

# POWER RELAY

## 1 POLE - 16A / Inrush 80A type

### FTR-K1L Series

#### ■ FEATURES

- Low profile
    - Height: 15.7 mm
  - Inrush peak current up to 80A (TV-5)
  - High insulation between coil and contacts:
    - Insulation distance: 10 mm
    - Dielectric strength: 5,000VAC
    - Surge strength: 10,000V
  - Plastic materials
    - UL94 flammability class V-0
  - Cadmium free relay
  - RoHS compliant
- Please see page 5 for more information



#### ■ PARTNUMBER INFORMATION

[Example]      FTR-K1    L    D    C    K    012    W  
                          (a)    (b)    (c)    (d)    (e)    (f)    (g)

(a)	Relay type	FTR-K1 : FTR-K1 Series	
(b)	Operating function	L	: Latching type
(c)	Coil type	Nil D	: 1 coil : 2 coils
(d)	Contact configuration	A C	: 1 form A : 1 form C
(e)	Coil power / Enclosure	K	: Standard / Flux free
(f)	Coil rated voltage	012	: 5.....24 VDC Coil rating table at page 3
(g)	Contact material	W T	: AgSnO <sub>2</sub> (in combination with 1 form C type only) : AgSnO <sub>2</sub> (in combination with 1 form A type only, TV-5 rated)

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

E.g.: Ordering code: FTR-K1LDCK012W      Actual marking: K1LDCK012W

# FTR-K1L SERIES

## ■ SPECIFICATION

Item			FTR-K1L ( ) AK ( ) T	FTR-K1L ( ) CK ( ) W
Contact Data	Configuration		1 form A	1 form C
	Construction		Single	
	Material		AgSnO <sub>2</sub>	
	Resistance (initial)		≤ 100mOhm at 1A, 6VDC	
	Contact rating		16A, 250VAC	
	Max. carrying current *1		16A	
	Max. switching voltage		440VAC	
	Max. switching power		4,000VA	
	Limited making capacity		80A (type T contact material)	
	Min. switching load *2		10 mA, 5VDC	
Life	Mechanical		3 x 10 <sup>6</sup> operations minimum	
	Electrical	Contact rating	100 x 10 <sup>3</sup> operations min.	50 x 10 <sup>3</sup> operations min.
		5/80A 250VAC (inrush)	25 x 10 <sup>3</sup> operations minimum (N.O. contact)	
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 (at nominal voltage)		≤ 15ms (no diode, excluding bounce)	
	Reset (at nominal voltage)		≤ 15ms (no diode, excluding bounce)	
	Min. coil excitation time (at nominal voltage)		30ms	
Insulation	Resistance (initial)		≥ 1,000MOhm at 500VDC	
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1min	
		Contacts to coil	5,000VAC (50/60Hz) 1min	
	Surge strength	Coil to contacts	10,000V / 1.2 x 50μs standard wave	
Other	Vibration resistance	Misoperation ≥ 1μs	10 to 55Hz double amplitude 0.7mm	
		Endurance	10 to 55Hz double amplitude 1.5mm	
	Shock	Misoperation ≥ 1μs	Min. 100m/s <sup>2</sup> (11±1ms)	
		Endurance	Min. 1,000m/s <sup>2</sup> (6±1ms)	
	Weight		Approximately 13g	

\*1 Need to consider the heat from PCB when max. current is more than 10A.

\*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-K1L SERIES

## ■ COIL RATING

Coil Code	Rated Coil Voltage (VDC)	1 coil		2 coils	
		Operating voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Operating voltage (VDC)	Coil Resistance +/- 10% (Ohm)
005	5	3.5	63	3.5	42
012	12	8.4	360	8.4	240
024	24	16.8	1,440	16.8	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.

## ■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508	Flammability: UL 94-V0 (plastics) 16A, 250VAC, resistive 100,000 operations (1 form A) 16A, 250VAC, resistive 50,000 operations (1 form C)
CSA	C22.2 No. 14	
VDE	0435, 0631, 0860	

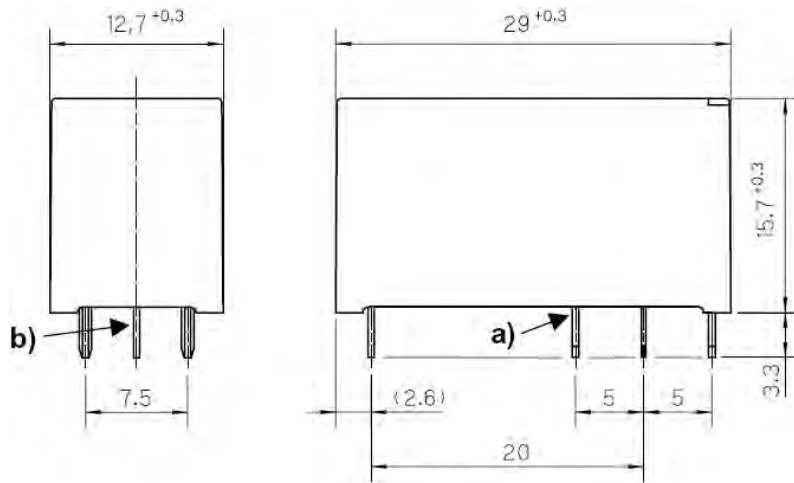
# FTR-K1L SERIES

## ■ COIL POLARITY

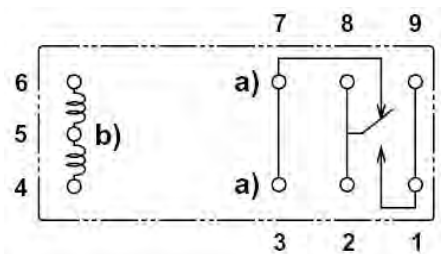
Version	1 coil		2 coils		
Terminal No.	4	6	4	5	6
Set	-	+	-	+	
Reset	+	-		+	-

## ■ DIMENSIONS

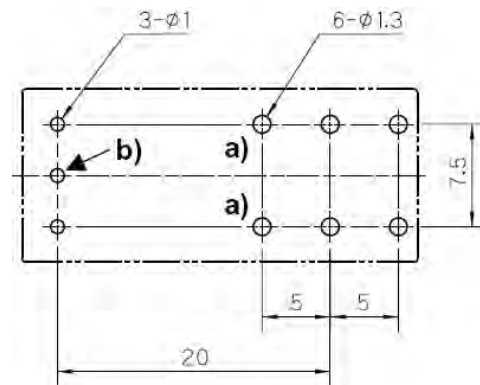
### ● Dimensions



### ● Schematics (BOTTOM VIEW)



### ● PC board mounting hole layout



Unit: mm

a) for 1 form C version only  
b) for 2 coils version only

## 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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