

# POWER RELAY

## 1 POLE - 10A High sensitivity

### FTR-K1 Series

#### ■ FEATURES

- Low profile (height: 15.7mm)
  - HIGH INSULATION  
Insulation distance (between coil and contacts): 10mm min.  
Dielectric strength: 5KV  
Surge strength: 10KV
  - Low coil power (400mW)
  - Cadmium free contacts
  - SAFETY STANDARDS  
UL, CSA, VDE, SEMKO approved  
UL, CSA TV-5 rating approved (1 form A type)
  - UL F class wire insulation
  - Flux proof, RTII
  - RoHS compliant
- Please see page 6 for more information



#### ■ PARTNUMBER INFORMATION

[Example]      FTR-K1   A   L   012   W   -   LA   -   BG  
                      (a)   (b)   (c)   (d)   (e)   (f)   (g)

(a)	Relay type	FTR-K1: FTR-K1 Series
(b)	Contact configuration	A : 1 form A (SPST-NO) C : 1 form C (SPDT)
(c)	Coil type	L : High sensitivity (200mW) / flux proof
(d)	Coil rated voltage	012 : 5....48VDC Coil rating table at page 3
(e)	Contact material / TV type	W : AgSnO <sub>2</sub>
(f)	Terminal pitch	LA : 10A High sensitive (250mW) 3.5mm pitch LB : 10A High sensitive (250mW) 5.0mm pitch (only 1 form A type)
(g)	Special type	Nil : Standard type (without gold plate) BG : Gold plated 3 μm

Actual marking does not carry the type name : "FTR"  
E.g.: Ordering code: FTR-K1AL012W-LA      Actual marking: K1AL012W-LA

深圳市晶伟斯科技有限公司

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# FTR-K1 SERIES

## ■ SPECIFICATION

Item	FTR-K1 (A, C) L ( ) W - (LA, LB)	
Contact Data	Configuration	1 form A, 1 form C
	Construction	Single
	Material	AgSnO <sub>2</sub>
	Resistance (initial)	Max. 100mOhm at 1A, 6VDC
	Contact rating (resistive)	10A, 250VAC
	Max. carrying current *1	14A
	Max. switching voltage	440VAC
	Max. switching power	2,500VA
	Min. switching load *2	100mA, 5VDC
Life	Mechanical	Min. 20 x 10 <sup>6</sup> operations
	Electrical	AC contact rating Min. 100 x 10 <sup>3</sup> operations (-LA) Min. 150 x 10 <sup>3</sup> operations (-LB)
Coil Data	Rated power (20 °C)	250mW
	Operate power (20 °C)	141mW
	Operating temperature range	-40 °C to +85 °C (no frost), (LB: -40 °C to +105 °C)
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 250V
		Pollution degree 3
		Material group III a
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	Flux proof, RTII

\* 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

# 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	100	3.75	0.5	15	250
006	6	145	4.5	0.6	18	
009	9	325	6.75	0.9	27	
012	12	575	9	1.2	36	
018	18	1,300	13.5	1.8	54	
024	24	2,310	18	2.4	72	
048	48	9,216	36	4.8	144	

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

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

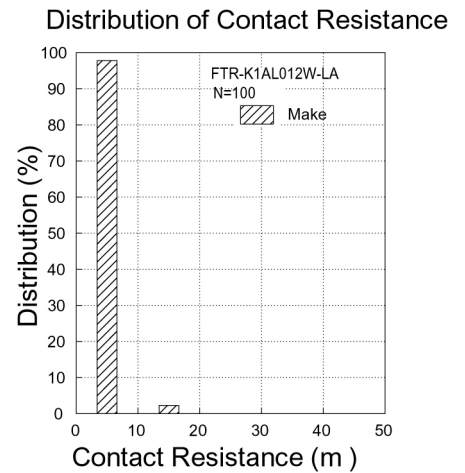
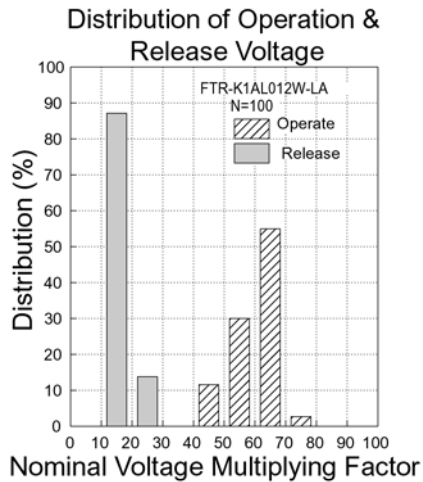
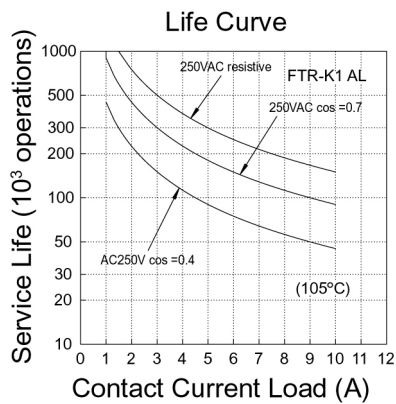
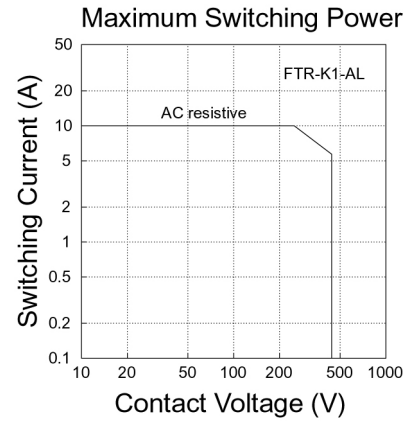
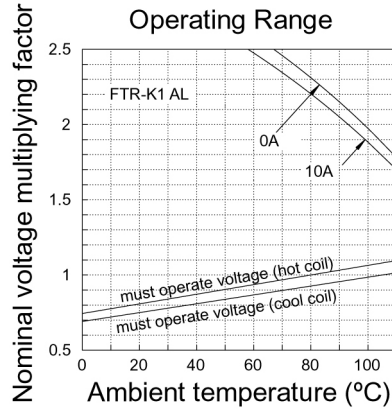
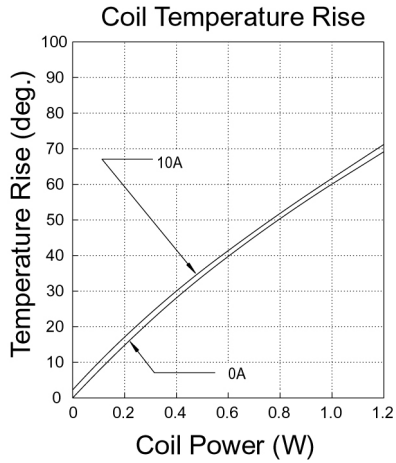
## ■ SAFETY STANDARDS

Type	Compliance	Contact rating	
		FTR-K1AL( )W-LA, -LB	FTR-K1CL( )W-LA
UL	UL 508	Flammability: UL 94-V0 (plastics)	
	E63614	10A, 277VAC (resistive) 1/3HP, 125VAC	10A, 277VAC (resistive)
CSA	C22.2 No. 14 LR 40304	1/2HP, 277VAC Pilot duty: B300	
VDE	0435, 0631, 0700, 0860	10A, 250VAC, 150,000 cycles -LA: 85 °C, -LB: 105 °C 3A, 250VAC, (cosφ=0.4) 100,000 cycles -LA: 85 °C, -LB: 105 °C	10A, 250VAC, 100,000 cycles, 85 °C
SEMKO	EN 61058-1:1992 and A1 EN 61095:1993 and A1+A11	250VAC, 10(3)A 40T85 (-LA) 250VAC, 10(3)A 40T105 (-LB)	250VAC, 10(3)A, 40T85, (-LA)

Complies with NEMKO, DEMKO, FIMKO

# FTR-K1 SERIES

## ■ CHARACTERISTIC DATA

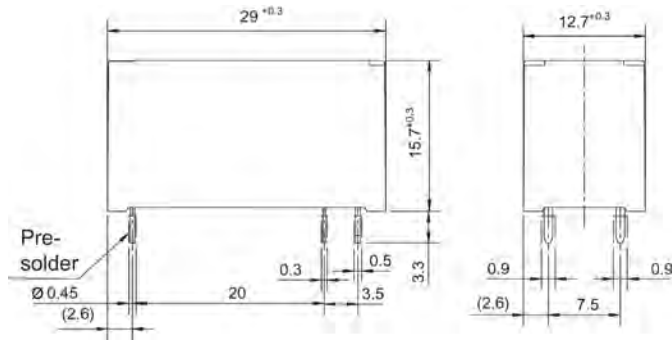


# FTR-K1 SERIES

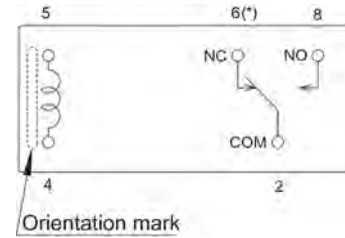
## ■ DIMENSIONS

### • Dimensions

FTR-K1 (A, C) L ( ) W-LA

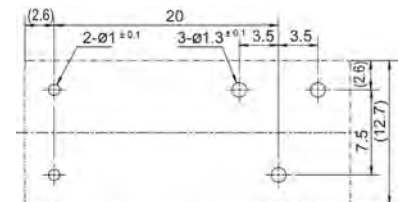


### • Schematics (BOTTOM VIEW)



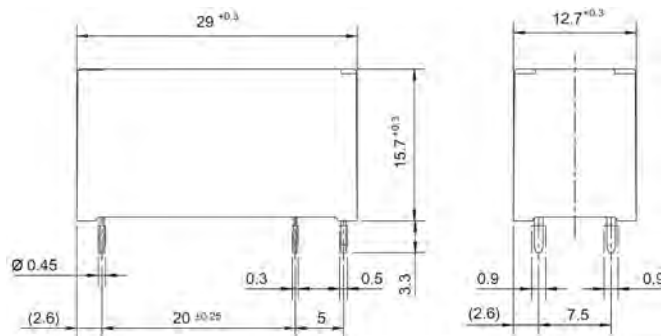
\* Pin omitted in case of 1 form A type

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

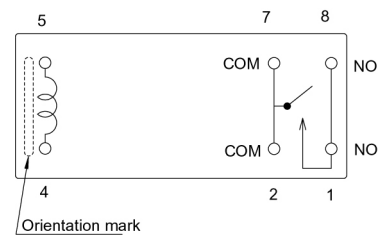


### • Dimensions

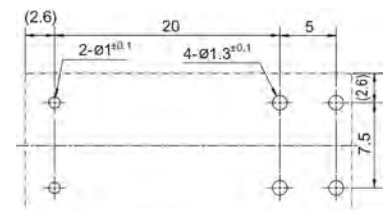
FTR-K1AL ( ) W-LB



### • Schematics (BOTTOM VIEW)



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



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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