contact	Arrangement	2 Form C	
	Material	Silver alloy	
	Resistance (initial)	Max. 150m ohm (at 1A 6VDC)	
	Max. Switching Power	37.5AV / 30W	
	Max. Switching Voltage	250VAC, 220 VDC	
	Max. Switching Current	1 A	
Coil	Operating Temperature	-40° C to + 85° C (no frost)	
	Max. Allowable Voltage	150% nominal voltage (at 20° C)	
Time Value	Operate Time	Max. 15ms (at nominal voltage, without bounce)	
	Release Time (without diode)	Max. 15ms (at nominal voltage, without bounce)	
Insulation	Resistance (at 500 VDC)		Min. 1,000M ohm
	Dielectric Strength	Between open contacts	1,500VAC, 1 minute
		Between adjacent contacts	1,500VAC, 1 minute
		Between coil and contacts	2,000VAC, 1 minute
	Surge Strength	Between open contacts	2,500V (at10/700micros)
		Between adjacent contacts	2,500V (at10/700micros)
		Between coil and contacts	2,500V (at10/700micros)
Life	Mechanical	10x10 ⁶ operations min. (at 10Hz)	
	Electrical (resistive load)	100x10 ³ operations min. at 1A, 30VDC, 0.5Hz 100x10 ³ operations min. at 0.1A, 48VDC, 0.5Hz 100x10 ³ operations min. at 0.3A, 125VDC, 0.5Hz	
Vibration Resistance	Misoperation	10 to 55 Hz at double amplitude of 3.3 mm	
	Endurance	10 to 55 Hz at double amplitude of 5 mm	
Shock Resistance	Misoperation	Min. 300 m/s ²	
	Endurance	Min. 1,000 m/s ²	
UL / CSA	Contact Rating	0.3A 125 VAC 1A 30VDC 0.3 110VDC	
IEC060950 UL1950 C22.2 No.950 EN60950	Insulation Class	Supplementary Insulation	
	Working Voltage	250 V	
	Pollution Degree	2 (outside)	1 (inside)
	Clearance	2.0 mm (outside)	2.0 mm (inside)
	Creepage Distance	2.5 mm (outside)	2.0 mm (inside)

DIMENSIONS AND SCHEMATICS

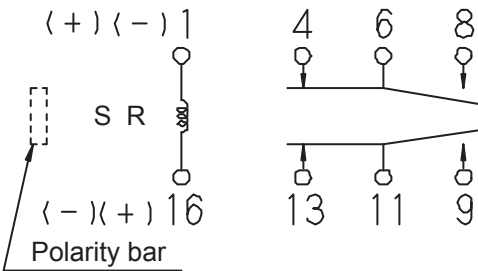
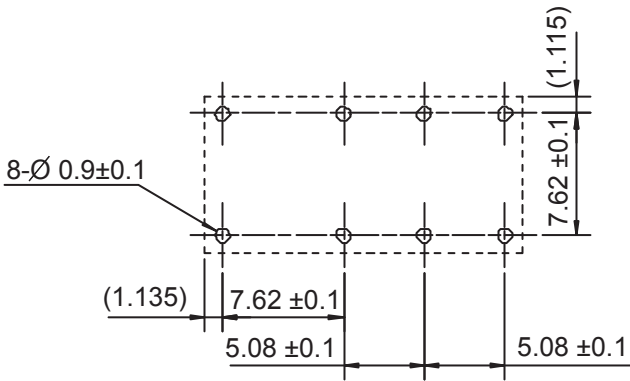
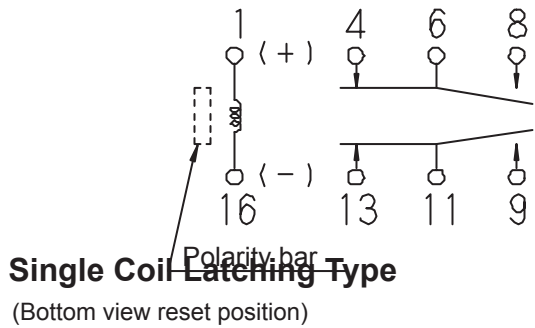
Through hole type



TERMINAL DESIGNATIONS

(Bottom view de-energized position)

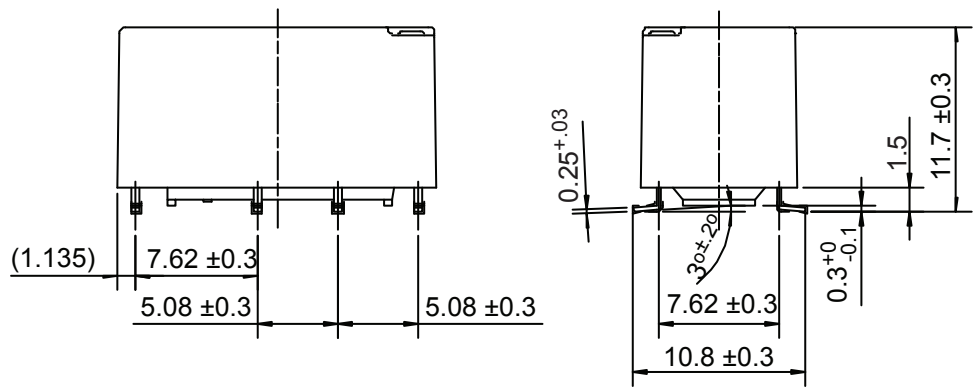
RECOMMENDED MOUNTING PAD



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

DIMENSIONS AND SCHEMATICS

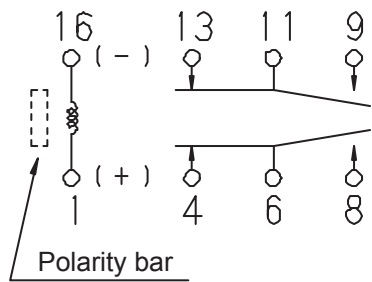
Surface mount type



Unit: mm

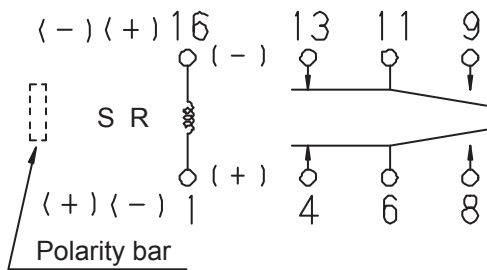
TERMINAL DESIGNATIONS

(Top view de-energized position)



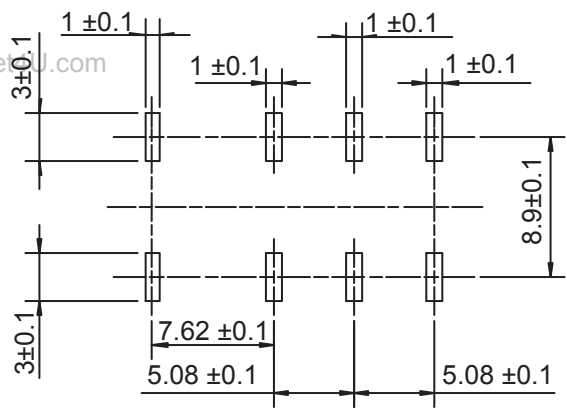
Single Coil Latching Type

(Top view reset position)



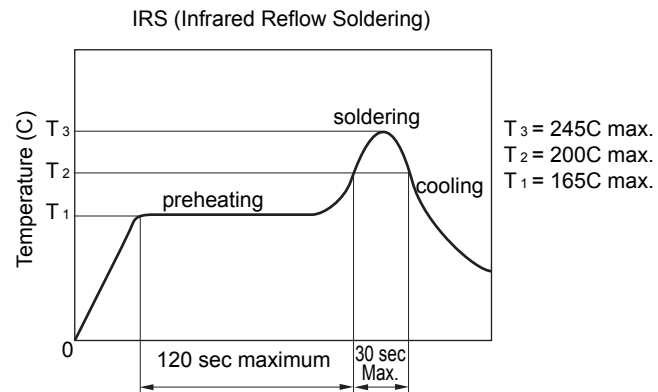
S: shows polarity of set position
R: shows polarity of reset position

RECOMMENDED MOUNTING



Unit: mm

■ RECOMMENDED SOLDERING CONDITIONS (TEMPERATURE PROFILE)



- 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.

RoHS Compliance and Lead Free Relay Information

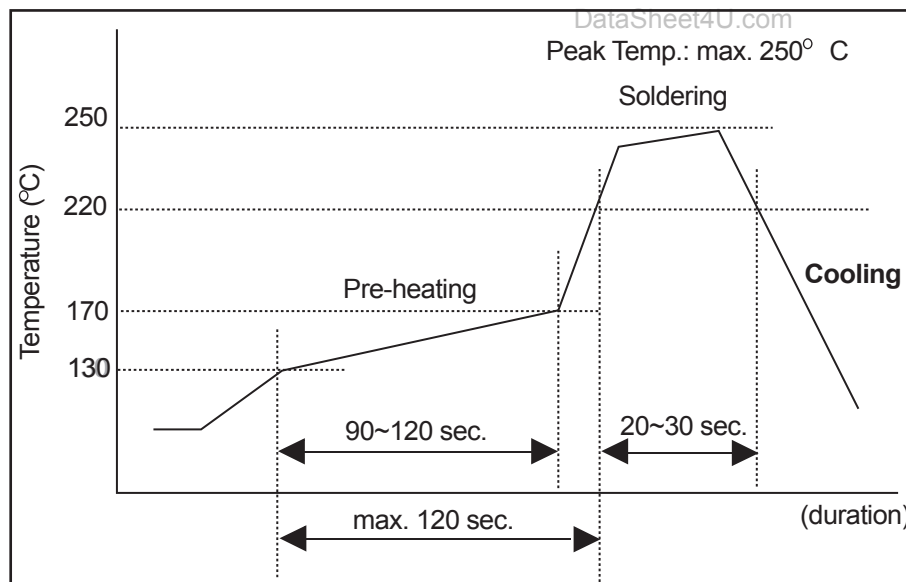
1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. Most of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (<http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>)
 - Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
 - All signal and most power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
 - It has been verified that using lead-free relays in lead assembly process will not cause any problems (compatible).
 - "LF" is marked on each outer and inner carton. (No marking on individual relays).
 - To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
 - We will ship leaded relays as long as the leaded relay inventory exists.
- Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu and Sm-3.0 Cu-Ni (only FTR-B3 and FTR-B4 from February 2005).

Reflow Solder condition for SMT



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.

We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays.

4. Tin Whisker

- SnAgCu and SnCuNi solder is known as low risk of tin whisker. No considerable length whisker was found by our in-house test.

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