

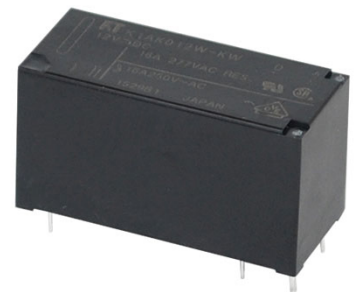
POWER RELAY

1 POLE – 16A 105°C, 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
- UL F class isolation wire
- Cadmium free contacts
- Sealed type, RTIII
- RoHS compliant



■ 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 C	: 1 form A : 1 form C
(c)	Coil type	K	: Standard type (400mW)
(d)	Coil rated voltage	012	: 5...110VDC See coil rating table
(e)	Contact material	W	: AgSnO ₂
(f)	Special type	KW	: 105°C, Plastic 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

■ SPECIFICATIONS

Item		FTR-K1CK()W-KW	FTR-K1AK()W-KW	
Contact data	Configuration	1 form C	1 form A	
	Construction	Single		
	Material	AgSnO ₂		
	Resistance (initial)	Max. 100mΩ at 1A, 6VDC		
	Contact rating (resistive)	16A, 250VAC		
	Max. carrying current *1	20A		
	Max. switching voltage	440VAC		
	Max. switching power	4,000VA		
	Min. switching load *2	100mA, 5VDC		
Coil data	Rated power (20°C)	400 to 430mW		
	Operate power (20°C)	200 to 210mW		
	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)		
Life	Mechanical	Min. 20 x 10 ⁶ operations		
	Electrical	Rating resistive load	Min. 10 x 10 ³ operations	Min. 20 x 10 ³ operations
Insulation	Resistance (initial)	Min. 1,000MΩ 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 / creepage		10mm / 10mm	
	EN61810-1, VDE0435	Voltage	250V	
		Pollution group	3	
Material group		III a		
Category		C / 250V		
Others	Vibration resistance	Misoperation ≥ 1μs	10 to 55 to 10Hz single amplitude 0.35mm	
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm	
	Shock	Misoperation ≥ 1μs	100m/s ² (11 ± 1ms)	
		Endurance	1,000m/s ² (6 ± 1ms)	
	Weight	Approximately 13g		
	Sealing	Plastic sealed, 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 DATA

Coil Code	Nominal Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Nominal Power (mW)
005	5	62	3.5	0.5	400
006	6	90	4.2	0.6	
009	9	202	6.3	0.9	
012	12	360	8.4	1.2	
018	18	810	12.6	1.8	
022	22	1,210	15.4	2.2	
024	24	1,440	16.8	2.4	
028	28	1,960	19.6	2.8	
048	48	5,360	33.6	4.8	430
060	60	8,570	42.0	6.0	420
110	110	28,800	77.0	11.0	

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.

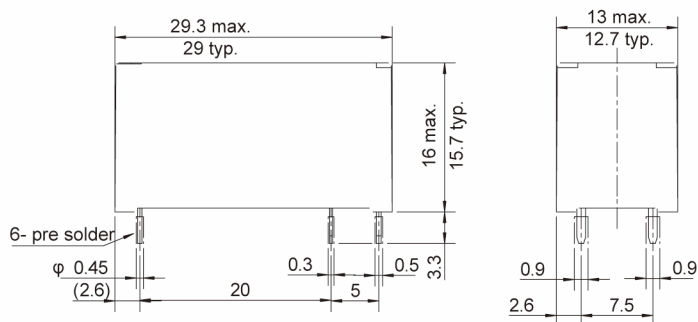
■ SAFETY STANDARDS

Type	Compliance	Contact rating	
		FTR-K1AK()W-KW	FTR-K1CK()W-KW
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics)	
		16A, 277VAC (resistive) 105°C 20A, 277VAC (resistive) 105°C	16A, 277VAC (resistive) 105°C
CSA	C22.2 No.14 LR40304	16A, 277VAC (resistive)	
VDE	IEC/EN61810-1, EN60730-1 clause 12.2; 13.2; 20.1; 20.2; 20.3, EN60335-1 clause 15.3; 16.3; 29.1; 29.2; 29.3	16A, 250VAC (cos ϕ 1), 105°C 20A, 250VAC (cos ϕ 1), 105°C	16A, 250VAC (cos ϕ 1), 105°C

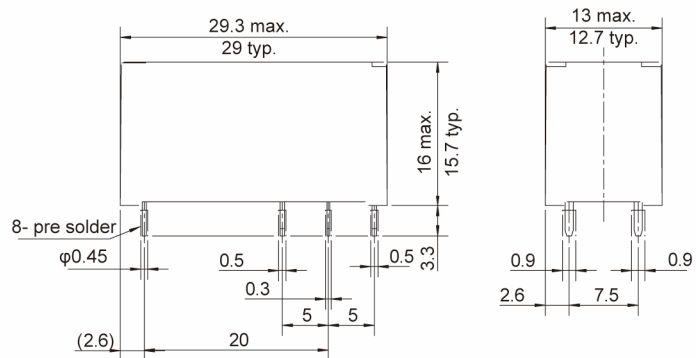
FTR-K1 Series

■ DIMENSIONS

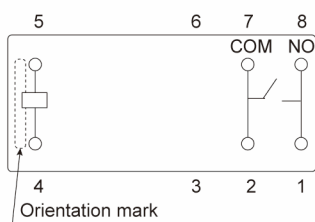
Dimensions (FTR-K1AK()W-KW)



Dimensions (FTR-K1CK()W-KW)

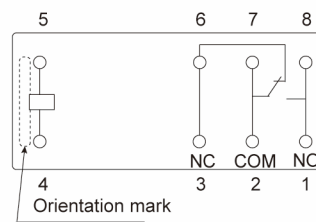


Schematics (BOTTOM VIEW) (FTR-K1AK()W-KW)



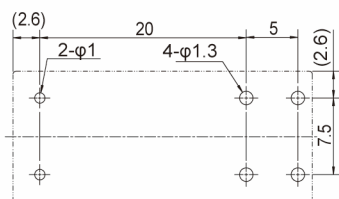
Connect terminal #1 and #8 on the PC board

Schematics (BOTTOM VIEW) (FTR-K1CK()W-KW)

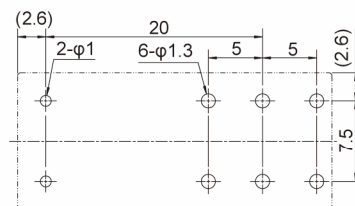


Connect terminal #1 and #8 on the PC board

PC board mounting hole layout (BOTTOM VIEW) (FTR-K1AK()W-KW)



PC board mounting hole layout (BOTTOM VIEW) (FTR-K1CK()W-KW)



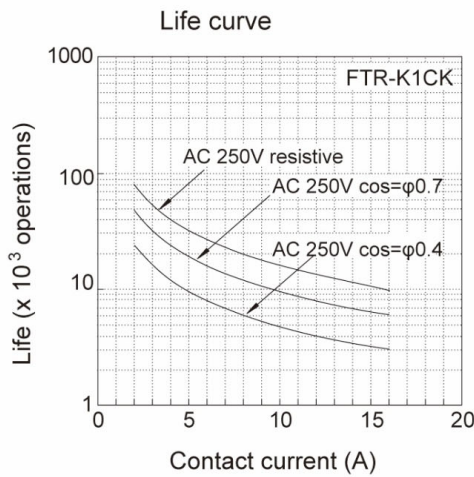
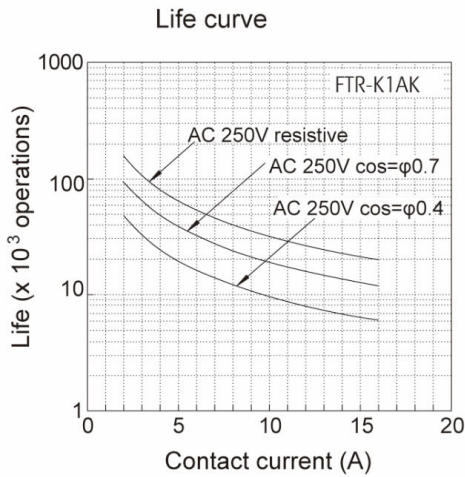
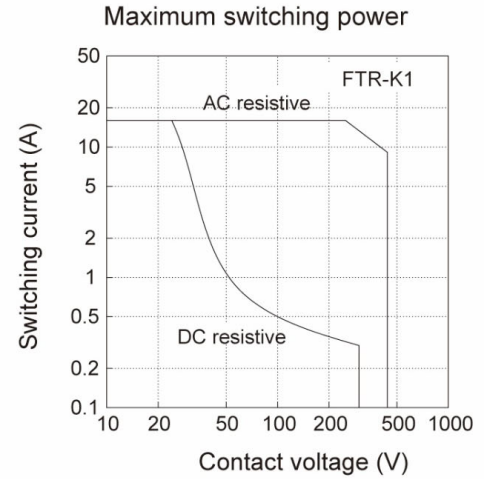
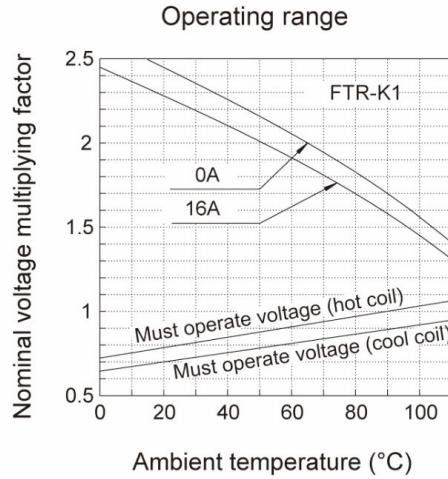
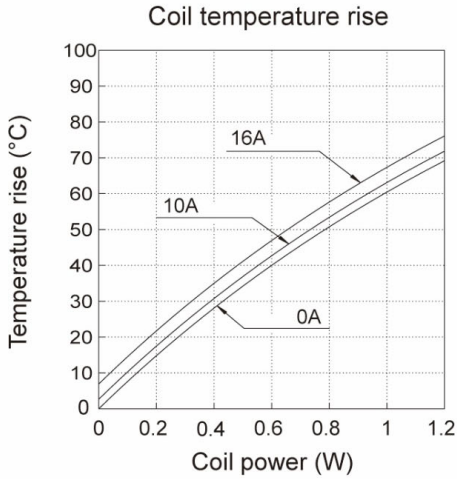
- * Dimensions of the terminals do not include thickness of pre-solder.
- * Tolerance of PC board mounting hole layout : ± 0.1 unless otherwise specified.
- * Dimensions do not include tolerances. Please ask specification in case you need tolerances.

(Unit: mm)

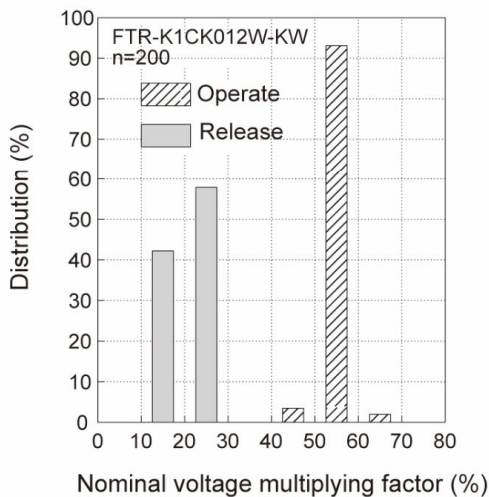
FTR-K1 Series

■ CHARACTERISTIC DATA (Reference)

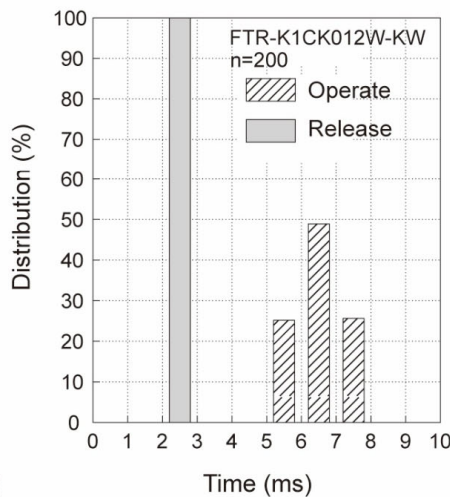
* Characteristic data is not a guaranteed value, but measured values of samples from production line.



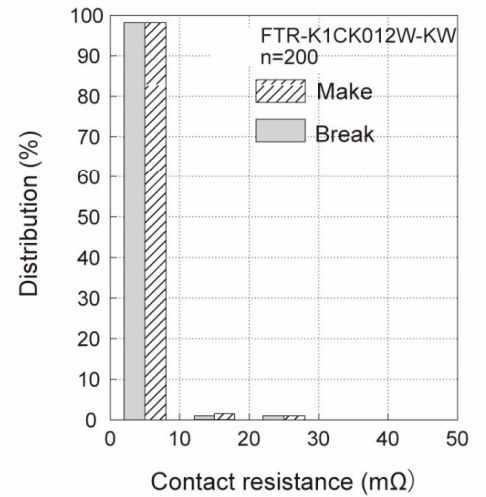
Distribution of operate, release voltage



Distribution of operate, release time



Distribution of contact resistance



FTR-K1 Series

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 350-360°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

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