

# POWER RELAY

## 1 POLE - 16A Sealed Type

### FTR-K1 Series

#### ■ FEATURES

- 1 pole
  - 16A
  - 1 form A / 1 form C
  - Coil sensitive 400mW
  - High insulation in small package (between coil and contacts)
    - Insulation distance: 10mm min.
    - Dielectric strength: 5,000VAC
    - Surge strength: 10,000V
  - Conform to UL1446 Class F coil insulation system
  - Cadmium free contacts
  - Sealed type, RTIII
  - RoHS compliant
- Please see page 7 for more information



#### ■ PARTNUMBER INFORMATION

[Example]      FTR-K1   C   K   005   W   -   KW  
                   (a)    (b)   (c)   (d)   (e)            (f)

(a)	Relay type	FTR-K1: FTR-K1 Series
(b)	Contact configuration	A : 1 form A C : 1 form C
(c)	Coil type	K : Standard type (400mW)
(d)	Coil rated voltage	005 : 5.....48 VDC Coil rating table at page 3
(e)	Contact material	W : AgSnO <sub>2</sub>
(f)	Special type	KW : Sealed type, RTIII

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

E.g.: Ordering code: FTR-K1CK005W-KW    Actual marking: K1CK005W-KW

# FTR-K1 SERIES

## ■ SPECIFICATION

16A type

Item	FTR-K1 CK ( ) W-KW		FTR-K1 AK ( ) W-KW
Contact Data	Configuration		1 form C
	Construction		Single
	Material		AgSnO <sub>2</sub>
	Resistance (initial)		Max. 100mOhm at 1A, 6VDC
	Contact rating (resistive)		16A, 250VAC
	Max. carrying current * <sup>1</sup>		20A
	Max. switching voltage		440VAC
	Max. switching power		4,000VA
	Min. switching load * <sup>2</sup>		100mA, 5VDC
Life	Mechanical		Min. 20 x 10 <sup>6</sup> operations
	Electrical	Rating resistive load	Min. 10 x 10 <sup>3</sup> operations    Min. 20 x 10 <sup>3</sup> operations
Coil Data	Rated power (20 °C)		400 / 430 mW
	Operating temperature range		-40 °C to +105 °C (no frost)
Timing Data	Operate (at nominal voltage)		Max. 15ms (without bounce, no diode)
	Release (at nominal voltage)		Max. 5ms (without bounce, no diode)
Insulation	Resistance (initial)		Min. 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
	Clearance		10mm
	Creepage		10mm
	EN61810-1, VDE0435	Voltage	250
		Pollution degree	3
		Material group	III a
	Category	C / 250V	
Other	Vibration resistance	Misoperation≥1us	10 to 55Hz double amplitude 0.7mm
		Endurance	10 to 55Hz double amplitude 1.5mm
	Shock	Misoperation≥1us	100m/s <sup>2</sup> (11 ± 1ms)
		Endurance	1,000m/s <sup>2</sup> (6 ± 1ms)
	Weight		Approximately 13g
	Sealing		RTIII

\* 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-K1 SERIES

## ■ COIL RATING

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)
005	5	62	3.5	0.5	12.2	400
006	6	90	4.2	0.6	14.7	
009	9	202	6.3	0.9	22.0	
012	12	360	8.4	1.2	29.4	
018	18	810	12.6	1.8	44.1	
022	22	1210	15.4	2.2	53.9	
024	24	1440	16.8	2.4	58.8	
028	28	1960	19.6	2.8	68.6	
048	48	5360	33.6	4.8	117.6	430

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

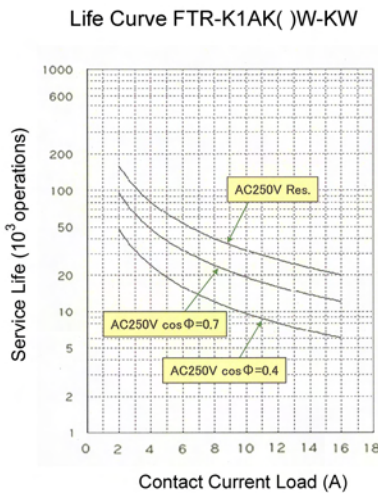
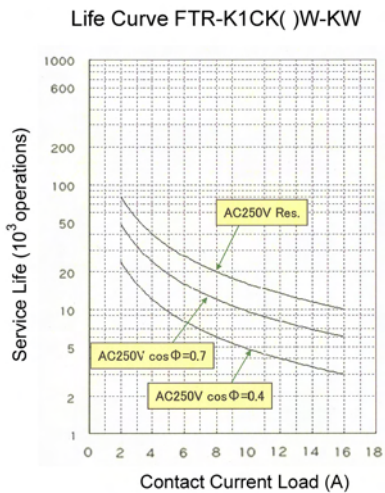
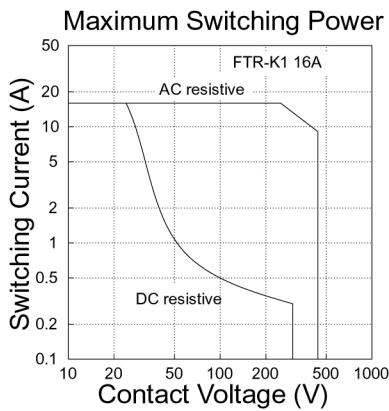
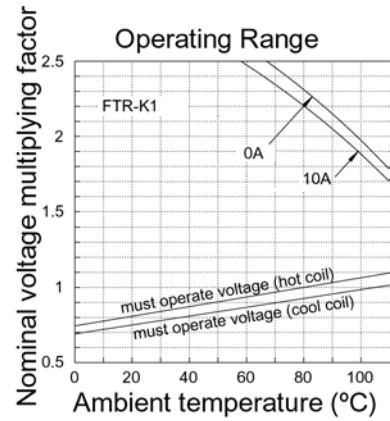
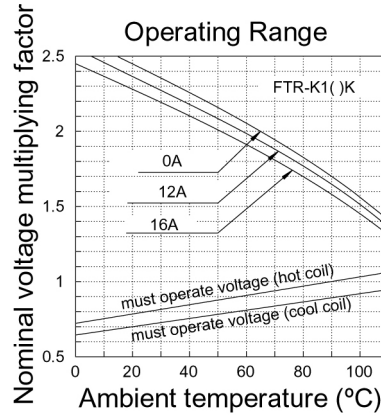
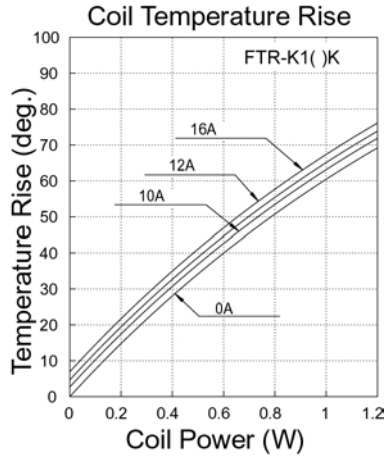
\* Specified operate values are valid for pulse wave voltage.

## ■ SAFETY STANDARDS

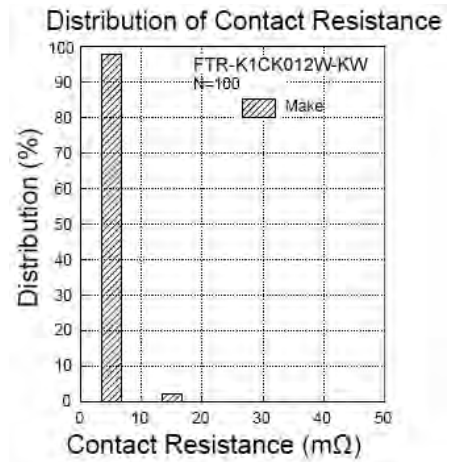
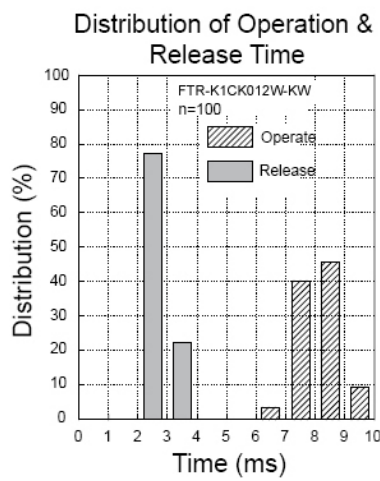
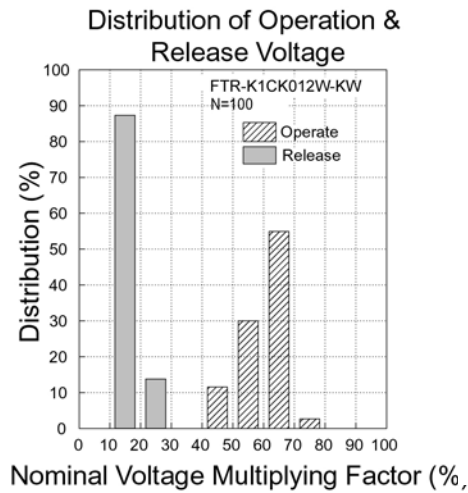
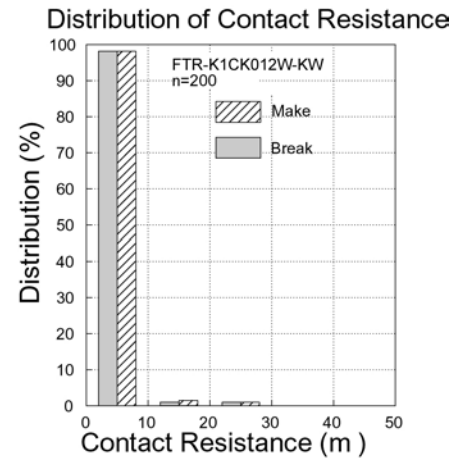
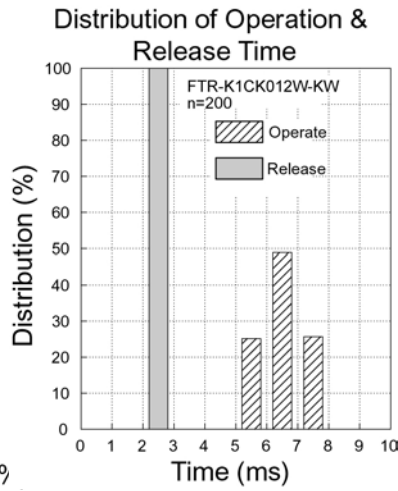
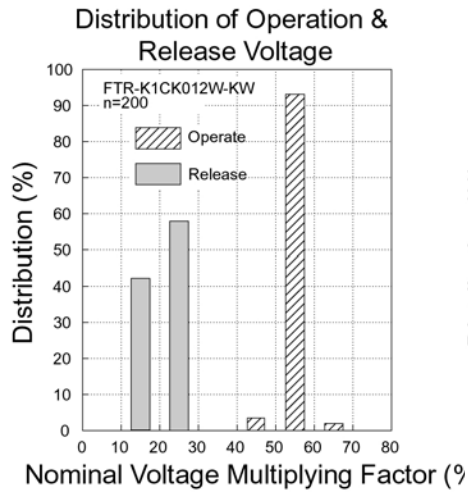
Type	Compliance	Contact rating
UL	508 E 63614	Flammability: UL 94-V0 (plastics)
VDE	0435; 40013848	16A, 250VAC cos φ=1 85 °C 10.000 ops. (1 form A type)

# FTR-K1 SERIES

## CHARACTERISTIC DATA



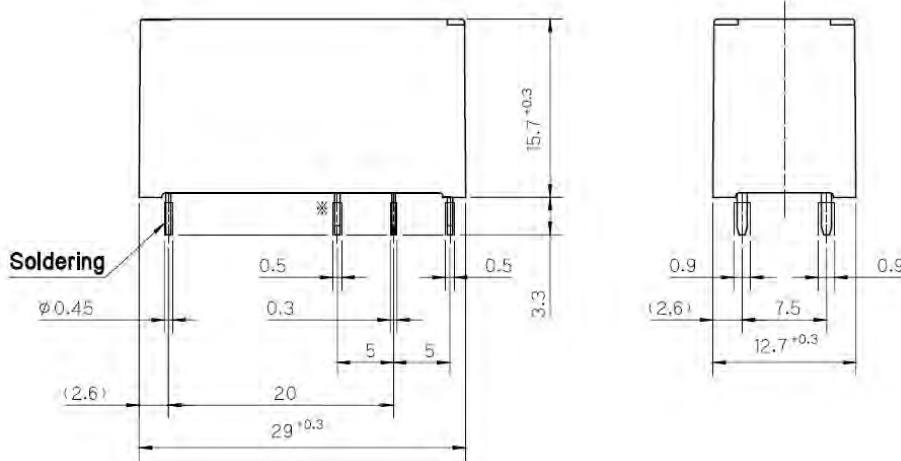
# FTR-K1 SERIES



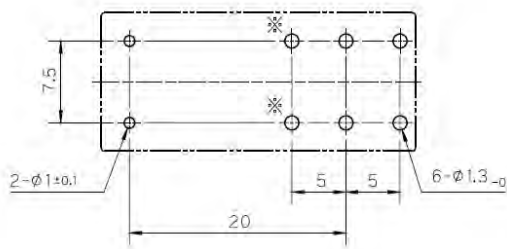
# FTR-K1 SERIES

## ■ DIMENSIONS

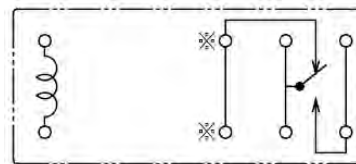
### • Dimensions



### • Drilling plan (BOTTOM VIEW)



### • Wiring diagram (BOTTOM VIEW)



Unit: mm

Note: In case of 1 form A, there is no "stationary" contact arm.

## 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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