

POWER RELAY

1 POLE - 32A, 1.5mm contact gap latching relay

FTR-K3L-PV Series

■ FEATURES

- 1 pole, 32A
 - 1 form A contact
 - Wide contact gap: 1.5mm
Surge strength (B/T open contacts) 2.5kV
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: 1,200mW
 - Plastic materials: Flammability; UL94 V-0
 - Cadmium-free contacts
 - Flux proof
 - RoHS compliant
- Please see page 5 for more information



■ PARTNUMBER INFORMATION

[Example] $\frac{\text{FTR-K3L}}{\text{(a)}}$ $\frac{\text{A}}{\text{(b)}}$ $\frac{\text{B}}{\text{(c)}}$ $\frac{\text{012}}{\text{(d)}}$ $\frac{\text{W}}{\text{(e)}}$ - $\frac{\text{PV}}{\text{(f)}}$

(a)	Relay type	FTR-K3L : FTR-K3L Series
(b)	Contact configuration	A : 1 form A / PCB type
(c)	Coil type	B : Standard sensitive (1,200mW)
(d)	Coil rated voltage	012 : 5.....24 VDC Coil rating table at page 3
(e)	Contact material	W : Silver alloy
(f)	Version	PV : High current (32A) / contact gap 1.5mm

E.g.: Ordering code: FTR-K3LAB012W-PV

Actual marking: K3LAB012W-PV

FTR-K3L-PV SERIES

■ SPECIFICATION

Item			FTR-K3L-PV
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 *		100mA, 5VDC (reference value)
Life	Mechanical		Min. 1 x 10 ⁶ operations
	Electrical	Resistive	32A / 250VAC, min. 30 x 10 ³ operations
		Inductive	32A, 250VAC (cosφ=0.8), 30 x 10 ³ operations
		Inductive (overload)	48A, 250VAC (cosφ=0.8), 50 operations
Coil Data	Rated power (at 20 °C)		1,200mW
	Operating temperature range		-40 °C to +85 °C
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. 1000ms
Insulation	Contact gap		Min. 1.5mm
	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	Contacts to coil	6,000V / 1.2 x 50μs standard wave
	Clearance		Min. 6.0mm
Creepage		Min. 8.0mm	
Other	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.825mm
		Endurance	10 to 55 to 10Hz single amplitude 1.0mm
	Shock	Misoperation	Min. 200m/s ² (11 ± 1ms)
		Endurance	Min. 1,000m/s ² (6 ± 1ms)
	Weight		Approximately 25g

* 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.

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■ 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 21	+4.0	-	9.0	1,200
		S 21	-	+4.0		
006	6	P 30	+4.8	-	10.8	
		S 30	-	+4.8		
012	12	P 120	+9.6	-	21.6	
		S 120	-	+9.6		
024	24	P 480	+19.2	-	43.2	
		S 480	-	+19.2		

Note: All values in the table are valid for 20°C 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.

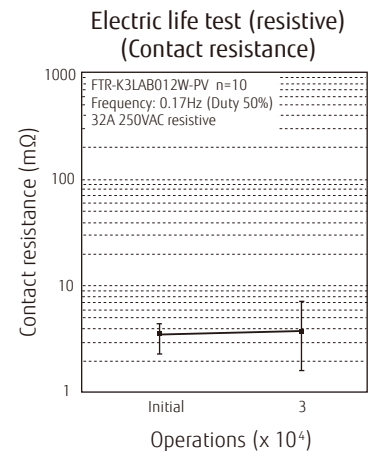
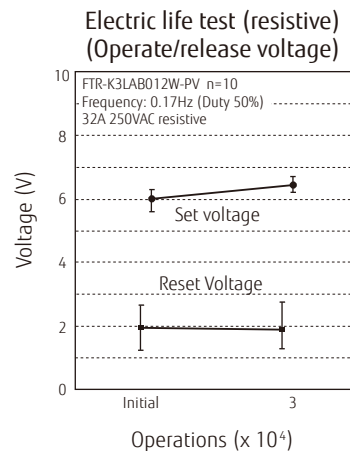
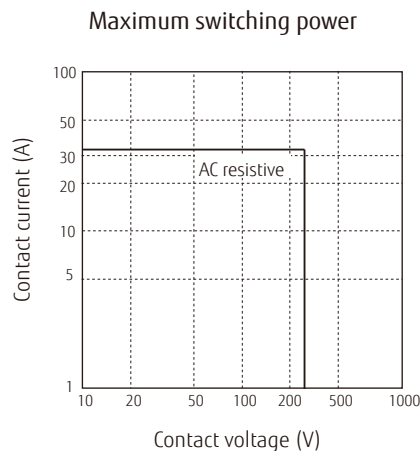
❗ DO NOT apply voltage that exceeds maximum applied voltage on to reset coil. It may cause operation failure.

■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 CSA 22.2 No.14 (by cULus)	Flammability: UL 94-V0 (plastics)
	(E63614)	32A, 277VAC (General use at 85 °C)
VDE	IEC/EN61810-1	32A, 250VAC (cosφ = 0.8) at 85 °C

■ CHARACTERISTIC DATA

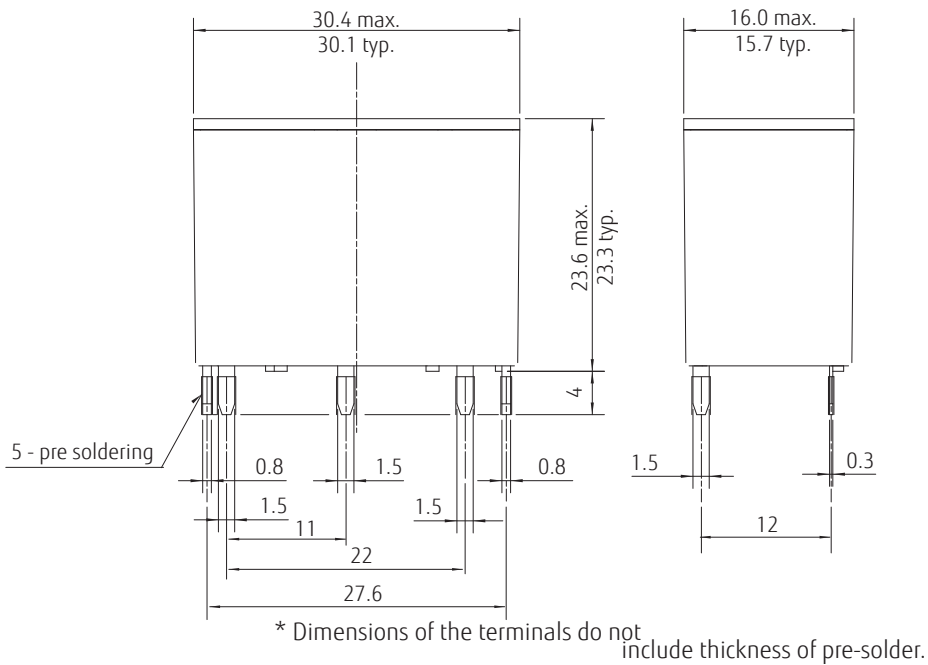
(Characteristic data is not guaranteed value but measured values of samples from production line.)



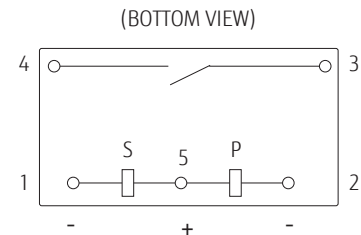
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■ DIMENSIONS

● Dimensions



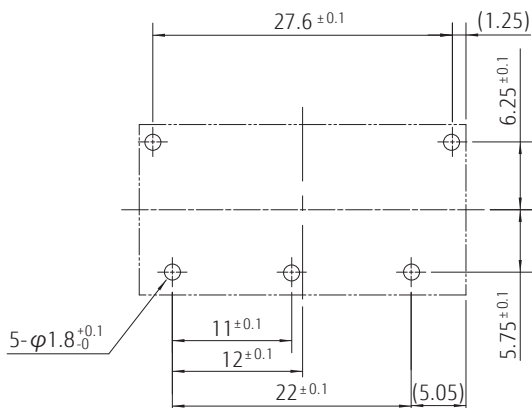
● Schematics (BOTTOM VIEW)



P: Set coil
S: Reset coil

- * Contacts drawn in reset condition.
- * To operate (set), apply + to pin 4 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 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.

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