

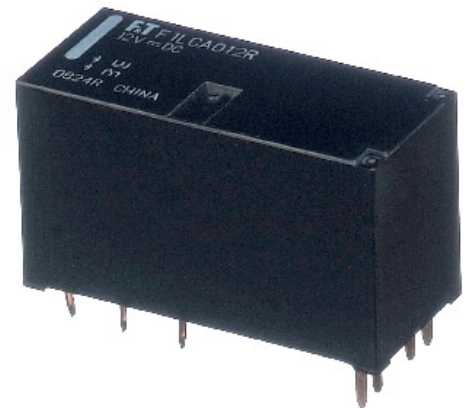
# POWER RELAY

## 2 POLES - 8A Polarized Latching Relay

### FTR-F1L Series

#### ■ FEATURES

- Low profile (height: 16.5mm)
- High insulation  
Insulation distance (between coil and contacts): 8mm min.  
Dielectric strength: 5KV  
Surge strength: 10KV
- Plastic materials  
- UL94 Flammability class V-0
- Cadmium free relay
- RoHS compliant  
Please see page 4 for more information



#### ■ PARTNUMBER INFORMATION

[Example]      FTR-F1    L    D    C    A    012    R  
                          (a)    (b)    (c)    (d)    (e)    (f)    (g)

(a)	Relay type	FTR-F1L: FTR-F1L Series
(b)	Operating function	L : Latching type
(c)	Coil type	Nil : 1 Coil D : 2 Coil
(d)	Contact configuration	A : 2 form A C : 2 form C
(e)	Coil power	A : Standard, 400mW (1Coil) 600mW (2 Coil)
(f)	Coil rated voltage	012 : 5.....24 VDC Coil data table at page 2
(g)	Contact rating	R : 8A

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

E.g.: Ordering code: FTR-F1LDCA012R      Actual marking: F1LDCA012R

# FTR-F1L SERIES

## ■ SPECIFICATION

Item	FTR-F1L	
Contact Data	Configuration	2 form A, 2 form C
	Construction	Single
	Material	AgSnO <sub>2</sub>
	Resistance (initial)	Max. 100mOhm at 1A, 6VDC
	Contact rating	8A, 250VAC / 24VDC
	Max. carrying current	8A
	Max. switching voltage	400VAC, 300VDC
	Max. switching power	2,000VA, 192W
	Min. switching load *	10mA, 5VDC
Life	Mechanical	Min. 3 x 10 <sup>6</sup> operations
	Electrical	Min. 50 x 10 <sup>3</sup> operations
Coil Data	Rated power (20 °C)	1 coil : 400mW 2 coils: 600mW
	Operating temperature range	-40 °C to +85 °C (no frost)
Timing Data	Set / reset (at nominal voltage)	Max. 15ms (no diode, no bounce)
	Coil excitation (at nominal coil voltage)	Max. 30ms (no diode, no bounce)
Insulation	Resistance (initial)	Min. 1,000MOhm at 500VDC
	Dielectric strength	Open contacts 1,000VAC, 1min. 50/60Hz
		Adjacent contacts 3,000VAC, 1min. 50/60Hz
		Coil to contacts 5,000VAC, 1 min. 50/60Hz
	Surge strength	coil to contacts 10,000V/ 1.2 x 50µs standard wave
	Clearance	8mm
	Creepage	8mm
Other	Vibration resistance	Misoperation >1µs 10 to 55Hz double amplitude 1.65 mm
		Endurance 10 to 55Hz double amplitude 3.3 mm
	Shock	Misoperation >1µs Min. 200m/s <sup>2</sup> (11±1ms)
		Endurance Min. 1,000m/s <sup>2</sup> (6±1ms)
	Weight	Approximately 13g

\* 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 DATA

Coil Code	1 coil			2 coils		
	Operating range		Coil Resistance +/- 10% (Ohm)	Operating range		Coil Resistance +/- 10% (Ohm)
	Min. VDC	Max. VDC		Min. VDC	Max. VDC	
5	3.5	9	62.5	3.5	9	41.7
12	8.4	21.2	360	8.4	21.2	240
24	16.8	42.2	1,440	16.8	42.2	960

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

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

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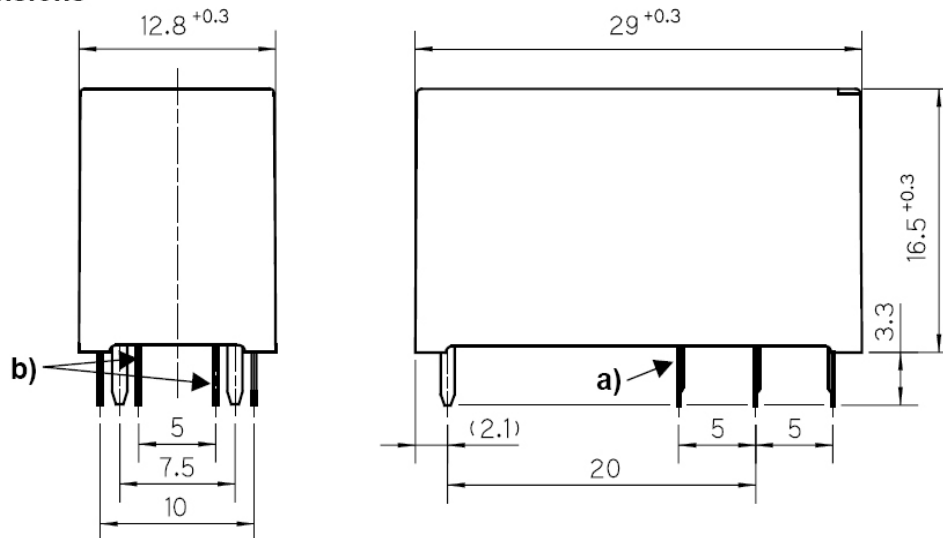
# FTR-F1L SERIES

## ■ COIL POLARITY

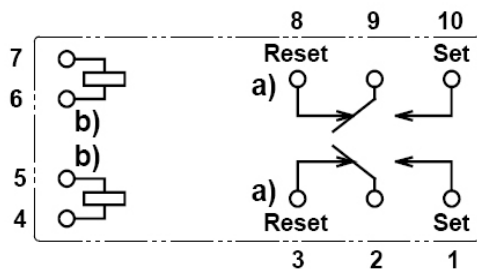
Version	1 coil		2 coils			
Coil terminal division	4	7	4	5	6	7
Set	-	+			-	+
Reset	+	-	+	-		

## ■ DIMENSIONS

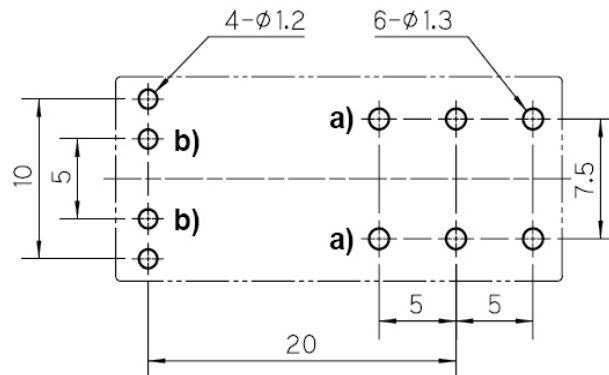
### ● Dimensions



### ● Schematics (BOTTOM VIEW)



### ● PC board mounting hole layout (BOTTOM VIEW)



a) for 2 form C version only  
b) for 2 coils version only

Unit : mm

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## 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.

**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, 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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