

# SOLID STATE RELAY 1 Maximum Load current 1A

# **FTR-SL SERIES**

**RoHS** compliant

#### **■ FEATURES**

- Ultra slim and light weight, SIL terminal type
   — size: 5.0 (W) x 28.0 (L) x 15.0 (H): 140mm mounting area
  - weight: approximately 4.0g
- Internal varistor and snubber circuit
- High insulation (between input and output) dielectric strength 2500Vrms
- Include a zero cross circuit as standard equipment
- High frequency switching, long life and maintenance free
- High impact/vibration resistance, good for automatic assembly, washable
- RoHS compliant since date code: 6202 (February 2nd, 2006)

Please see page 5 for more information



#### ORDERING INFORMATION

|           | FTR-SL | Р   | K   | 024 | W   |
|-----------|--------|-----|-----|-----|-----|
| [Example] | (a)    | (b) | (c) | (d) | (e) |

| (a) | Series Name                             | FTR-SL                   | : FTR-SL Series                            |
|-----|---|--------------------------|--|
| (b) | Load Voltage                            | Р                        | : AC type                                  |
| (c) | Input or Output Type                    | К                        | : Output type                              |
| (d) | Nominal Voltage                         | 005<br>012<br>024<br>060 | : 5 VDC<br>: 12 VDC<br>: 24VDC<br>: 60 VDC |
| (e) | Zero Cross Circuit<br>Output Protection | W                        | : With Zero Cross Circuit and Varistor     |

Note: The part number on the relay cover does not include 'FTR' Example: Ordering part number: FTR-SL-PK012W

Stamped part number: SLPK012W

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### ■ SPECIFICATION

| Item              |                                | FTR-SLPK005W  | FTR-SLPK012W  | FTR-SLPK024W   | FTR-SLPK060W |
|-------------------|--------------------------------|---|---------------|----------------|--------------|
|                   | Nominal Voltage                | 5 VDC   | 12 VDC        | 24 VDC         | 60 VDC       |
|                   | Operate Range                  | 3.75 to 6 VDC                                       | 9 to 14.4 VDC | 18 to 28.8 VDC | 48 to 66 VDC |
| Iput side         | Must operate voltage           | 3.75 VDC  | 9.0 VDC       | 18 VDC         | 48 VDC       |
|                   | Must release voltage           |   | 3.6 VDC       | 8.4 VDC        | 18 VDC       |
| Input Impedanc    |                                | 560Ω ±10%   | 1.3KΩ ±10%    | 2.4KΩ ±10%     | 10KΩ ±10%    |
|                   | Load voltage range             | 24 to 250 AC Vrms                                   |               |                |              |
|                   | Max. load current              | 1 Arms  |               |                |              |
| Outpt side        | 1 cycle surge current          | 50 A (60 Hz, 1 cycle)                               |               |                |              |
|                   | max. off-state leakage current | max. 1 mArms (60Hz, 220 AC Vrms)                    |               |                |              |
|                   | max. on-state voltage drop     | max. 1.3 V (1Arms, 50Hz)                            |               |                |              |
| Tomporatura       | Storage temperature range      | -40 to +100° C (no frost)  -30 to +85° C (no frost) |               |                |              |
| Temperature       | Operating temperature range    |   |               |                |              |
| Time              | Max. operating time            | max. 1/2 cycle + 1ms                                |               |                |              |
|                   | Max. release time              | max. 1/2 cycle + 1ms                                |               |                |              |
| Output protection |                                | Snubber circuit and varistor                        |               |                |              |
| Other             | Case color                     | Black   |               |                |              |
| Oti IGI           | weight                         | Approximately 4.0g                                  |               |                |              |

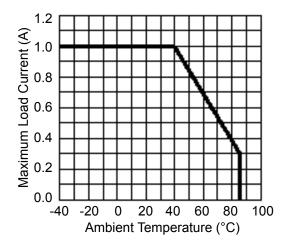
#### **■ INSULATION**

| Item                 | AC 1.0A type              | Note         |
|----------------------|---------------------------|--------------|
| Resistance (initial) | Minimum 1,000 MΩ (500VDC) | Input-output |
| Surge Voltage        | 2,500V rms 1 min.         |              |

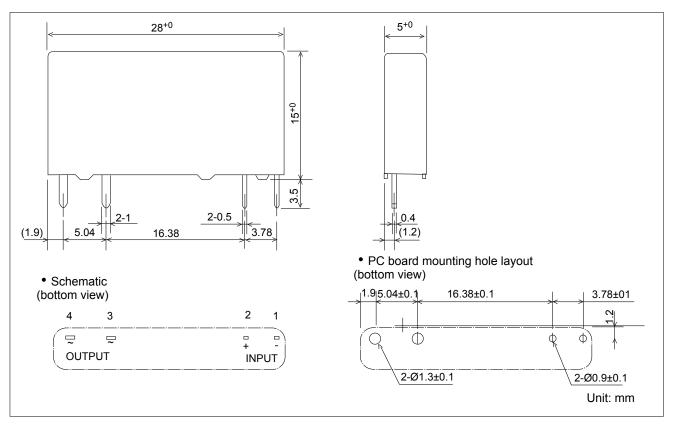
#### **■ BLOCK DIAGRAM**

| LOAD    | Insulation                 | Circuit                                    | INPUT/OUTPUT WAVEFORM (resistive load)                  |
|---------|----------------------------|--|---|
| AC type | Photo-<br>triac<br>coupler | Photo-triac coupler Input terminal circuit | Source voltage of load Input signal ON OFF Load current |

#### **■ CHARACTERISTIC DATA**



#### **■ DIMENSIONS**



#### ■ NOTES

Polarity of terminals are pre-determined. Please design your circuit accordingly.

#### **■ PACKAGE**

| Style | Quantity/tube (pcs) | MOQ (pcs) |
|-------|---------------------|-----------|
| Tube  | 15                  | 300       |

## **RoHS Compliance and Lead Free Relay Information**

#### 1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free
  now. Most of our signal and power relays are lead-free. Please refer to Lead-Free Status Info.
  (http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and most power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
- We will ship leaded relays as long as the leaded relay inventory exists.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

#### 2. Recommended Lead Free Solder Profile

• Recommended solder paste Sn-3.0Ag-0.5Cu.

#### **Reflow Solder condition**

#### Flow Solder condition:

Pre-heating: maximum 120°C dip within 5 sec. at

260°C soler 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 realys.

#### 4. Tin Whisker

 Dipped SnAgCu solder is known as low risk tin whisker. No considerable length whisker was found by our in house test.

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