

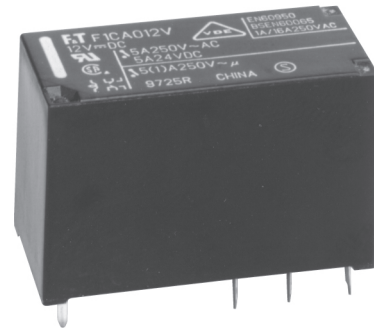
# POWER RELAY

## 2 POLES - 8A Low Profile Type

### FTR-F1 R Series

#### ■ FEATURES

- DPST/DPDT 8A
  - Low profile power relay (height 16.5 mm) employing unique construction
  - High insulation by employing reinforced insulation construction  
Insulation distance: 8 mm (between coil and contact)  
Dielectric strength: 5 kV (between coil and contact)  
Surge strength: 10 kV (between coil and contact)
  - Pin configuration compatible to VB
  - UL, CSA, VDE, SEMKO, CQC recognized
  - Flux proof sealing, RTII
  - RoHS Compliant
- Please see page 6 for more information



Note: Image of standard FTR-F1 relay

#### ■ PARTNUMBER INFORMATION

[Example]      FTR-F1    A    L    005    R    -    RG  
                      (a)    (b)    (c)    (d)    (e)    (f)

(a)	Relay type	FTR-F1 : FTR-F1 Series
(b)	Contact configuration	A : 2 form A (SPST-NO) C : 2 form C (DPDT)
(c)	Coil type	L : High sensitive type (400mW)
(d)	Coil rated voltage	005 : 3...48VDC Coil rating table at page 3
(e)	Contact rating	R : 8A
(f)	Special type	RG : Transparent cover type

Actual marking does not carry the type name : "FTR"  
E.g.: Ordering code: FTR-F1AL005R      Actual marking: F1AL005R

# FTR-F1 SERIES

## ■ SPECIFICATION

Item			Standard type F1 (A, C) L ( ) R	Transparent cover F1 (A, C) L ( ) R - RG
Contact Data	Configuration		2 form A (DPST-NO), 2 form C (DPDT)	
	Construction		Single	
	Material		Movable: gold plate silver tin oxide; Stationary: Silver tin oxide	
	Resistance (initial)		Max. 100mOhm at 1A, 6VDC	
	Contact rating		8A, 250VAC / 24VDC	
	Max. carrying current *1		8A	
	Max. switching voltage		400VAC/ 300VDC	
	Max. switching power		2,000VA, 192W	
	Min. switching load *2		10mA, 5VDC	
Life	Mechanical		Min. 20x 10 <sup>6</sup> operations	
	Electrical	AC load	Min. 50 x 10 <sup>3</sup> operations	
		DC load	Min. 50 x 10 <sup>3</sup> operations	
Coil Data	Rated Power (at 20 ° C)		400mW	
	Operate Power (at 20 ° C)		225mW	
	Operating temperature range		-40 to +75 °C (no frost)	-40 to +70 °C (no frost)
Timing Data	Operate (at nominal voltage)		Max. 15ms (no diode, without bounce)	
	Release (at nominal voltage)		Max. 5ms (no diode, without bounce)	
Insulation	Resistance (Initial)		Min. 1,000MOhm at 500VDC	
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1min.	
		Coil and contacts	5,000VAC (50/60Hz) 1min.	
		Adjacent contacts	3,000VAC (50/60Hz) 1 min.	
	Surge strength	Coil and contacts	10.000V/ 1.2 x 50μs standard wave	
	Clearance		8 mm	
	Creepage		8 mm	
	EN61810-1, VDE0435	Voltage	250V	
		Pollution degree	3	
		Material group	IIIa	
		Category	C / 250V (reference voltage) (VDE0110b)	
Other	Vibration Resistance	Misoperation	10 to 55Hz double amplitude 1.65mm	
		Endurance	10 to 55Hz double amplitude 3.3mm	
	Shock	Misoperation	Min. 100 m/s <sup>2</sup> (11 ± 1ms)	
		Endurance	Min. 1,000 m/s <sup>2</sup> (6 ± 1ms)	
	Weight		Approximately 13 g	
	Sealing		Flux proof, RTII	

\*1 At carry currents > 10A PCB layout need to be considered.

\*2 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-F1 SERIES

## ■ COIL RATING

400mW 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	22.5	2.25	0.3	6	400
005	5	62	3.75	0.5	10	
006	6	90	4.5	0.6	12	
009	9	202	6.75	0.9	18	
012	12	360	9	1.2	24	
024	24	1,440	18	2.4	48	
048	48	5,760	36	4.8	96	

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

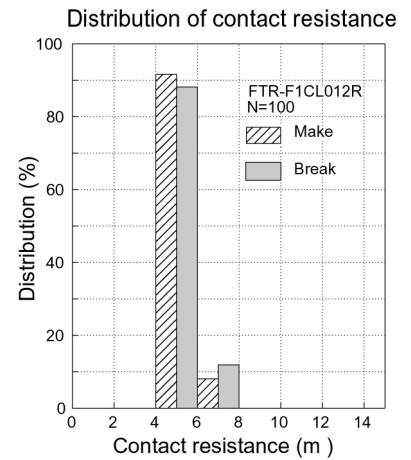
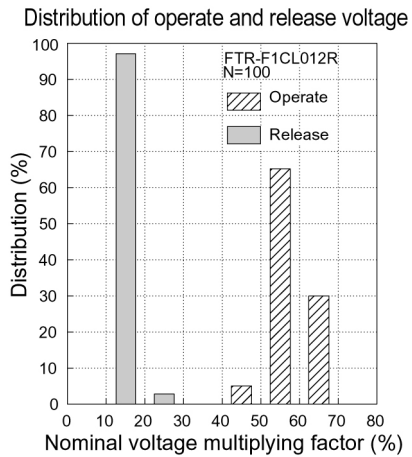
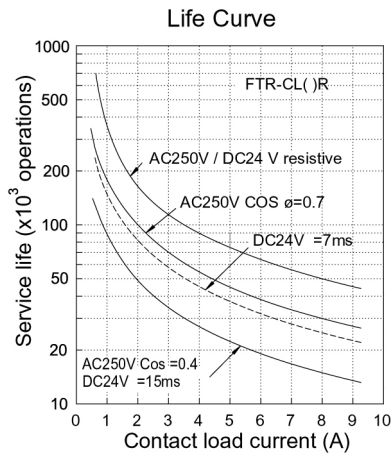
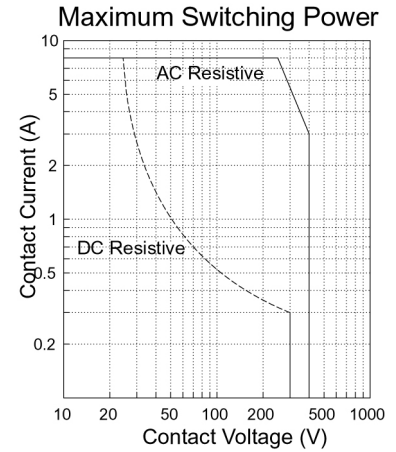
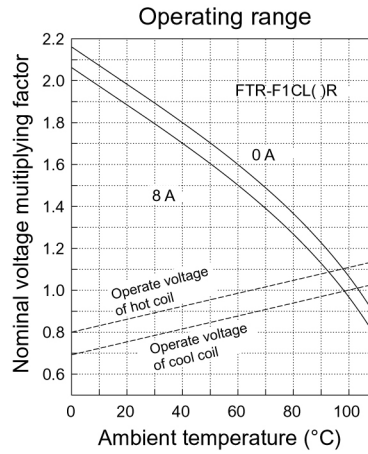
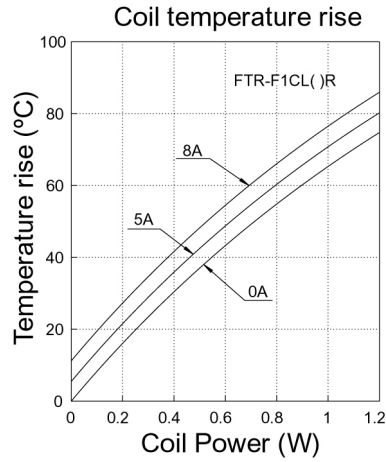
Type	Compliance	Contact rating
UL	UL 508	Flammability: UL 94-V0 (plastics)
	E63614	8A, 24VDC (resistive) 8A, 250 VAC (resistive)
CSA	C22.2 No. 14 LR 40304	1/6 HP, 125VAC 1/4 HP, 250VAC Pilot duty: C300, R300
VDE	0435, 0631, 0700, 0860 40013858	8A, 250 VAC (cosφ=1) 8 A 24VDC (0ms)

Complies with BSI, IMC, CQC

# FTR-F1 SERIES

## CHARACTERISTIC DATA

### 8A Rating type

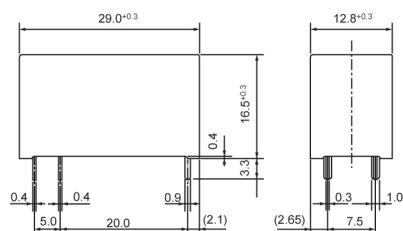


# FTR-F1 SERIES

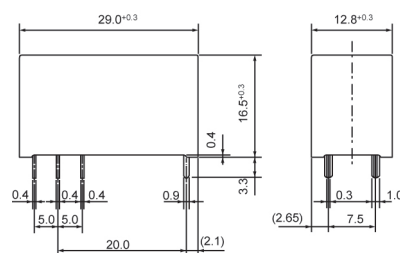
## ■ DIMENSIONS

### ● Dimensions

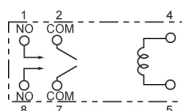
FTR-F1A type



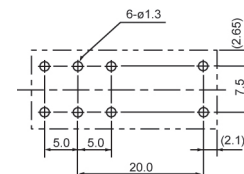
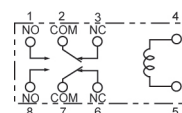
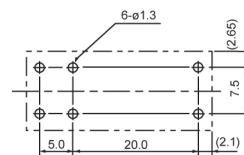
FTR-F1C type



### ● Schematics (BOTTOM VIEW)



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



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 2002/95/EC 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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