

POWER RELAY

1 POLE – 32A High Capacity Type

FTR-K3-PS Series

■ FEATURES

- 1 pole, 32A
- 1 form A contact
- Wide contact gap: 1.8mm
(Compliant with European photovoltaic standard VDE0126)
- High insulation in small package (between coil and contacts)
 - Dielectric strength: AC 4,000V
 - Surge strength: 6,000V
- Low coil power consumption: 1,400mW
- Coil holding voltage can be reduced up to 35% of nominal coil voltage (ambient temperature; +20°C, contact current; 32A)
Power consumption at the lowest coil holding voltage; 171.5mW
- * Coil holding voltage is the coil voltage after 100ms of applied nominal coil voltage
- Plastic materials: Flammability; UL94 V-0
- Cadmium-free contacts
- Flux free, cat. RTII protection
- RoHS compliant



■ PARTNUMBER INFORMATION

[Example] FTR-K3 A B 012 W - PS
 (a) (b) (c) (d) (e) (f)

(a)	Relay type	FTR-K3	: FTR-K3 Series
(b)	Contact configuration	A	: 1 form A / PCB type
(c)	Coil power	B	: Standard (1,400mW)
(d)	Coil rated voltage	012	: 5...48VDC See coil rating table
(e)	Contact material	W	: Silver alloy
(f)	Option code	PS	: High current (32A) / contact gap 1.8mm

FTR-K3-PS Series

■ SPECIFICATIONS

Item		FTR-K3-PS	
Contact data	Configuration		1 form A
	Material		Silver alloy
	Resistance (initial)		Max. 100 mΩ at 6VDC, 1A
	Contact rating (resistive)		32A, 250VAC
	Max. carrying current		32A
	Max. switching voltage		250VAC
	Max. switching power		8,000VA
	Max. switching current		32A
	Min. switching load *1		100mA, 5VDC (reference value)
Coil data	Rated power (at 20°C)		1,400mW
	Operate power (at 20°C)		686mW
	Coil power at holding voltage		171.5mW (35% of nominal coil voltage)
	Holding voltage *2		35~120% of nominal coil voltage (32A at + 20°C) 45~80% of nominal coil voltage (32A at + 85°C)
	Operating temperature range		-40°C to +60°C (coil nominal voltage) -40°C to +85°C (holding voltage; 45~80% of nominal coil voltage)
Timing data	Operate (at nominal voltage)		Max. 20ms (no diode, without bounce)
	Release (at nominal voltage)		Max. 10ms (no diode, without bounce)
Life	Mechanical		Min. 100 x 10 ³ operations
	Electrical (resistive)		32A / 250VAC, min. 30 x 10 ³ operations
	Electrical (inductive)		Endurance: 32A, 250VAC, cos φ = 0.8, min. 30 x 10 ³ operations Overload: 48A, 250VAC, cos φ = 0.8, min. 50 operations
Insulation	Contact gap (initial)		Min. 1.8mm
	Resistance		Min. 1,000MΩ at 500VDC
	Dielectric strength	Open contacts	2,500VAC (50/60Hz) 1min
		Contacts to coil	4,000VAC (50/60Hz) 1min
	Surge strength	Contact to coil	6,000V / 1.2 x 50μs standard wave
	Clearance / creepage		Min. 6.0mm / min. 8.0mm
	EN61810-1, VDE0435	Voltage	250VAC
		Pollution degree	3
Material group		IIIa	
Others	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.75mm
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm
	Shock	Misoperation	Min. 200m/s ² (11 ± 1ms)
		Endurance	Min. 1,000m/s ² (6 ± 1ms)
	Weight		Approximately 26g

*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.

*2: Coil holding voltage is the coil voltage after 100ms of applied nominal coil voltage.

! 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.

FTR-K3-PS Series

■ COIL DATA

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage ^{*1} (VDC)	Must Release Voltage ^{*1} (VDC)	Min. Non Release Voltage ^{*1} (VDC)	Rated Power (mW)
005	5	18	3.5	0.5	1.75	1,400 (171.5) ^{*2}
006	6	26	4.2	0.6	2.1	
009	9	58	6.3	0.9	3.15	
012	12	103	8.4	1.2	4.2	
018	18	231	12.6	1.8	6.3	
024	24	410	16.8	2.4	8.4	
048	48	1,650	33.6	4.8	16.8	

Note: All values in the table are valid for 20°C and zero contact current. or mis-operation may occur.

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

*2: This value is the coil power at 35% of nominal voltage at 20°C.

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

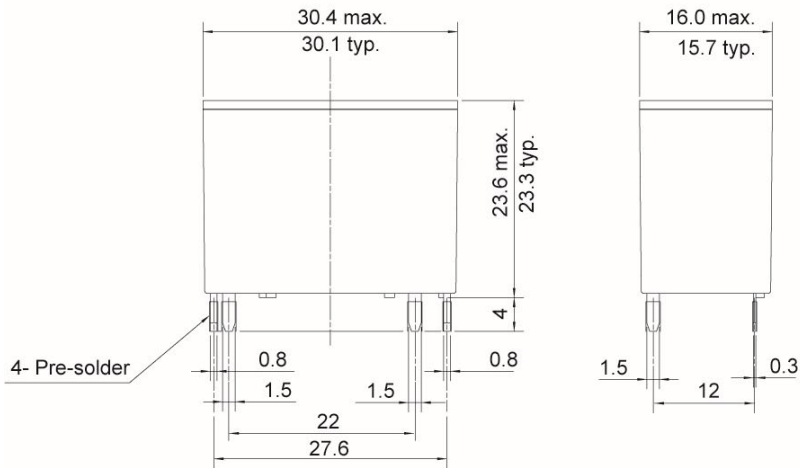
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 CSA 22.2 No.14 (cULus) E63614	Flammability: UL 94 V0 (plastics)
		32A, 277VAC (General use, at 85°C) 1hp 125VAC (at 60°C) 2hp 277VAC (at 60°C, 100K operations)
VDE	IEC/EN61810-1	32A, 250VAC (cos ϕ = 0.8, at 85°C)

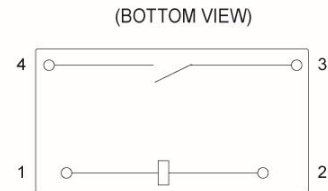
FTR-K3-PS Series

■ DIMENSIONS

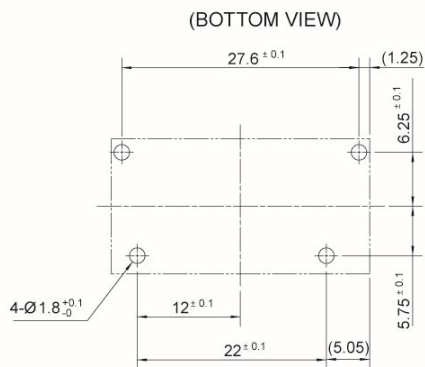
● Dimensions



● Schematics



● PC board mounting hole layout



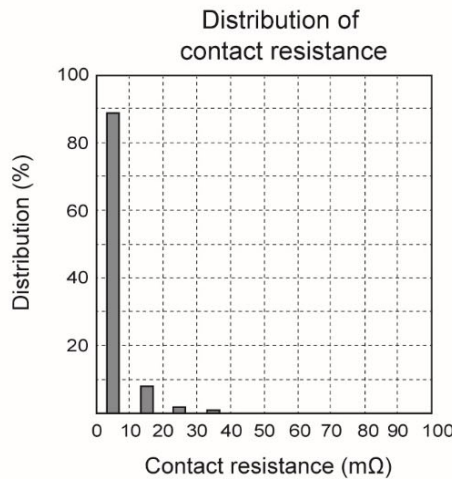
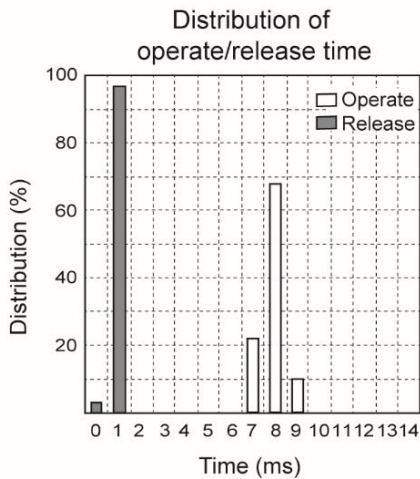
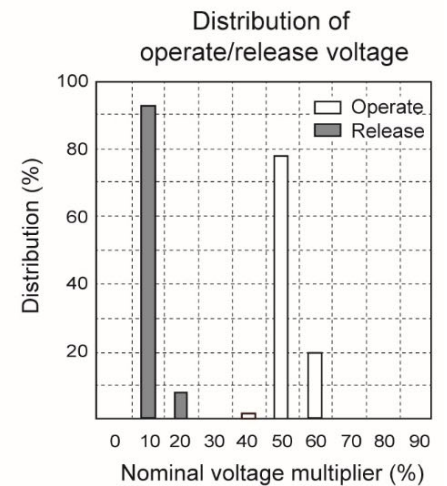
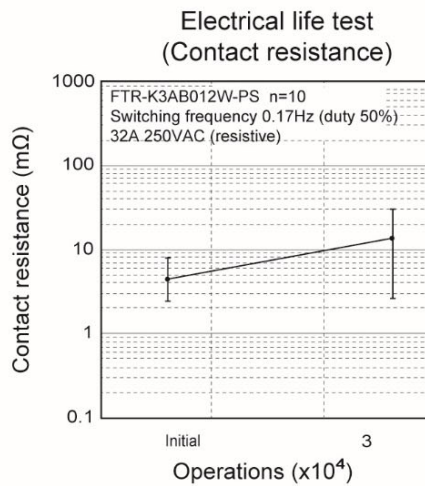
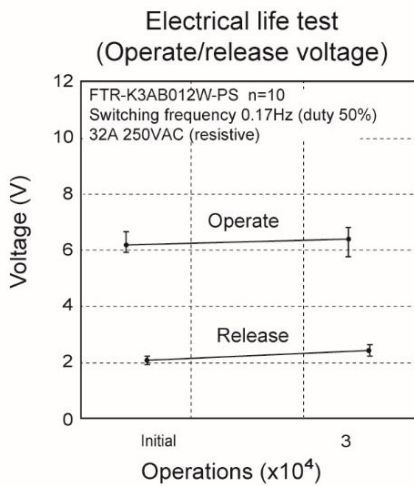
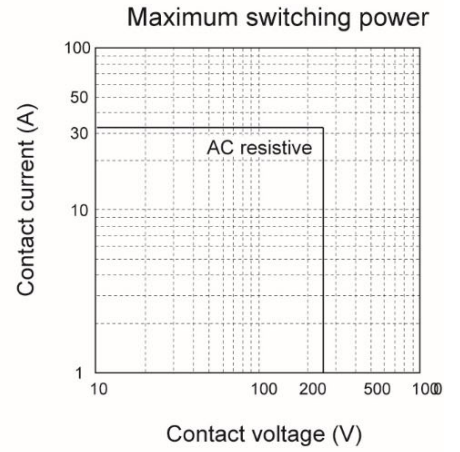
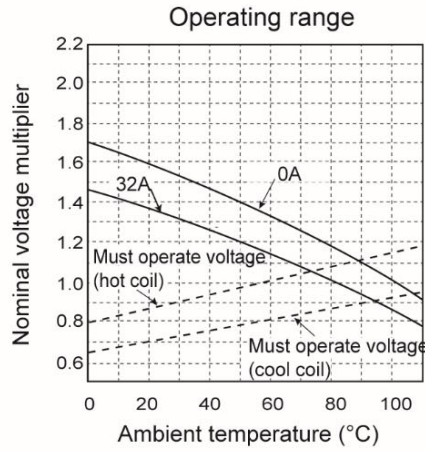
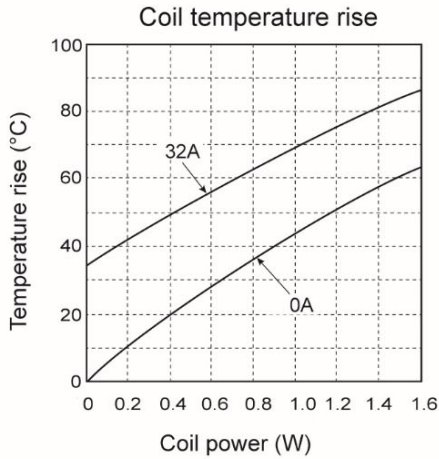
- Dimensions of the terminals do not include thickness of pre-solder.
- Tolerance of PC board mounting hole layout : ± 0.1 unless otherwise specified.

Unit; mm
(): Reference

FTR-K3-PS Series

■ CHARACTERISTIC DATA

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



FTR-K3-PS 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

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/

© 2024 FCL Components Limited. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

FCL 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 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 Products without securing the sufficient safety and reliability required for the High Safety Required Applications. In addition, FCL 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 Products in the High Safety Required Applications.

FCL 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 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. February 1, 2024.
