

Not for new design

# POWER RELAY

## 1 POLE - 30A DC Relay

### 2 x 3.2mm contact gap

## FTR-K2W Series

### ■ FEATURES

- Contact rating: 60VDC, 30A; 72VDC, 25A
- Wide contact gap: 2 x 3.2mm
- Compact size: 36.5 (L) x 34.9 (W) x 30.2 (H) mm
- 1 form A contact
- High insulation (between coil and contact)
  - Insulation distance: Clearance > 8.0mm  
Creepage > 9.5mm
  - Dielectric strength: 5,000VAC
  - Surge strength: 10,000V
- Flammability UL94V-0 (plastics)
- RoHS compliant  
Please see page 6 for more information



### ■ PARTNUMBER INFORMATION

FTR-K2W A K 012 W  
[Example] (a) (b) (c) (d) (e)

(a)	Relay type	FTR-K2W : FTR-K2W-Series
(b)	Contact configuration	A : 1 form A
(c)	Coil type	K : Standard (2,000mW)
(d)	Coil rated voltage	12 : 5.....48 VDC Coil rating table at page 3
(e)	Contact material	W : Silver alloy

Actual marking does not carry the type name : "FTR"  
E.g.: Ordering code: FTR-K2WAK012W Actual marking: K2WAK012W

■ SPECIFICATION

Item	FTR-K2W		
Contact Data	Configuration	1 form A	
	Material	Silver alloy	
	Resistance (initial)	Max. 100mOhm at 1A, 6VDC	
	Contact rating	30A / 60VDC, 25A / 72VDC (resistive)	
Life	Mechanical	Min. 1 x 10 <sup>6</sup> operations	
	Electrical	10 x 10 <sup>3</sup> operations	
Coil Data	Rated power (at 20 °C)	Approximately 2,000mW	
	Nominal voltage	5, 12, 24, 48VDC	
	Operating temperature range	-40 °C to +70 °C (no frost)	
Timing Data	Operate (at nominal voltage)	Max. 30ms (without bounce)	
	Release	Max. 15ms (no diode)	
Insulation	Resistance (initial)	Min. 1,000MOhm at 500VDC	
	Dielectric strength	Open contacts	2,000VAC (50/60 Hz) 1min.
		Coil and contacts	5,000VAC (50/60 Hz) 1min.
	Surge strength	Coil to contacts	10,000V / 1.2 x 50µs standard wave
	Clearance		≥ 8 mm
Creepage		≥ 9.5 mm	
Other	Vibration resistance	Misoperation	10 to 55Hz double amplitude 1.5 mm
		Endurance	10 to 55Hz double amplitude 1.5 mm
	Shock resistance	Misoperation	Min. 100m/s <sup>2</sup> (11 ± 1ms)
		Endurance	Min. 1,000m/s <sup>2</sup> (6 ± 1ms)
	Weight		Approximately 74 g
Sealing		Flux proof, RT II	

Notes:

1. To prevent hazardous situation in case of catastrophic contact failures like contact welding, please carefully evaluate the relay application parameters, to assure a fail-safe design. This is particularly important in case of over spec use and long periods of continuous use.
2. Use of a varistor in parallel over the coil is recommended to clamp reverse inductive voltage surges. Reverse blocking voltage should be about 3 times the surge voltage level.
3. A contact carrying currents higher than 10A, it is recommended to consider addition heat develop in the PCB contact tracks.
4. Specified values are valid in case of series connection of coils, by connecting pin 2 and 3, at 20°C and at zero contact current.

■ **COIL RATING**

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release Voltage (VDC) *	Rated Power +/- 10% (mW)
005	5	12.5	3.25	0.25	Approx. 2,000
012	12	72	7.8	0.6	
024	24	290	15.6	1.2	
048	48	1,160	31.2	2.4	

Notes:

- 1) Specified values are valid in case of series connection of coils, by connecting pin 2 and 3, at Tamb 20°C and at zero contact current.
- 2) Normal use it at nominal coil voltage. If the relay is energized at higher coil voltage, refer to data “coil temperature rise”

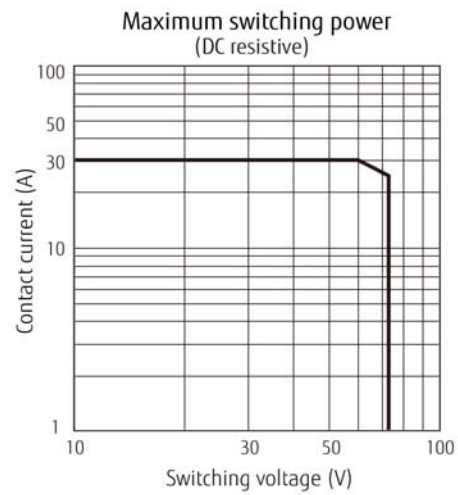
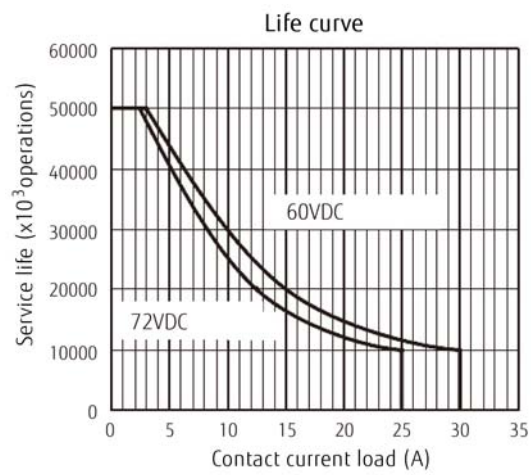
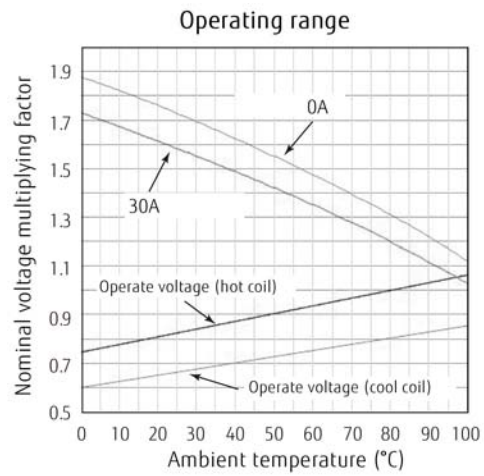
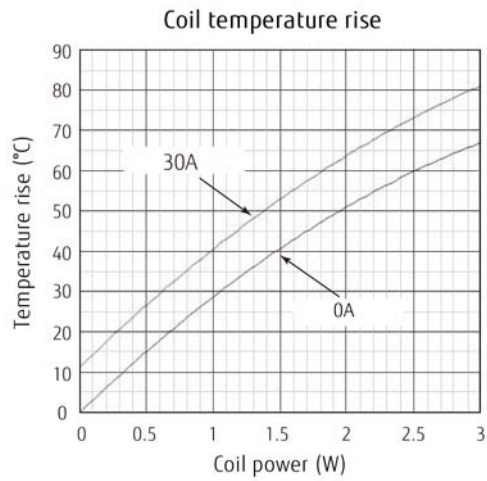
\*Specified operate- and must release voltage are valid for pulse wave voltages.

■ **SAFETY STANDARDS**

Type	Compliance	Contact rating
cULus	UL508 C22.2 No.14-05 (E63615)	30A 60VDC (resistive, 10,000 cycles) 25A 72VDC (resistive, 10,000 cycles)
TÜV	IEC61810-1 IEC60730-1 clause 12.2; 13.2; 20.1; 20.2; 20.3 IEC60335-1 clause 15.3; 16.3; 29.1; 29.2; 29.3	30A 60VDC (10,000 cycles) 25A 72VDC (10,000 cycles)

## ■ CHARACTERISTIC DATA

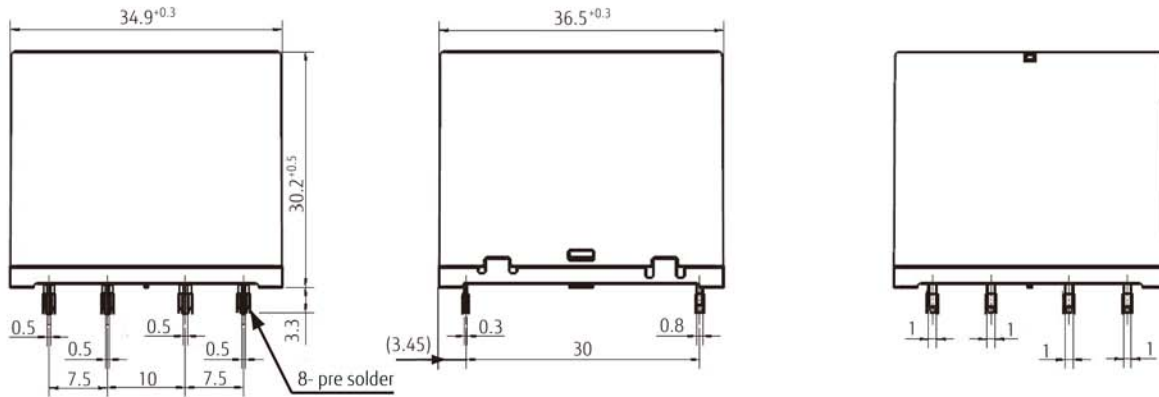
The graphs are based on measurement data and are typical values.



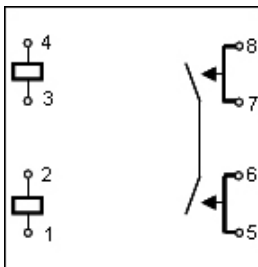
Please use this graph for reference purposes only

## ■ DIMENSIONS

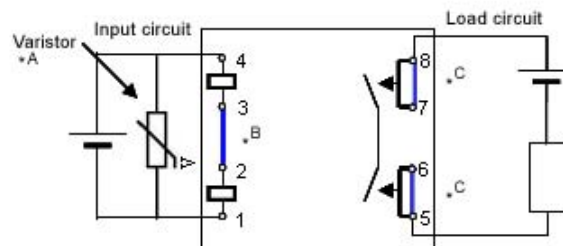
### ● Dimensions



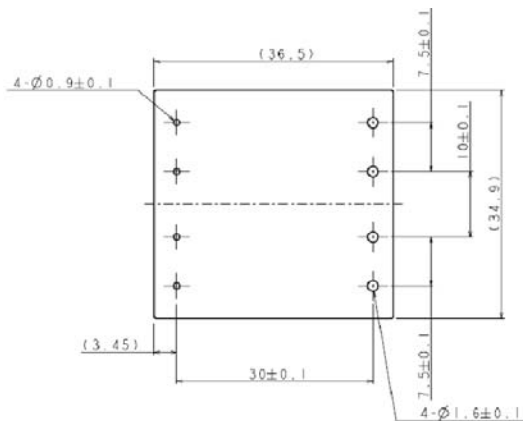
### ● Schematics (BOTTOM VIEW)



### ● Circuit (BOTTOM VIEW)



### ● PC board pattern (BOTTOM VIEW)



### Notes:

- Use of a varistor in parallel over the coil is recommended to clamp reverse inductive voltage surges. Reverse blocking voltage should be about 3 times the surge voltage level.
- Connect pin 2 and 3 to connect coils in series.
- To enhance a current carry capability, connect pin 5 with 6 and pin 7 with 8.
- Coils are polarity insensitive.

Unit: mm

## 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: Eip 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 340-360°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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## Contact

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