FUJITSU

POWER RELAY
1 POLE - 25A - Latching relay
FTR-K3L-WG Series

■ FEATURES

- 1 pole, 25A
- 2 coils latching type
- 1 Form A
- Contact gap 1.5mm
  2.5kV surge breakdown voltage
  Compliance with European photovoltaic standard (VDE0126)
- High insulation in small package
  (between coil and contact)
  - Insulation distance: Clearance > 6.4mm
    Creepage > 9.5mm
  - Dielectric strength: 5,000VAC
  - Surge strength: 8,500V
- Flammability UL94V-0 (plastics)
- Flux proof
- RoHS compliant
  Please see page 6 for more information
  Contains no lead and features cadmium-free contacts

■ PARTNUMBER INFORMATION

[Example]

FTR-K3L	A	B	012	W	-	WG
(a)	(b)	(c)	(d)	(e)		(f)

(a)	Relay type	FTR-K3L : FTR-K3L Series	
(b)	Contact configuration	A	: 1 form A
(c)	Coil type	B	: Standard sensitive (900mW)
(d)	Coil rated voltage	012	: 5.....24 VDC Coil rating table at page 3
(e)	Contact material	W	: Silver alloy
(f)	Version	WG	: Contact gap 1.5mm

Actual marking does not carry the type name : "FTR"
E.g.: Ordering code: FTR-K3LAB012W-WG Actual marking: K3LAB012W-WG

■ SPECIFICATION

Item			FTR-K3L-WG
Contact Data	Configuration		1 form A (contact gap 1.5mm)
	Material		Silver alloy
	Resistance (initial)		Max. 100mΩ at 1A, 6VDC
	Contact rating		25A / 250VAC (resistive)
	Max. carrying current		30A
	Max. switching power		6,250VA
	Max. switching voltage		250VAC
	Max. switching current		25A
	Min. switching load (reference)		100mA, 5VDC
Life	Mechanical		Min. 1 x 10^6 operations
	Electrical	Resistive	25A, 250VAC, 100 x 10^3 operations
		Inductive	25A, 250VAC (cosφ=0.8), 30 x 10^3 operations
		Inductive (overload)	37.5A, 250VAC (cosφ=0.8), 50 operations
Coil Data	Rated power (at 20 ℃)		900mW
	Operating temperature range (no frost)		-40 ℃ to +85 ℃
Timing Data	Set (at nominal voltage)		Max. 20ms (without bounce, without diode)
	Reset (at nominal voltage)		Max. 20ms (without bounce, without diode)
	Coil excitation time (at nominal voltage)		Min. 30ms, max. 1,000ms
Insulation	Contact gap		Min. 1.5 mm
	Resistance		Min. 1,000MΩ at 500VDC
	Dielectric strength	Open contacts	2,500VAC, 1min.
		Coil and contacts	5,000VAC, 1min.
	Surge strength	Coil to contacts	8,500V/ 1.2 x 50μs standard wave
	Creepage		6.4mm
	Clearance		9.5mm
Other	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.825 mm
		Endurance	10 to 55 to 10Hz single amplitude 1.0 mm
	Shock resistance	Misoperation	Min. 200m/s² (11 ± 1ms)
		Endurance	Min. 1,000m/s² (6 ± 1ms)
	Weight		Approximately 25 g

* 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.

Note: 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 RATING

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Set Voltage (VDC)*	Must Reset Voltage (VDC) *	Max. Set/Reset Voltage (VDC)	Rated Power (mW)
005	5	P 28	+4.0	-	9.0	900
		S 28	-	+4.0		
006	6	P 40	+4.8	-	10.8	
		S 40	-	+4.8		
012	12	P 160	+9.6	-	21.6	
		S 160	-	+9.6		
024	24	P 640	+19.2	-	43.2	
		S 640	-	+19.2		

Note: All values in the table are valid for 20℃ and zero contact current. P: Set coil S: Reset coil
* Specified operate values are valid for pulse wave voltage.

❗ Please use at rated coil voltage. DO NOT apply voltage that exceeds maximum applied voltage continuously. Insulation may decrease.
❗ DO NOT apply voltage that exceeds maximum applied voltage on to reset coil. It may cause operation failure.

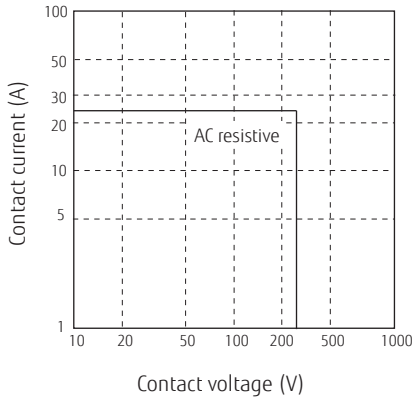
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 CSA 22.2 No.14 (by cULus) (E63614)	Flammability: UL 94-V0 (plastics) 25A, 277VAC (General Use, at 85°C)
VDE	IEC/EN61810-1	25A, 250VAC, (cosφ=1) at 85°C 25A, 250VAC, (cosφ=0.8) at 85°C

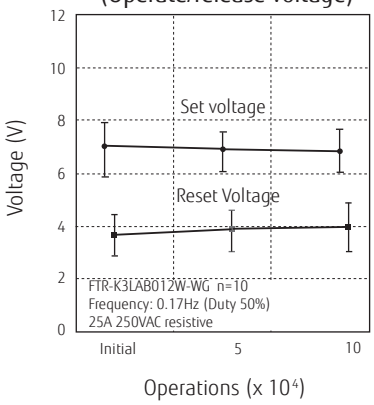
■ CHARACTERISTIC DATA

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

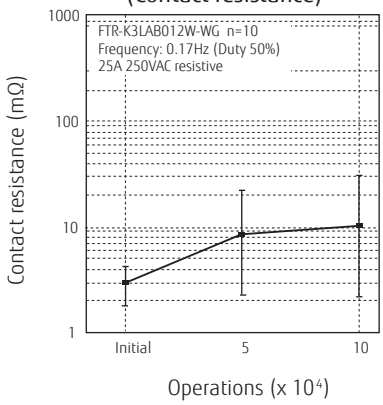
Maximum switching power



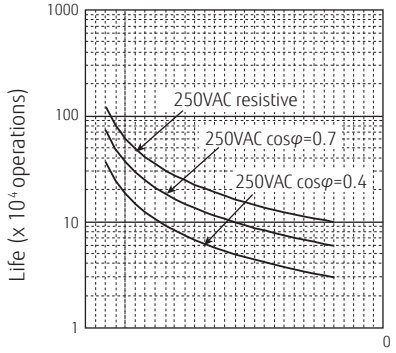
Electric life test (resistive)
(Operate/release voltage)



Electric life test (resistive)
(Contact resistance)

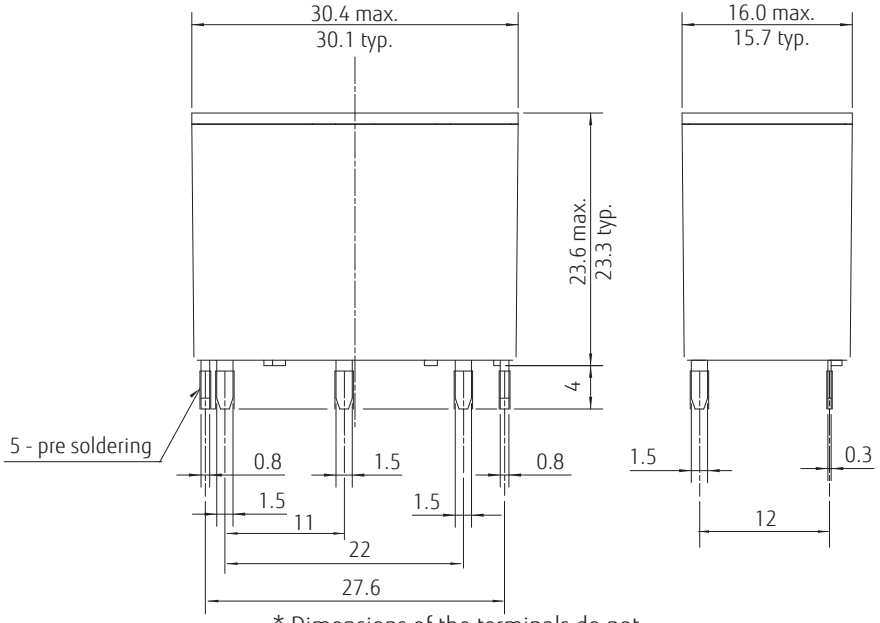


Life curve



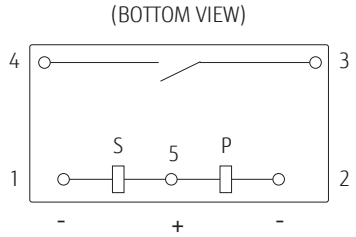
■ DIMENSIONS

● Dimensions



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

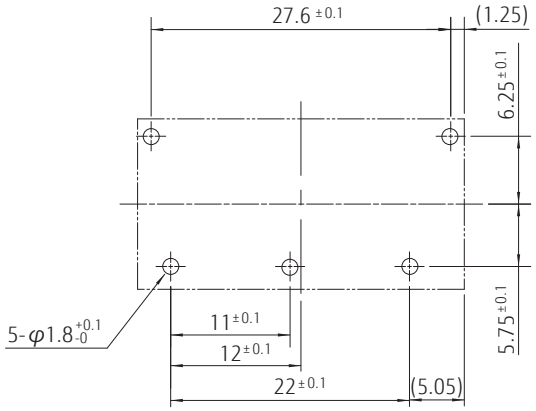
● Schematics
(BOTTOM VIEW)



P: Set coil
S: Reset coil

* Contacts drawin in resent condition.
* To operate (set), apply + to pin 5 and -to pin 2.
To release (reset), apply + to pin 5 and - to pin 1.

● PC board mounting hole layout
(BOTTOM VIEW)



Unit: mm
( ): Reference

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.
- Please connect relay coils according to specified polarity.

Notes for latching relay
- Latching relays are shipped in the state set, but state may change due to shock during transportation or mounting. Before using the relays, it is advisable to bring the relays in necessary state (set or reset) and program a circuit sequence. Otherwise, it will or will not operate simultaneously with power activation.
- Please connect relay coils according to specified polarity.
- Do not apply voltage to both set coil and reset coil at a time.

RoHS Compliance and Lead Free Information

1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives.
  As per Annex III of directive 2011/65/EU.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at:
  http://www.fujitsu.com/downloads/MICRO/fcai/relays/lead-free-letter.pdf
- 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.

2. Recommended Lead Free Solder Condition

- Recommended solder Sn-3.0Ag-0.5Cu.

Flow Solder Condition:

Pre-heating:	maximum 120˚C within 9 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 Temperature:	30-60W 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.

Fujitsu Components International Headquarter Offices

Japan
FUJITSU COMPONENT LIMITED
Shinagawa Seaside Park Tower 19F,
12-4, Higashi-shinagawa 4-chome, Shinagawa-ku,
Tokyo,140-0002, Japan
Tel: (81-3) 3450-1682
Fax: (81-3) 3474-2385
Email: fcl-contact@cs.jp.fujitsu.com
Web: www.fujitsu.com/jp/fcl/

Asia Pacific
FUJITSU COMPONENTS ASIA, LTD.
102E Pasir Panjang Road
#01-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcal@sg.fujitsu.com
Web: www.fujitsu.com/sg/products/devices/components

Korea
FUJITSU COMPONENTS KOREA LIMITED
Alpha Tower #403, 645 Sampyeong-dong,
Bundang-gu, Seongnam-si, Gyeonggi-do,
13524 Korea
Tel: (82) 31-708-7108
Fax: (82) 31-709-7108
Email: fcal@sg.fujitsu.com
www.fujitsu.com/sg/products/devices/components/

North and South America
FUJITSU COMPONENTS AMERICA, INC
2290 North First Street, Suite 212
San Jose, CA 95131, USA
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: components@us.fujitsu.com
Web: us.fujitsu.com/components

China
FUJITSU ELECTRONIC COMPONENTS (SHANGHAI) CO., LTD.
Unit 4306, InterContinental Center
100 Yu Tong Road, Shanghai 200070,
China
Tel: (86-21) 3253 0998
Fax: (86-21) 3253 0997
Email: fcal@sg.fujitsu.com
Web: www.fujitsu.com/sg/products/devices/components

Europe
FUJITSU COMPONENTS EUROPE B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: (31-23) 5560910
Fax: (31-23) 5560950
Email: info@fceu.fujitsu.com
Web: www.fujitsu.com/uk/components

Hong Kong
FUJITSU COMPONENTS HONG KONG CO., LTD
Unit 506, Inter-Continental Plaza
No.94 Granville Road, Tsim Sha Tsui, Kowloon,
Hong Kong
Tel: (852) 2881-8495
Tex: (852) 2894-9512
Email: fcal@sg.fujitsu.com
Web: www.fujitsu.com/sg/products/devices/components/

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