

POWER RELAY

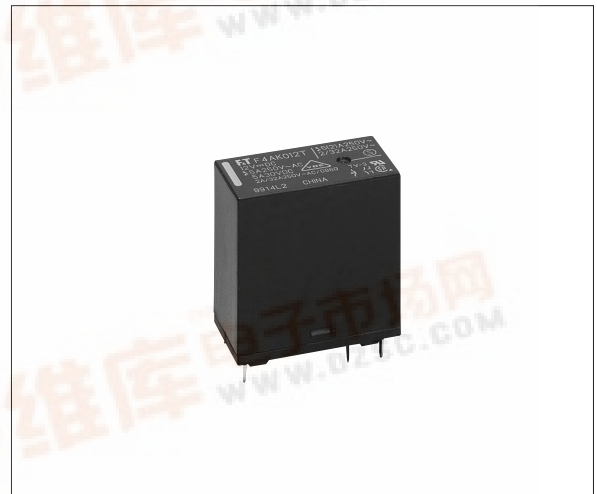
2 POLE 5A/TV-3 RATED COMPACT TYPE

FTR-F4 Series

RoHS compliant

FEATURES

- Small high density type relay 288mm² save 24% compared to VB
- UL/CSA TV-3 rating
- Insulation distance: minimum 6 mm between coil and contacts (IEC65)
Dielectric strength: 4 KVAV
Surge strength: 10 KV
- Card separation system for high noise resistance between coil and contacts
- UL 94V-0 flamability materials, UL Class B (130°C)
- Safety standards
UL, CSA, VDE, SEMKO pending
- RoHS compliant since date code: 0437L2
Please see page 5 for more information



APPLICATIONS

- CRT monitor EMI protection
- Audio system speaker protection

ORDERING INFORMATION

[Example] FTR-F4 A K 012 T - **
 (a) (b) (c) (d) (e) (f)

(a)	Series Name	FTR-F4 : FTR-F4 Series
(b)	Contact Arrangement	A : 2 form A (DPST)
(c)	Coil Type	K : Standard type (530 mW)
(d)	Nominal Voltage	005 : 5 VDC, 006 : 6VDC, 009 : 9VDC 012 : 12VDC, 024 : 24VDC, 048 : 48VDC
(e)	TV-Rating	T : TV-3
(f)	Custom Designation	Special number for customized products



FTR-F4 SERIES

■ SAFETY STANDARD AND FILE NUMBERS

UL508

C22.2 No. 1, No. 14

Please note that UL/CSA ratings may differ from the standard ratings. Please request when the approval markings are required on the cover and/or relay recognized by SEV is required.

Nominal Voltage	Contact Rating
5 to 48 VDC	TV-3, 120 VAC 1/6 HP 125 VAC 1/4HP 277 VAC 5A 30VDC/ 277 VAC res. Pilot duty D300

■ SPECIFICATIONS

Item		FTR-F4	
Contact	Arrangement	2 form A (DPST)	
	Material	Silver alloy	
	Style	Single	
	Resistance (initial)	Maximum 100 mΩ (at 1 A 6 VDC)	
	Rating (resistive)	5A 277 VAC 30 VDC	
	Maximum Carrying Current	5 A	
	Maximum Switching Power	1,250VA / 150 W	
	Maximum Switching Voltage	400 VAC / 300 VDC	
	Maximum Switching Current	5 A	
	Minimum Switching Load*1	5 VDC, 100mA	
	Maximum Inrush Current	120 VAC, 51A (TV-3)	
Coil	Nominal Power(at 20°C)	0.53 W	
	Operate Power (at 20°C)	0.3 W	
	Operating Temperature	-40°C to +70°C (no frost)	
Time Value	Operate (at nominal voltage)	Maximum 15 ms (not including bounce)	
	Release (at nominal voltage)	Maximum 5 ms (not including bounce)	
Insulation	Resistance (at 500 VDC)	Minimum 1,000 MΩ	
	Dielectric Strength	between open contacts	1,000 VAC 1 minute
		between adjacent contacts	3,000VAC 1 minute
		between coil and contacts	4,000 VAC 1 minute
Surge Strength	10,000 V (at 1.2 × 50 μs)(between coil and contacts)		
Life	Mechanical	2 × 10 ⁶ operations minimum	
	Electrical	Contact rating	1 × 10 ⁵ operations minimum
		Lamp load	2.5 × 10 ⁴ operations minimum
Vibration	Misoperation	10 to 55 Hz (double amplitude of 1.5 mm)	
	Endurance	10 to 55 Hz (double amplitude of 1.5 mm)	
Shock	Misoperation	200 m/s ² (11 ±1 ms)	
	Endurance	1,000 m/s ² (6 ±1 ms)	
Weight		Approximately 12 g	

*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load

FTR-F4 SERIES

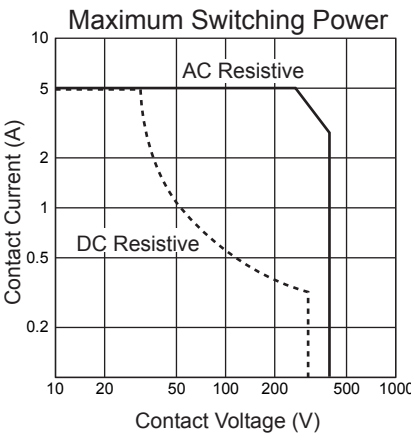
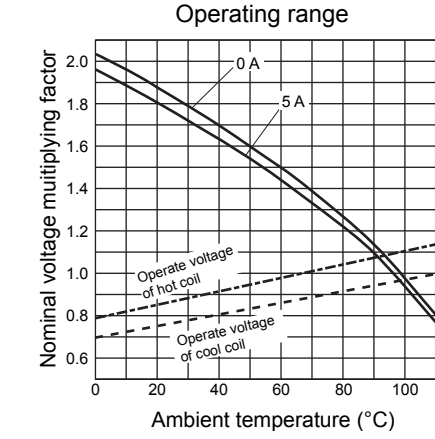
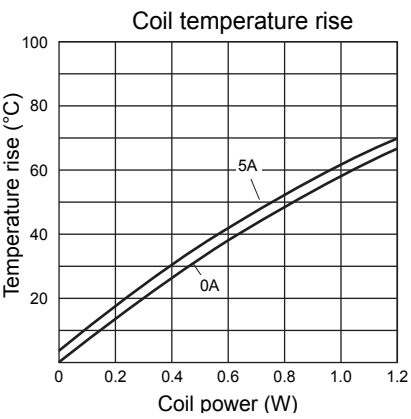
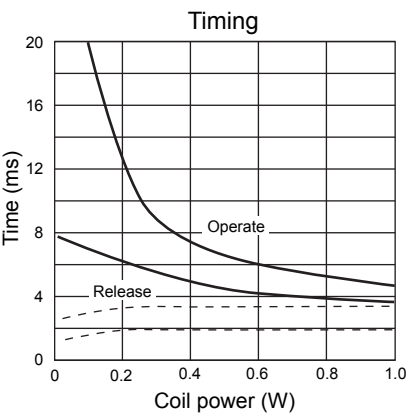
COIL DATA CHART

Standard type

MODEL	Nominal voltage	Coil resistance (±10%)	Operate voltage	Release voltage	Nominal power
FTR-F4AK005T	5 VDC	47 Ω	3.75 VDC	0.25 VDC	530 mW
FTR-F4AK006T	6 VDC	68 Ω	4.5 VDC	0.3 VDC	530 mW
FTR-F4AK009T	9 VDC	155 Ω	6.75 VDC	0.45 VDC	530 mW
FTR-F4AK012T	12 VDC	270 Ω	9.0 VDC	0.6 VDC	530 mW
FTR-F4AK024T	24 VDC	1,100 Ω	18.0 VDC	1.2 VDC	530 mW
FTR-F4AK048T	48 VDC	4,400 Ω	36.0 VDC	2.4 VDC	530 mW

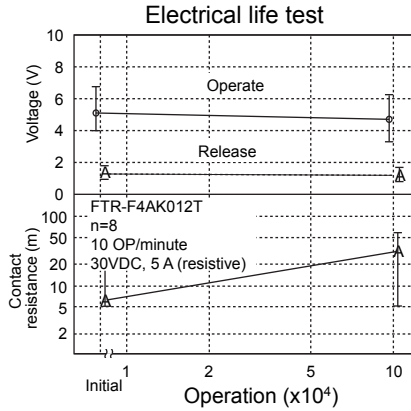
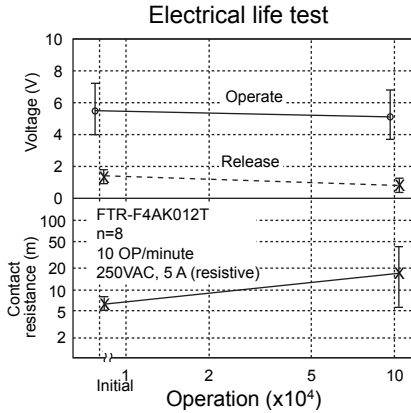
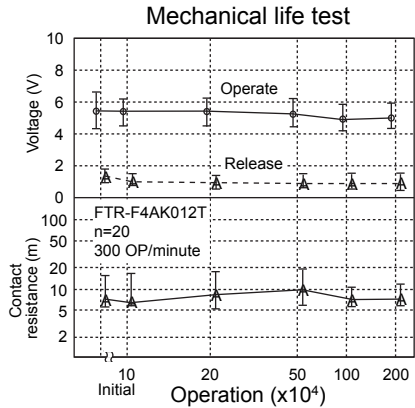
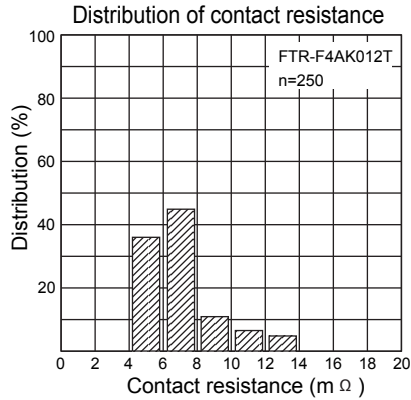
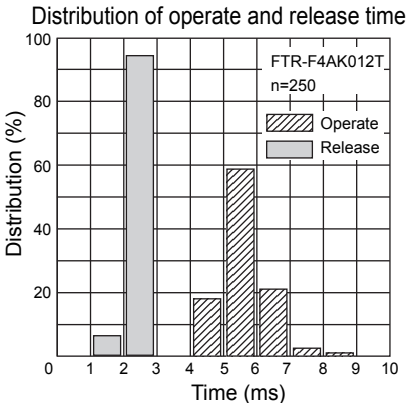
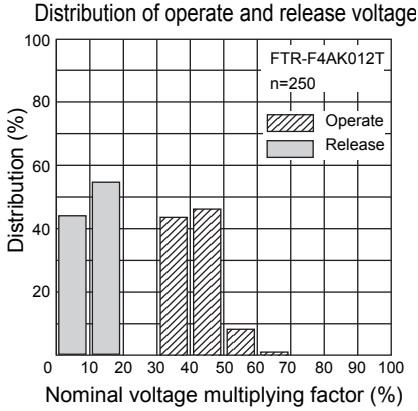
Note: All values in the table are measured at 20°C.

CHARACTERISTIC DATA



FTR-F4 SERIES

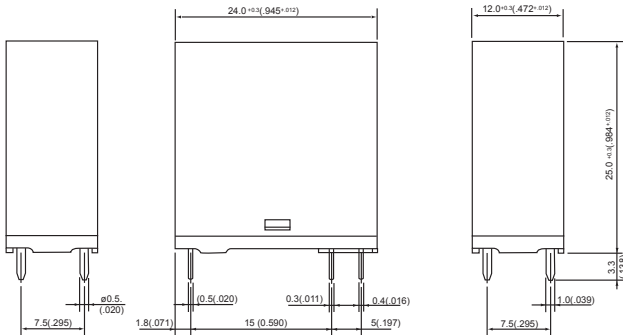
REFERENCE DATA



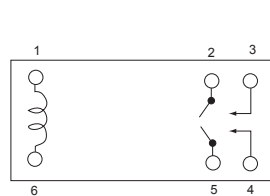
DIMENSIONS

Dimensions

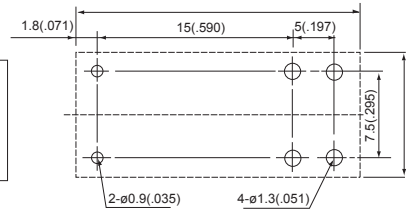
FTR-F4 type



Schematics (BOTTOM VIEW)



PC board mounting hole layout (BOTTOM VIEW)



Unit: mm

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
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.

4. Tin Whisker

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

FTR-F4 SERIES

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