

# 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
  - RoHS compliant.
- Please see page 5 for more information



#### ■ PARTNUMBER INFORMATION

[Example]     FTR-K3L   A   B   012   W   -   PV  
                   (a)    (b)   (c)   (d)   (e)   (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 <sup>6</sup> operations
	Electrical	Resistive	32A / 250VAC, min. 30 x 10 <sup>3</sup> operations
		Inductive	32A, 250VAC (cosφ 0.8), 30 x 10 <sup>3</sup> 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)
	Reset (at nominal voltage)		Max. 20ms (without bounce)
	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 55Hz double amplitude 1.5mm
		Endurance	10 to 55Hz double amplitude 1.5mm
	Shock	Misoperation	Min. 200m/s <sup>2</sup> (11 ± 1ms)
		Endurance	Min. 1,000m/s <sup>2</sup> (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.

# FTR-K3L-PV SERIES

## ■ 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	+5.4	-	10.8	
		S 30	-	+5.4		
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.

## ■ SAFETY STANDARDS

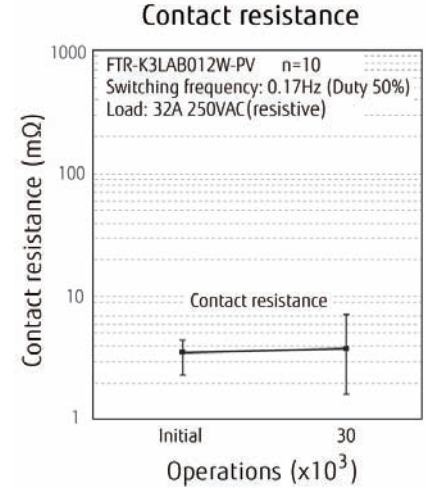
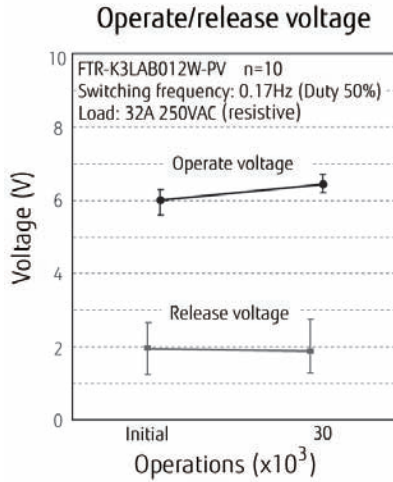
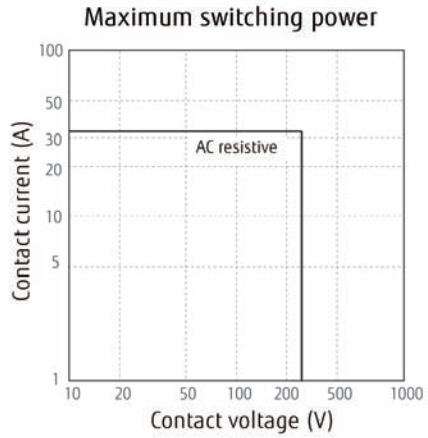
Type	Compliance	Contact rating
UL	UL 508	Flammability: UL 94-V0 (plastics) 32A, 277VAC (General use at 60 °C)
	CSA 22.2 No.14 (by cULus)	
VDE	IEC61810-1	32A, 250VAC (cosφ = 0.8) at +85 °C

# FTR-K3L-PV SERIES

## CHARACTERISTIC DATA

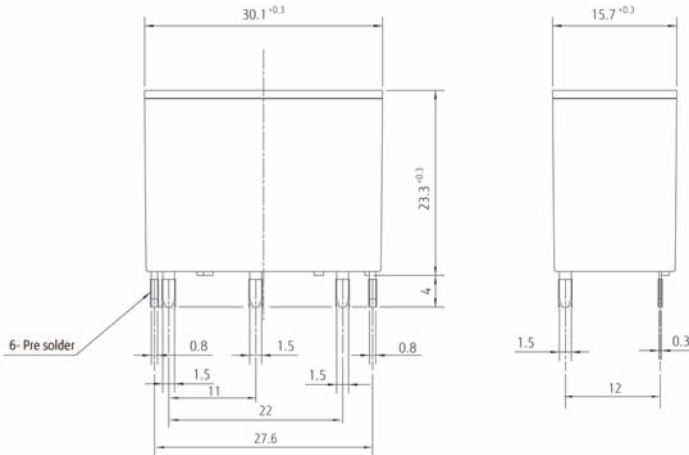
The graphs are based on measurement data and are typical values.

Electrical life tests (resistive load)

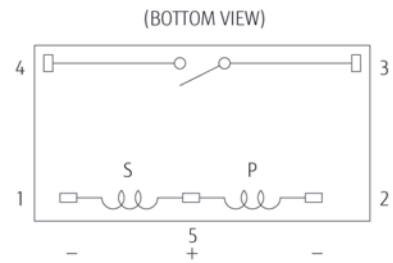


## DIMENSIONS

### Dimensions



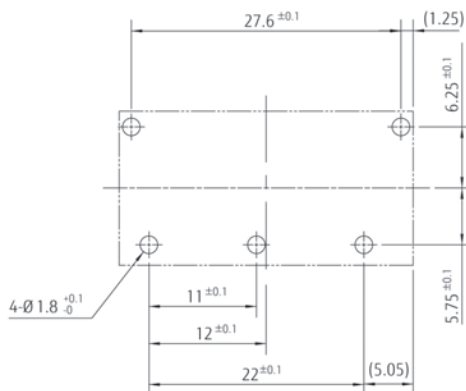
### Schematics



P: Set coil  
S: Reset coil

Contacts drawn in reset 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)



## RoHS Compliance and Lead Free Information

### 1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: <http://www.fujitsu.com/us/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 Profile

- Recommended solder Sn-3.0Ag-0.5Cu.

**Flow Solder condition:**

Pre-heating: maximum 120°C  
Soldering: dip within 5 sec. at  
260°C solder bath

**Solder by Soldering Iron:**

Soldering Iron  
Temperature: maximum 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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