

# POWER RELAY

## 1 POLE - 16A Relay

### FTR-K2 Series

#### ■ FEATURES

- SPST-NO
- High insulation  
Insulation distance: minimum 6mm between coil and contact  
Dielectric strength: 4KV  
Surge strength: 10KV
- TV-5 rating or TV-8 (-TH)
- Heat resistance, flammability class B (130°C) wire class, flammability 94V-0
- Cadmium free contact for eco-program
- Safety standards  
UL, CSA, VDE approved  
UL/CSA TV-5 or TV-8 (-TH) rating available
- Flux proof sealing, RTII
- RoHS compliant  
Please see page 6 for more information



#### ■ PARTNUMBER INFORMATION

[Example]      FTR-K2    A    K    012    T    -    OK  
                   (a)    (b)    (c)    (d)    (e)    (f)

(a)	Relay type	FTR-K2	: FTR-K2-Series
(b)	Contact configuration	A	: 1 form A (SPST-NO)
(c)	Coil type	K	: Standard type (530mW)
(d)	Coil rated voltage	012	: 5.....48 VDC Coil rating table at page 3
(e)	Contact material / TV type	T	: Silver-tin oxide / TV-5
(f)	Special type	None TH OK	: Standard (TV-5) : TV-8 rating : 1.0mm contact gap

Actual marking does not carry the type name : "FTR"  
 E.g.: Ordering code: FTR-K2AK012T      Actual marking: K2AK012T

## ■ SPECIFICATION

Item	FTR-K2AK ( ) T		
Contact Data	Configuration	1 form A (SPST-NO)	
	Construction	Single	
	Material	Silver alloy	
	Resistance (initial)	Max. 100mΩ at 1A, 6VDC	
	Contact rating (resistive)	250VAC / 30VDC / 16A	
	Max. carrying current	16A	
	Inrush current	78A 250VAC (-TH: 117A 250VAC)	
	Max. switching voltage	400VAC / 300VDC	
	Max. switching power	4,000VA / 480W	
	Min. switching load*	100mA, 5VDC	
Life	Mechanical	Min. 2 × 10 <sup>6</sup> operations	
	Electrical	DC contact rating	Min. 100 × 10 <sup>3</sup> operations
		AC contact rating	Min. 100 × 10 <sup>3</sup> operations
		Lamp load (TV-5)	Min. 25 × 10 <sup>3</sup> operations (-TH: at TV-8)
Coil Data	Rated power (20 °C)	530mW	
	Operate power (20 °C)	260mW	
	Operating temperature range	-40 °C to +70 °C (no frost)	
Timing Data	Operate (at nominal voltage)	Max. 15ms (without bounce)	
	Release (at nominal voltage)	Max. 5ms (without bounce)	
Insulation	Resistance (initial)	Min. 1,000MΩ at 500VDC	
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1min
		Contacts to coil	4,000VAC (50/60Hz) 1min
	Surge strength	Coil to contacts	10,000V / 1.2 × 50μs standard wave
	Clearance		6mm
	Creepage		6mm
	EN61810-1, VDE0435	Voltage	250V
		Pollution degree	3
		Material group	III a
	Category	B / 250V	
Other	Vibration resistance	Misoperation>1us	10 to 55 to 10Hz single amplitude 0.75mm
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm
	Shock	Misoperation>1us	200m/s <sup>2</sup> (11 ± 1ms)
		Endurance	1,000m/s <sup>2</sup> (6 ± 1ms)
	Weight		Approximately 13g
	Sealing		Flux proof (RT II)

\* 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.

Care shall be taken on the heat generated on PC board when maximum carrying current exceeds 10A. Please perform the confirmation test with actual conditions.

## ■ COIL RATING

### ● Standard, -OK

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release-Voltage (VDC) *	Rated Power (mW)
003	3	17	2.1	0.15	530
005	5	47	3.5	0.25	
006	6	68	4.2	0.3	
009	9	155	6.3	0.45	
012	12	270	8.4	0.6	
018	18	610	12.6	0.9	
024	24	1,110	16.8	1.2	
048	48	4,400	33.6	2.4	

### ● -TH (TV-8 rating)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release-Voltage (VDC) *	Rated Power (mW)
003	3	17	2.25	0.15	530
005	5	47	3.75	0.25	
006	6	68	4.5	0.3	
009	9	155	6.75	0.45	
012	12	270	9	0.6	
018	18	610	13.5	0.9	
024	24	1,110	18	1.2	
048	48	4,400	36	2.4	

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

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

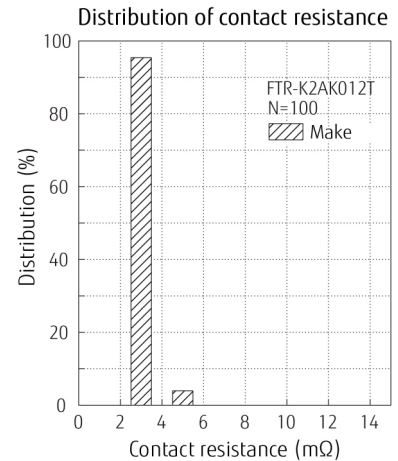
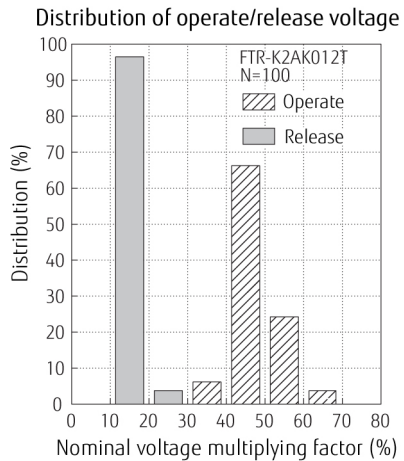
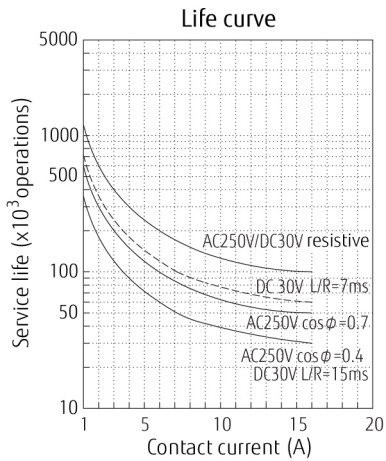
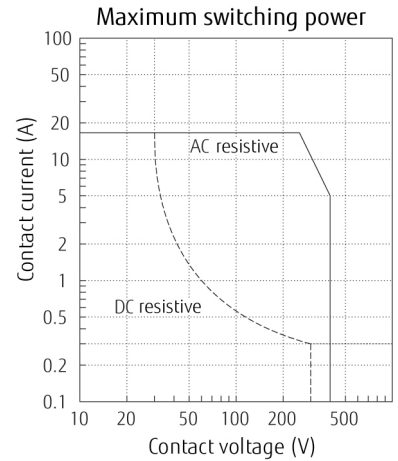
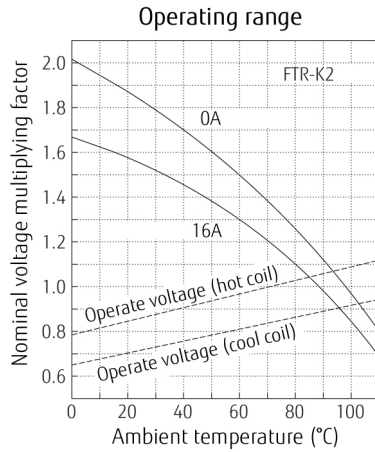
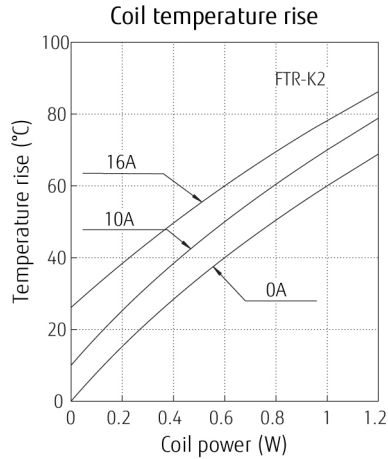
Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

## ■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508	Flammability: UL 94-V0 (plastics)
	E63614	16A, 30VDC (resistive) 15A, 140VAC (resistive)
CSA	C22.2 No. 14 LR 40304	10A, 277VAC (resistive) 1/2 HP, 125VAC (UL), 1/3 HP 125VAC (CSA) TV-5, 120 VAC, (-TH: TV-8, 120VAC) Pilot duty: A300 (UL), C300 (CSA)
		16A, 250 VAC (cosφ=1) 8A, 250 VAC cosφ=0.4 16A, 30 VDC (0ms) 250VAC 5/80A inrush (-TH: 8/120A inrush)
VDE	IEC/EN61810-1 EN60065 clause 14.6.1	
CQC	GB/T21711-1, GB15092-1 03001008195	<FTR-K2AK( )T> 16A 250VAC

## CHARACTERISTIC DATA

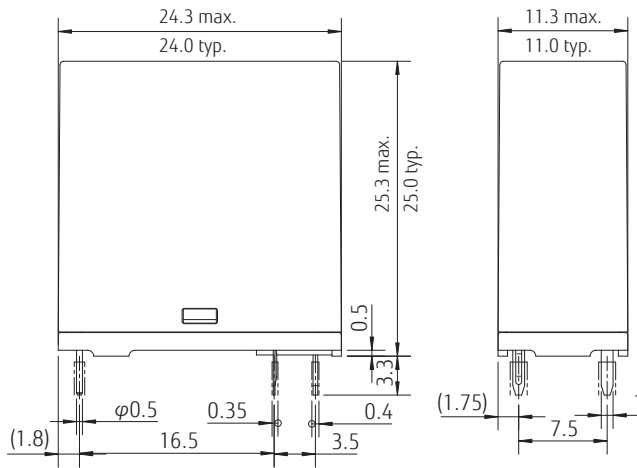
(Characteristic data is not guaranteed value but measured values of samples from production line.)



# FTR-K2 SERIES

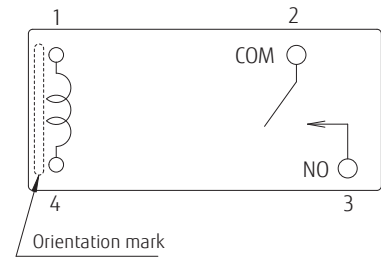
## ■ DIMENSIONS

### ● Dimensions



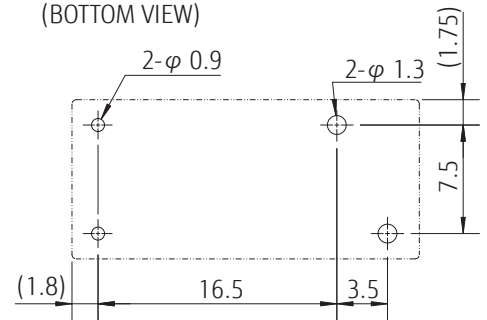
### ● Schematics

(BOTTOM VIEW)



### ● PC board mounting hole layout

(BOTTOM VIEW)



\* Dimensions of the terminals do not include thickness of pre-solder.

\* Tolerance of PC board mounting hole layout :  $\pm 0.1$  unless otherwise specified.

Unit: mm

## CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- Reflow soldering is prohibited.
- Do not use relays in the atmosphere with sulfide gas, chloride gas or nitric oxide. Contact resistance may increase.
- Do not use silicon or silicon-containing product or materials near relays. It may cause contact failure.

## GENERAL INFORMATION

### 1. ROHS Compliance

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU, including commission delegated directive 2015/863.

### 2. Recommended lead free solder condition

- 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.
- Recommended solder for assembly: Sn-3.0Ag-0.5Cu.

#### Flow Solder Condition:

Pre-Heating: maximum 120 °C  
within 90 sec.

Soldering: dip within 5 sec. at 255°C±5°C solder bath

Relay must be cooled by air immediately after soldering

#### Solder by Soldering Iron:

Soldering Iron: 30-60W

Temperature: maximum 340-360 °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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