

POWER RELAY 1 POLE - 5A

FTR-F2 Series

RoHS Compliant

■ FEATURES

- High density mounting
Saves space by 26% compared to FTR-H1 type.
- High insulation
Insulation distance between coil and contacts: 6mm
 - Dielectric Strength: 4,000V
 - Surge Strength: 10,000V
- Flux proof type, RTII
- Flammability 94V-0
- Cadmium free contact for eco-program
- Safety standards:
UL, CSA, VDE, CQC approved
UL/CSA TV-5 rating approved
- RoHS Compliant



■ APPLICATIONS

Power switching, FA equipment control etc.

■ PART NUMBERS

[Example] FTR-F2 A K 012 I
 (a) (b) (c) (d) (e)

(a)	Relay type	FTR-F2 series
(b)	Contact configuration	A : 1a (1 Form A/ SPST-NO)
(c)	Coil type	K : Standard type (530mW) L : High sensitivity type (250mW)
(d)	Coil rated voltage	012 : 5....48VDC Please refer to coil rating table
(e)	Contact material	T : Silver tin oxide / TV-5

Actual marking does not carry the type name : "FTR"

E.g.: Ordering code: FTR-F2AK012T Actual marking: F2AK012T

■ SPECIFICATIONS

Item			Specifications		Remarks/Conditions
			Standard: FTR-F2AK()T	Sensitive: FTR-F2AL()T	
Contact Data	Configuration		1a (1 Form A, SPST-NO)		
	Construction		Single		
	Material		Silver tin oxide		
	Resistance (initial)		Max. 100 mΩ		At 1A, 6VDC
	Contact rating		5A, 250VAC / 30VDC		Resistive
	Max. carrying current		5A		
	Max. inrush current		78A, 250VAC		
	Max. switching voltage		400VAC / 300VDC		
	Max. switching power		1,250VA / 150W		
	Min. switching load ^{*1}		100 mA, 5 VDC		
Coil	Rated power (20°C)		530mW	250mW	
	Operate power (at 20°C)		260mW	160mW	
	Operating temperature range		-40°C to +70°C		No frost
Time	Operate		Max. 15ms (without bounce)		At nominal voltage
	Release		Max. 5ms (without bounce)		At nominal voltage
Life	Mechanical		Min. 2 x 10 ⁶ operations		
	Electrical	AC contact rating	Min. 100 x 10 ³ operations		
		DC contact rating	Min. 100 x 10 ³ operations		
		Lamp load (TV-5)	Min. 25 x 10 ³ operations		
Insulation	Insulation resistance		Min. 1,000MΩ		At 500VDC
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1 minute		
		Coil to contacts	4,000VAC (50/60Hz) 1 minute		
	Surge strength	Coil to contacts	10,000V / 1.2 x 50μs standard wave		
	Clearance		6mm		
	Creepage		6mm		
	EN61810-1, VDE0435	Voltage	250V		
		Pollution degree	2		
		Material group	III a		
		Category	8/250		
Others	Vibration resistance	Misoperation	10 to 55Hz double amplitude 1.5mm		Coil ON/OFF, 3 axis, total 6 cycles
		Endurance	10 to 55Hz double amplitude 1.5mm		Coil OFF, 3 axis, total 6 hours
	Shock resistance	Misoperation	Min. 200m/s ² (11±1ms)		Coil ON/OFF, 3 axis, total 36 operations
		Endurance	Min. 1,000m/s ² (6±1ms)		Coil OFF, 3 axis, total 18 operations
	Dimensions / Weight		11.0 x 24.0 x 25.0mm / Approximately 13g		
	Sealing		Flux proof RTII		

*1: 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.

■ COIL DATA

Standard type (530mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage ^{*1} (VDC)	Must Release Voltage ^{*1} (VDC)	Rated Power (mW)
005	5	47	3.5	0.25	530
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	1,100	16.8	1.2	
048	48	4,400	33.6	2.4	

Sensitive type (250mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage ^{*1} (VDC)	Must Release Voltage ^{*1} (VDC)	Rated Power (mW)
005	5	100	4	0.25	250
006	6	145	4.8	0.3	
009	9	325	7.2	0.45	
012	12	575	9.6	0.6	
015	15	900	12.0	0.75	
024	24	2,310	19.2	1.2	

Note: All values in the table are valid at 20°C and zero contact current, unless otherwise specified.

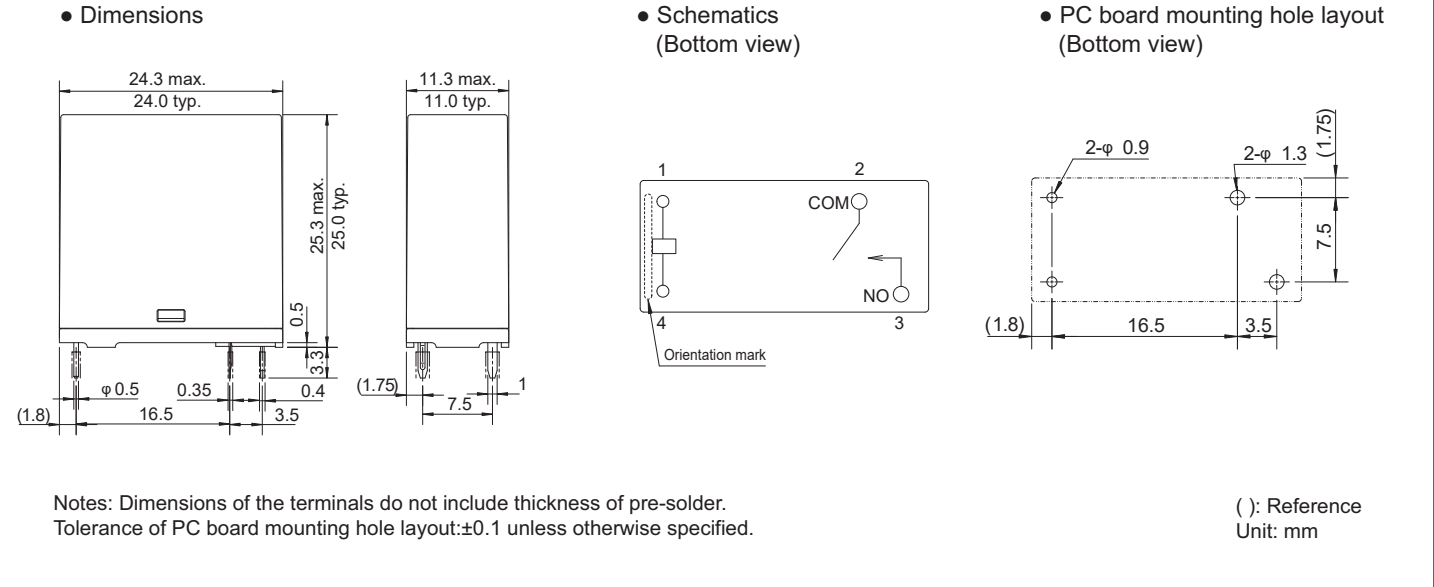
*1: Specified operated values are valid for pulse wave voltage.

⚠ 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	Flammability: UL 94-V-0 (plastics)	
	UL508 File No. E63614	5A, 30VDC/250VAC (resistive) 1/6 HP, 125VAC
CSA	C22.2 No. 14 File No. LR40304	1/2 HP, 250VAC TV-5, 120 VAC Pilot duty: C300
VDE	IEC/EN61810-1 EN60065 clause 14.6.1	5A, 250VAC ($\cos\phi=1$) 2A, 250VAC ($\cos\phi=0.4$) 5A, 30VDC (0ms)
CQC	GB/T21711.1, GB15092.1 File No. 03001008809	5A, 250VAC

DIMENSIONS



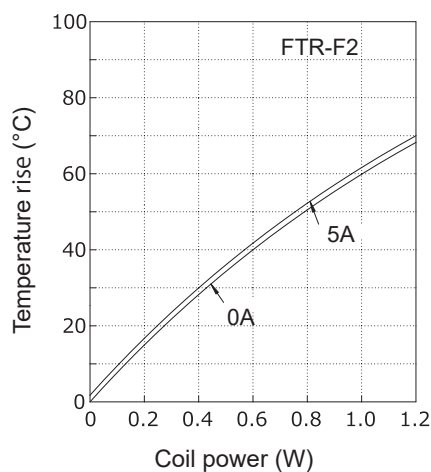
PART NUMBER LIST

Part Number	Contact Configuration	Coil type	Contact Material
FTR-H2AK()T	1a (1 Form A)	Standard (530mW)	Silver tin oxide / TV-5
FTR-H2AL()T		High sensitive (250mW)	

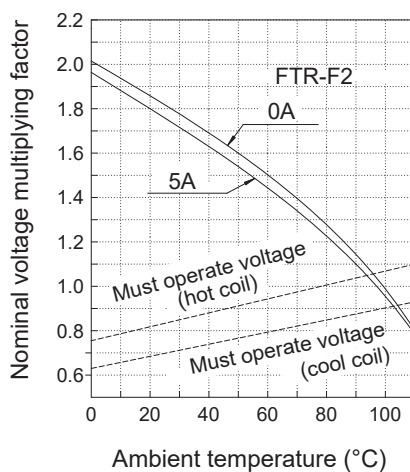
■ CHARACTERISTIC DATA

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

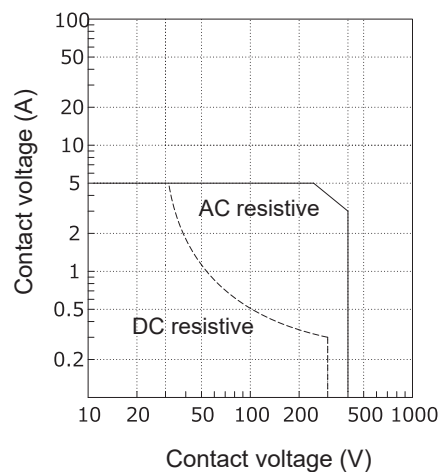
Coil temperature rise



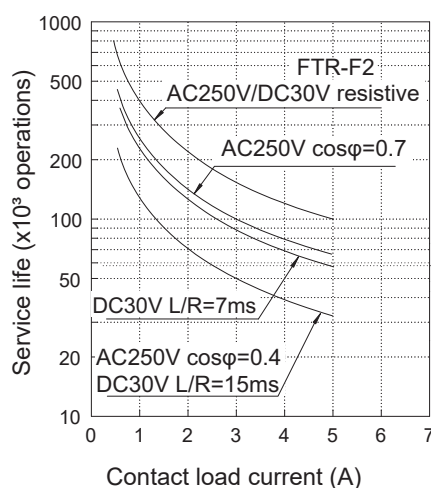
Operating range



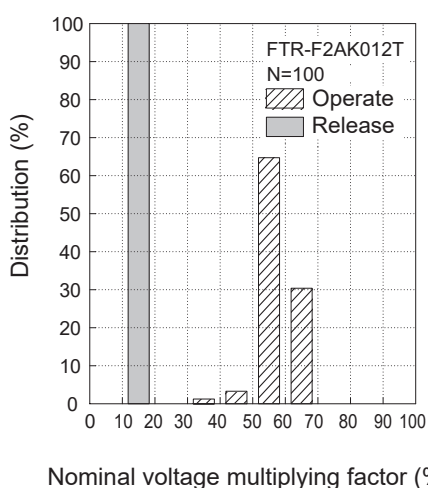
Maximum switching power



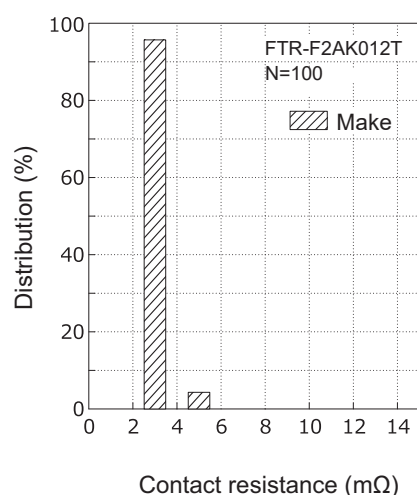
Life curve



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: contact@fcl-components.us

Europe

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

Asia Pacific

FCL COMPONENTS ASIA PTE LTD.
51 Changi Business Park Central 2, #06-07
The Signature Singapore 486066
Singapore 117612
Tel: +65-6375-8560
Email: fcsl@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

Hong Kong

FCL COMPONENTS HONG KONG CO.,
LIMITED
Unit 2313, Seapower Tower, Concordia
Plaza, No.1 Science Museum Road,
TST, Kowloon, Hong Kong
Tel: +852-2881-8495
Email: fcsl@fcl-components.com

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

© 2025 FCL Components Limited. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

FCL Components Products are intended for general use, including without limitation, in personal, household and office environments, in buildings and for ordinary use in the industry. FCL Components Products are not intended to be used in applications where extremely high safety is required ("High Safety Required Applications"), such as, but not limited to, applications in nuclear facilities, in aircraft automatic flight control, in air traffic control, in mass transit system control, in missile launch system, in weapon systems, in medical equipment for life support or any application involving a direct serious risk of physical injury or death.

Please do not use FCL Components Products without securing the sufficient safety and reliability required for the High Safety Required Applications.

In addition, FCL Components shall not be liable against the customer and/or any third party for any claims or damages arising in connection with the use of FCL Components Products in the High Safety Required Applications.

FCL Components warrants that its Products, if properly used and services, will conform to their specification and will be free from defects in material and workmanship for twelve months from delivery.

The implied warranties of merchantability and fitness for a particular purpose and all other warranties, representations and conditions, express or implied by statute, trade usage or otherwise, except as set forth in this warranty, are excluded and shall not apply to the Products delivered.

The contents, data and information in this datasheet are provided by FCL Components Limited as a service only to its user and only for general information purposes. The use of the contents, data and information provided in this datasheet is at the users' own risk.

FCL Components has assembled this datasheet with care and will endeavor to keep the contents, data and information correct, accurate, comprehensive, complete and up to date.

FCL Components Limited and affiliated companies do however not accept any responsibility or liability on their behalf, nor on behalf of its employees, for any loss or damage, direct, indirect or consequential, with respect to this datasheet, its contents, data, and information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Nor do FCL Components Limited and affiliated companies accept on their behalf, nor on behalf of its employees, any responsibility or liability with respect to these datasheets, its contents, data, information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Rev. December 24, 2025.