

# POWER RELAY

## 1 POLE – 32A latching relay screw hole terminals

### FTR-K3LV Series

#### ■ FEATURES

- 1 pole, 32A
- 1 form A contact
- Surge strength (B/T open contacts) 2.5kV
- 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
- Through hole
- Flux proof (RT II)
- RoHS compliant



#### ■ PARTNUMBER INFORMATION

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

(a)	Relay type	FTR-K3	: FTR-K3 Series
(b)	Operate function	L	: Latching type
(c)	Contact configuration	V	: Screw (M4) tab terminal
(d)	Coil type	B	: Standard (1,200mW)
(e)	Coil rated voltage	012	: 5...48VDC See coil rating table
(f)	Contact material	W	: Silver alloy

E.g.: Ordering code: FTR-K3LVB012W    Actual marking: K3LVB012W

# FTR-K3LV Series

## ■ SPECIFICATIONS

Item			FTR-K3LV
Contact data	Configuration		1 form A
	Material		Silver alloy
	Resistance (initial)		Max. 30mΩ at 6VDC, 1A
	Contact rating (resistive)		32A, 250VAC
	Max. carrying current		32A, 45A 30 minutes, 600A 0.5 seconds
	Max. switching voltage		250VAC
	Max. switching power		8,000VA
	Max. switching current		32A
	Min. switching load *		100mA, 5VDC (reference value)
Coil data	Rated power (at 20°C)		1,200mW
	Ambident temperature		-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		Min. 30ms, max. 1,000ms
Life	Mechanical		Min. 1 x 10 <sup>6</sup> operations
	Electrical (resistive)		Min. 30 x 10 <sup>3</sup> operations at 32A / 250VAC Min. 1,000 operations at 60A 250VAC (cosφ=0.8) Min. 100 operations at 90A 250VAC (cosφ=0.8)
Insulation	Insulation resistance (initial)		Min. 1,000MOhm at 500VDC
	Dielectric strength	Open contacts	2,500VAC (50/60Hz) 1min
		Contacts to coil	4,000VAC (50/60Hz) 1min
	Surge strength	Contact to col	6,000V / 1.2 x 50μs standard wave
Others	Vibration resistance	Misoperation > 1μs	10 to 55 to 10Hz single amplitude 0.825mm
		Endurance	10 to 55 to 10Hz single amplitude 1.0mm
	Shock	Misoperation > 1μs	Min. 200m/s² (11 ± 1ms)
		Endurance	Min. 1,000m/s² (6 ± 1ms)
	Weight		Approximately 27g
	Sealing		RT II

\* 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.

**!** 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, reliability levels.

# FTR-K3LV Series

## ■ COIL DATA

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance ± 10% (Ω)	Set Voltage (VDC)	Reset Voltage (VDC)	Max. Applicable Voltage (VDC)	Nominal Power (mW)
005	5	P 21	+4.0	-	9.0	1,200
		S 21	-	+4.0		
012	12	P 120	+9.6	-	21.6	
		S 120	-	+9.6		
024	24	P 480	+19.2	-	43.2	
		S 480	-	+19.2		
048	48	P 1,920	+38.4	-	86.4	
		S 1,920	-	+38.4		

Note: All values in the table are valid for 20°C and zero contact current.

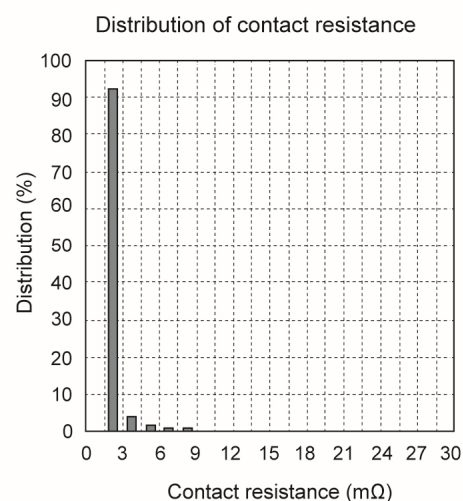
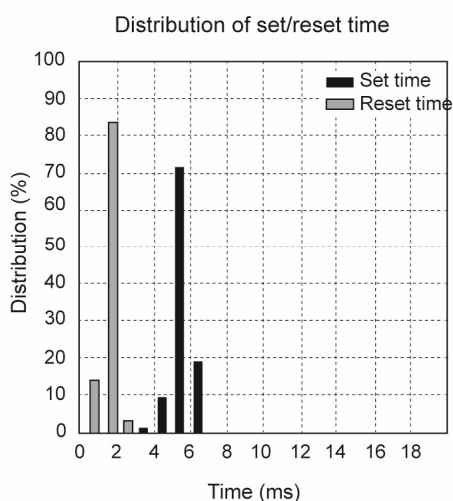
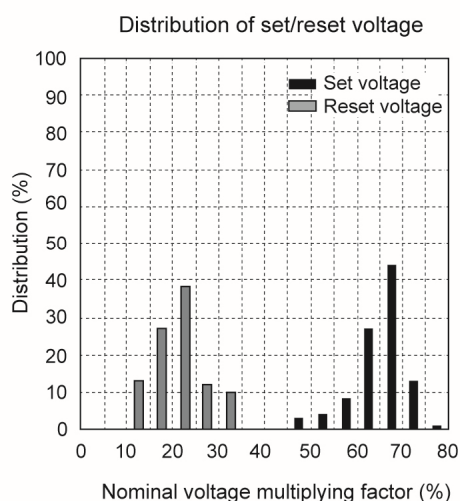
\* Specified operate values are valid for pulse wave voltage.

❗ Please use at rated coil voltage. Continuous energization on coil at the voltage exceeding max. applicable voltage is prohibited. Insulation deterioration may occur.

❗ Do not apply any voltage exceeding max. applicable voltage on reset coil. Operation failure or mis-operation may occur.

## ■ CHARACTERISTIC DATA

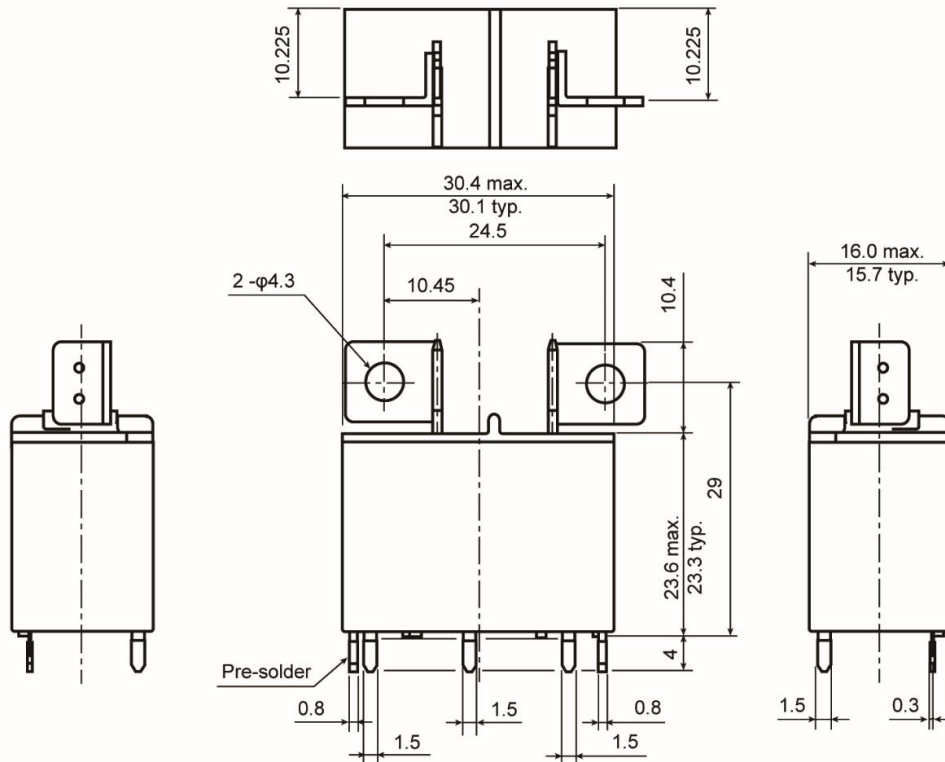
(Characteristic data is not guaranteed value but measured values of samples from production line.)



# FTR-K3LV Series

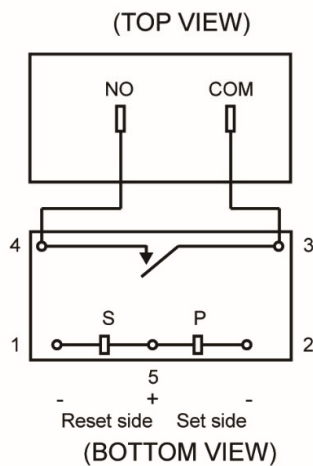
## ■ DIMENSIONS

### Dimensions

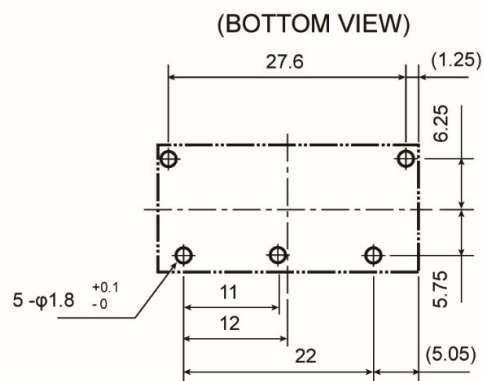


Dimensions of the terminals do not include thickness of pre-solder.

### Schematics



### PC board mounting layout



Tolerance of PC board mounting hole layout :  $\pm 0.1$  unless otherwise specified.

Contacts drawn in reset condition.

P: Set coil  
S: Reset coil

( ): Reference  
Unit: mm

# FTR-K3LV 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.

### Notes for latching relays

- 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.

## 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.

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