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
- Heat resistance, flammability class B (130℃) wire class, flammability 94V-0
- Cadmium free contact for eco-program
- Safety standards
  UL, CSA, VDE approved
  UL/CSA TV-5 rating approved
- Flux proof sealing, RTII
- RoHS compliant

■ PARTNUMBER INFORMATION

[Example] FTR-K2 (a) A (b) K (c) 012 (d) T (e) - 0K (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....48VDC See coil data chart
(e)	Contact material / TV type	T	: Silver-tin oxide / TV-5
(f)	Special type	None TH 0K	: 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

■ SPECIFICATIONS

Item			FTR-K2AK( )T
Contact data	Configuration		1 form A (SPST-NO)
	Construction		Single
	Material		Silver tin oxide ($AgSnO_2$)
	Resistance (initial)		Max. 100mΩ at 1A, 6VDC
	Contact rating (resistive)		250VAC / 30VDC / 16A
	Max. carrying current		16A
	Max. switching voltage		400VAC / 300VDC
	Max. switching power		4,000VA / 480W
	Min. switching load *		100mA, 5VDC
Coil data	Rated power (20℃)		530mW
	Operate power (20℃)		260mW
	Operating temperature range		-40℃ to +70℃ (no frost)
Timing data	Operate (at nominal voltage)		Max. 15ms (without bounce)
	Release (at nominal voltage)		Max. 5ms (without bounce)
Life	Mechanical		Min. 2 x 10^6 operations
	Electrical	DC contact rating	Min. 100 x 10^3 operations
		AC contact rating	Min. 100 x 10^3 operations
		Lamp load (TV-5)	Min. 25 x 10^3 operations
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 x 50μs standard wave
	Clearance / creepage		6mm / 6mm
	EN61810-1, VDE0435	Voltage	250V
		Pollution degree	3
		Material group	III a
		Category	B / 250V
Others	Vibration resistance	Misoperation > 1μs	10 to 55 to 10Hz single amplitude 0.75mm
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm
	Shock	Misoperation > 1μs	200m/s^2 (11 ± 1ms)
		Endurance	1,000m/s^2 (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 DATA

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance ±10% (Ω)	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	

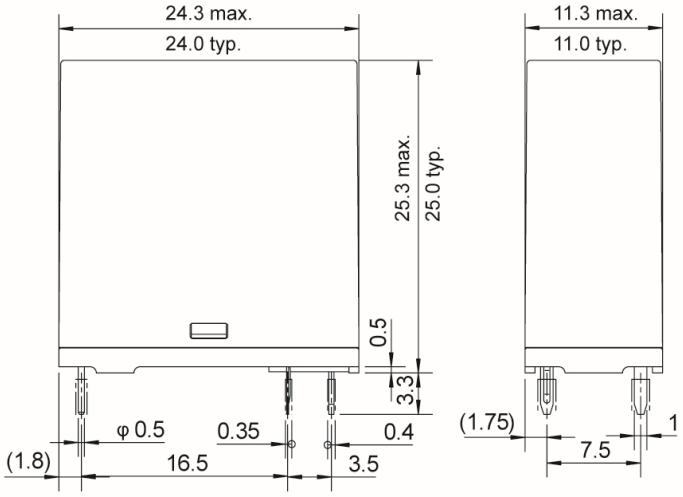
Note: All values in the table are valid for 20℃ and zero contact current.
* Specified operate values are valid for pulse wave voltage.
Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

■ SAFETY STANDARDS

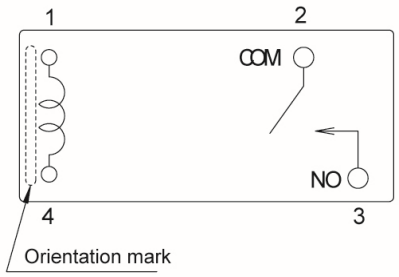
Type	Compliance	Contact rating
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics)
CSA	C22.2 No. 14 LR 40304	16A, 30VDC (resistive) 15A, 140VAC (resistive) 10A, 277VAC (resistive) 1/2 HP,125VAC (UL), 1/3 HP 125VAC (CSA) TV-5, 120 VAC TV-8, 120VAC Pilot duty: A300 (UL), C300 (CSA)
VDE	IEC/EN61810-1 EN60065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

■ DIMENSIONS

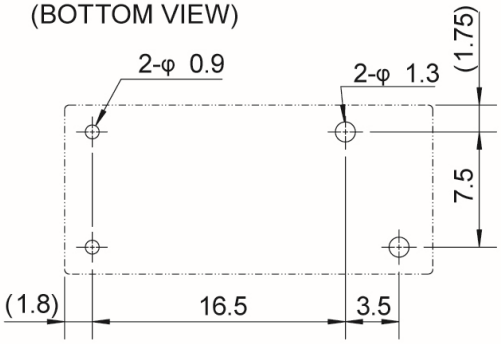
● Dimensions



● Schematics
(BOTTOM VIEW)



● PC board mounting hole layout
(BOTTOM VIEW)



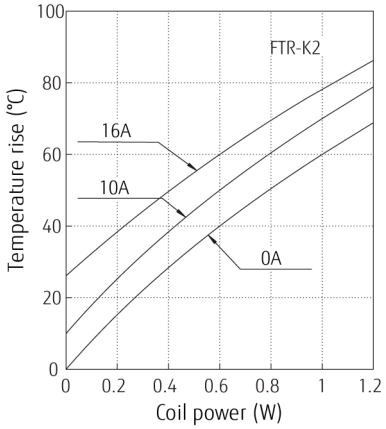
Notes:
* Dimensions of the terminals do not include thickness of pre-solder.
* Dimensions do not include tolerance.
* Tolerance of PC board mounting hole layout: ±0.1 unless otherwise specified.

Unit:mm
( ): Reference

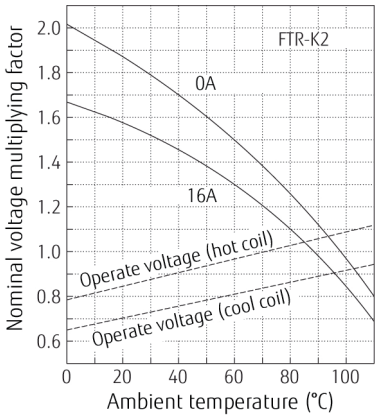
■ CHARACTERISTIC DATA

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

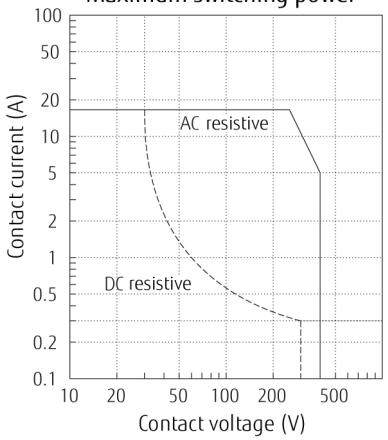
Coil temperature rise



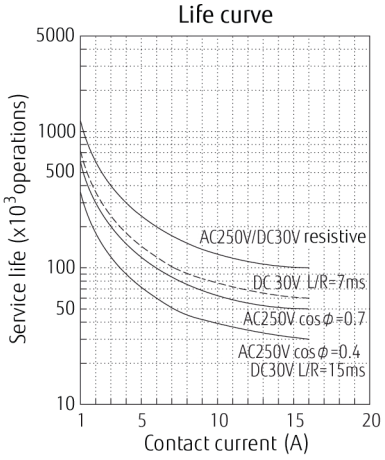
Operating range



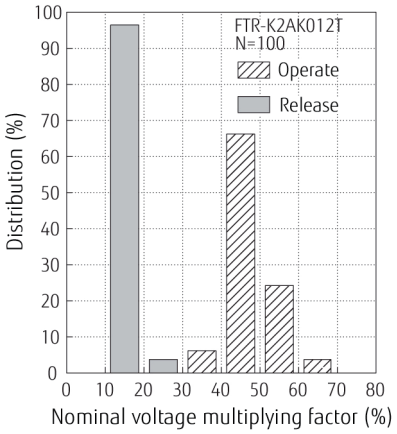
Maximum switching power



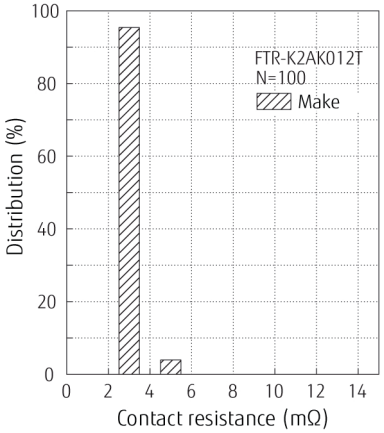
Life curve



Distribution of operate/release voltage



Distribution of contact resistance



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 FCL 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.

Contact

Japan
FCL COMPONENTS LIMITED
Shinagawa Seaside Park Tower
12-4, Higashi-shinagawa 4-chome,
Tokyo 140 0002, Japan
Tel: +81-3-3450-1682
Email: fcl-contact@cs.fcl-components.com

North and South America
FCL COMPONENTS AMERICA, INC.
2055 Gateway Place Suite 480,
San Jose, CA 95110 USA
Tel: +1-408-745-4900
Email: fcai.components@fcl-components.com

Europe
FCL COMPONENTS EUROPE B.V.
Diamantlaan 25
2132 WV Hoofddorp, Netherlands
Tel: +31-23-556-0910
Email: info.fceu@cs.fcl-components.com

Asia Pacific
FCL COMPONENTS ASIA PTE LTD.
No. 20 Harbour Drive, #07-01B
Singapore 117612
Tel: +65-6375-8560
Email: fcal@fcl-components.com

China
FCL COMPONENTS (SHANGHAI) CO., LTD.
Unit 1105, Central Park - Jing An,
No.329 Heng Feng Road, Shanghai 200070,
China
Tel: +86-21-3253 0998
Email: fcsh@fcl-components.com

Web: www.fcl-components.com/en/

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