POWER RELAY

1 POLE - 17A Tab Terminal

FTR-K1T Series

■ FEATURES

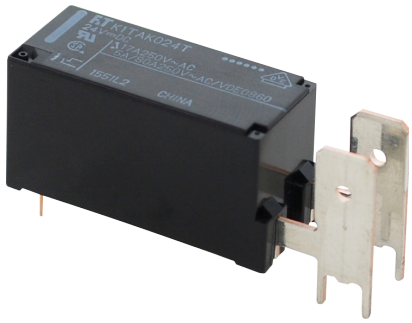
- SPST 17A
- Low profile (height: 15.7mm)
- High insulation

Insulation distance (between coil and contacts):
10mm min. Dielectric strength: 5KV Surge strength: 10KV

- UF class wire insulation
- Low coil power (400mW)
- Cadmium free contacts
- Safety standards: UL, CSA, VDE

UL, CSA TV-5 rating approved (1 form A type)

- Flux proof, RTII
- RoHS compliant



■ Part Numbers

[Example] FTR-K1T (a) A (b) K (c) 012 (d) T (e) - BG (f)

(a)	Relay type	FTR-K1T : FTR-K1T series
(b)	Contact configuration, tab terminal	A : 1 form A, vertical : B 1 form B, vertical : J 1 form A, horizontal
(c)	Coil type	K : Standard type (400mW) / Flux proof
(d)	Coil rated voltage	012 : 5..... 110VDC Coil rating table at page 3
(e)	Contact material	T : AgSnO2 (1 form A) W : AgSnO2 (1 form B)
(f)	Special type	Nil : Standard type (without gold plate) BG : Gold plate

Actual marking does not carry the type name: "FTR"
E.g.: Ordering code: FTR-K1TAK005T Actual marking: K1TAK012T

■ Specifications

Item			FTR-K1T (A, J) K ( ) T	FTR-K1TBK( )W	Remarks / conditions
Contact data	Configuration		1 form A	1 form B	
	Construction		Single		
	Material		AgSnO2		
	Resistance		Max. 100mOhm at 1A, 6VDC		Initial
	Contact rating		17A, 250VAC		Resistive
	Max. carrying current *1		20A		
	Max. inrush current		80A, 250VAC	-	
	Max. switching voltage		440VAC		
	Max. switching power		4,250VA		
	Min. switching load *2		100mA, 5VDC		
Coil	Rated power (20°C)		400mW (430mW at 48V coil), 420mW at 60V/110V coil		
	Operate power (20°C)		200mW (210mW at 48V coil), 206mW at 60V/110V coil		
	Operating temperature range		-40ºC ~ +105ºC		No frost
Timing data	Operate		Max. 15ms		without bounce, no diode
	Release		Max. 5ms		without bounce, no diode
Life	Mechanical		Min. 20 x 10^6 operations		
	Electrical	AC contact rating	Min. 100 x 10^3 ops.	Min. 50 x 10^3 ops.	
		Peak inrush	Min. 10 x 10^3 ops.	-	80A 250 VAC
		Lamp (UL TV-5)	Min. 25 x 10^3 ops.	-	
Insula-tion	Insulation resistance		Min. 1000MΩ at 500VDC		Initial
	Dielectric strength	Open contacts	1000VAC (50/60Hz), 1 minute		
		Coil contact	5000VAC (50/60Hz), 1 minute		
	Surge strength	Coil to contacts	10,000V / 1.2 x 50μs standard wave		
	Clearance		10mm		
	Creepage		10mm		
	EN61810-1, VDE0435	Voltage	250V		
		Pollution	3		
		Material group	III a		
Other	Vibration resis-tance	Misoperation ≥1us	10 to 55 to 10Hz single amplitude 0.75mm	10 to 55 to 10Hz single amplitude 0.35mm	
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm		
	Shock resis-tance	Misoperation ≥1us	Min. 100m/s² (11 ± 1ms)		
		Endurance	Min. 1,000m/s² (6 ± 1ms)		
	Dimensions / weight		12.7 x 44.5 x 15.7 mm / approx. 14.8g		FTR-K1TJK( )T
	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 contions

■ Coil Data

Coil code	Rated Coil Voltage (VDC)	Coil Resistance +/-10%(Ω)	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Rated 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 at 20°C and zero contact current, unless otherwise specified.

*: Specified operated values are valid for pulse wave voltage.

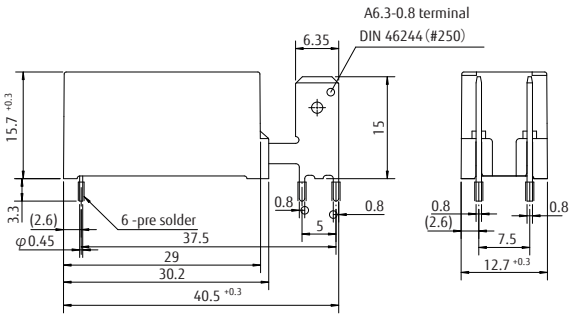
Note: Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

■ Safety Standards

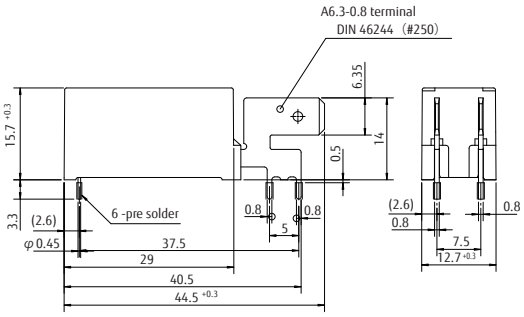
Type	Compliance	Contact rating	
		FTR-K1T (A, J) K ( ) T	FTR-K1TBK( )T
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics) 17A, 277VAC (resistive) 1 HP, 277VAC 1/2 HP, 125VAC TV-5, 120VAC Pilot duty: A300	17A, 277VAC (resistive)
CSA	C22.2 No. 14 LR 40304		
VDE	IEC/EN61810-1 EN60065 clause 14.6.1 (1a only) EN60335-1 clause 15.3; 16.3; 29.1; 29.2; 29.3 EN60730-1 clause 12.2; 13.2; 20.1; 20.2; 20.3	17A, 250VAC (cosφ=1), 105˚C 3.5A, 250VAC (cosφ=0.4), 105˚C 12A, 250VAC (cosφ=1), 125˚C 5A/80A 250VAC	17A, 250VAC (cosφ=1), 105˚C 16A, 250VAC (cosφ=1), 125˚C

■ Dimensions

- Dimensions (FTR-K1TAK and FTR-K1TBK)

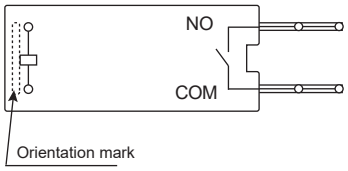


- Dimensions (FTR-K1TJK)

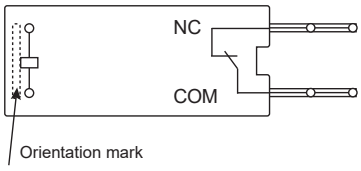


*Dimensions of the terminals do not include thickness of pre-solder.

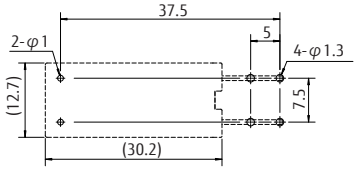
- Schematics
  (BOTTOM VIEW) (FTR-K1TAK and FTR-K1TJK)



- Schematics
  (BOTTOM VIEW) (FTR-K1TBK)



- PC Board Mounting Hole Layout
  (BOTTOM VIEW) (FTR-K1TAK, FTR-K1TJK and FTR-K1TBK)



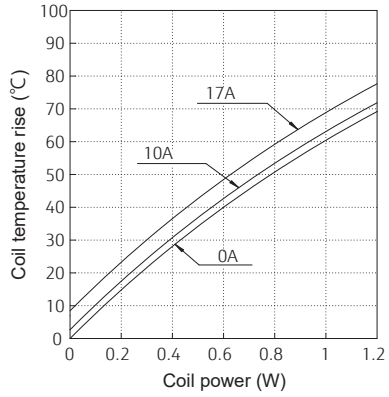
*Dimensions of the terminals do not include thickness of pre-solder.

( ): Reference
value Unit: mm

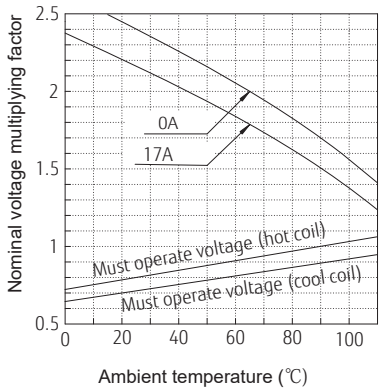
■ Characteristic Data (Reference)

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

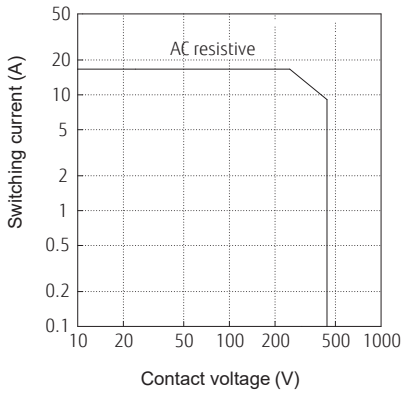
Coil temperature rise



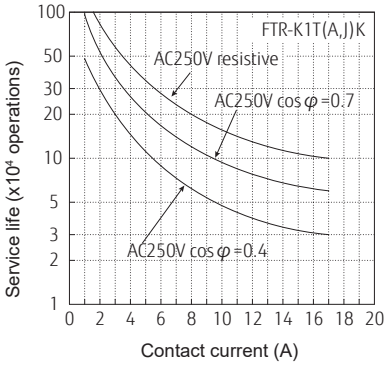
Operating range



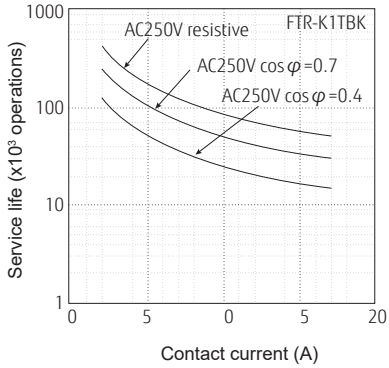
Maximum switching power



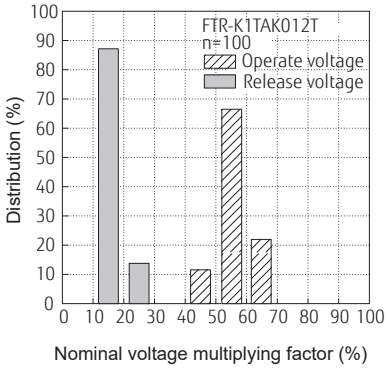
Life curve



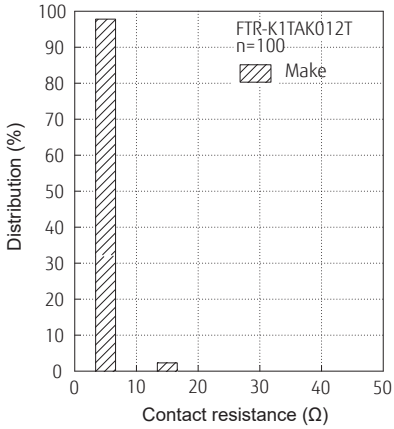
Life curve



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.

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