FUJITSU THE POSSIBILITIES ARE INFINITE

POWER RELAY

2 POLE 5A/TV-3 RATED COMPACT TYPE

FTR-F4 Series

RoHS compliant

■ FEATURES

- Small high density type relay 288mm^2 save 24% compared to VB
- UL/CSA/VDE/SEMKO/CQC approved
- Insulation distance: minimum 6 mm between coil and contacts
  IEC60065
  Dielectric strength: 4 KVAV
  Surge strength: 10 KV
- Card separation system for high noise resistance between coil and contacts
- 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) A (b) K (c) 012 (d) T (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)	Contact material / TV-Rating	T : Silver alloy TV-3
(f)	Custom Designation	Special number for customized products

Ordering Code: FTR-F4AK012T Actual Marking:F4AK012T

■ 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.

■ SPECIFICATIONS

Item			FTR-F4
Contact	Arrangement		2 form A (DPST)
	Material		Silver alloy
	Configuration		Single
	Resistance (initial)		Maximum 100 mΩ at 1 A, 6 VDC
	Rating (resistive)		5A, 250VAC / 30VDC
	Maximum Carrying Current*1		5A
	Maximum Switching Rating		1,250 VA / 150W
	Maximum Switching Voltage		400 VAC / 300VDC
	Maximum Switching Current		5A
	Minimum Switching Load*2		100mA 5 VDC
	Maximum Inrush Current		120VAC, 51A (TV-3) at lamp load
Coil	Nominal Power (at 20ºC)		530mW
	Operate Power (at 20ºC)		300mW
	Operating Temperature		-40ºC to +70ºC (no frost)
Time Value	Operate (at nominal voltage)		Maximum 15ms (no bounce)
	Release (at nominal voltage)		Maximum 5ms (no bounce)
Life	Mechanical		2 x 10^6 ops minimum
	Electrical	Contact rating	1 x 10^5 ops min.
		Lamp load (TV-3)	2.5 x 10^4 ops min.
Other	Vibration Resistance	Misoperation	10 to 55 Hz, at double amplitude of 1.5mm
		Endurance	10 to 55Hz, at double amplitude of 1.5mm
	Shock Resistance	Misoperation	200m/s^2 (11±1ms)
		Endurance	1,000m/s^2 (6±1ms)
	Weight		Approximately 12g

*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

■ INSULATION

Item		FTR-F4	Note
Resistance (initial)		Minimum 1,000 MΩ	at 500 VDC
Dielectric Strength	open contacts	1,000 VAC (50/60 Hz) 1 min.	
	coil and contacts	3,000 VAC (50/60 Hz) 1 min.	
	adjacent contacts	4,000 VAC (50/60 Hz) 1 min.	
Surge Voltage (coil and contact)		10,000 V	1.2 x 50μs standard wave

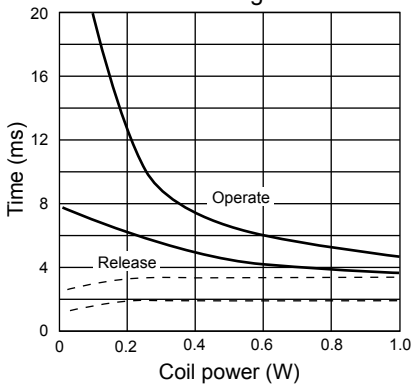
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics) 5A, 277VAC/30VDC (resistive) 1/6 HP, 125VAC 1/4 HP, 277VAC Pilot duty: C300 TV-3 120VAC
CSA	C22.2 No. 14 LR 40304	
VDE	0435, 0860	

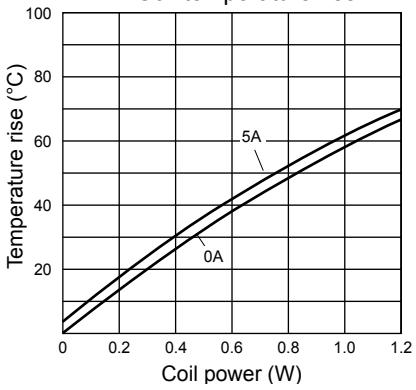
Complies with CQC, SEMKO

■ CHARACTERISTIC DATA

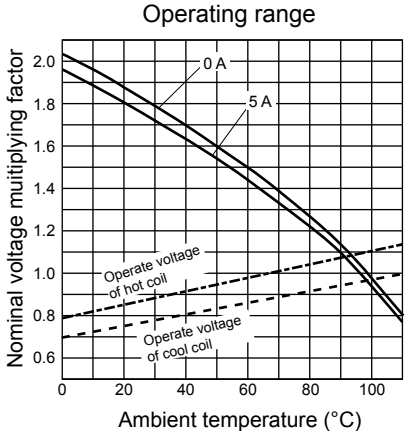
Timing



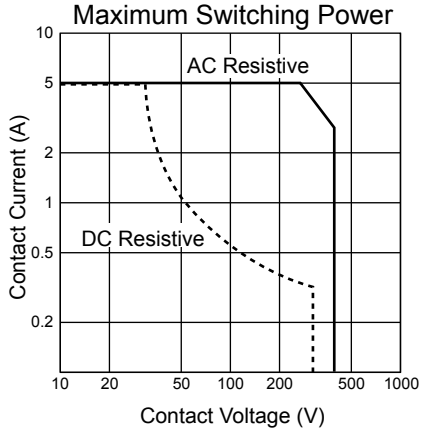
Coil temperature rise



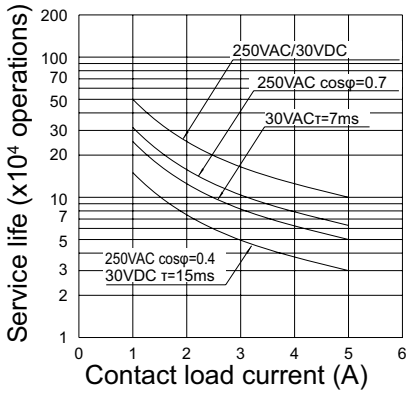
Operating range



Maximum Switching Power

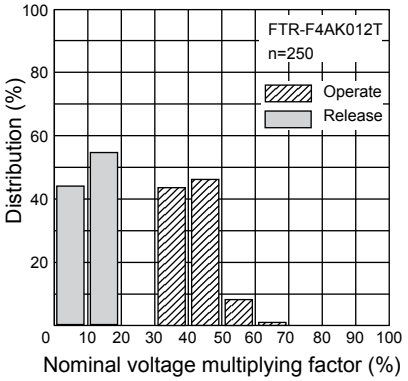


Live Curve

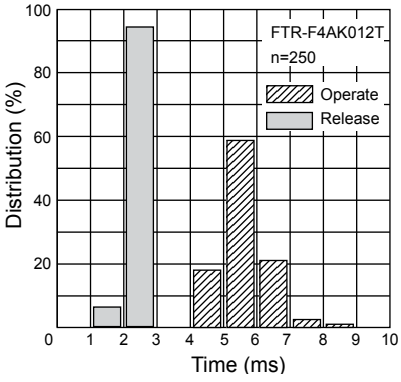


■ REFERENCE DATA

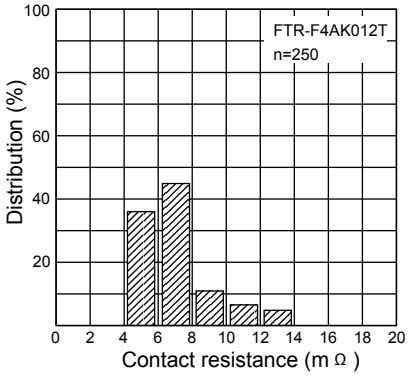
Distribution of operate and release voltage



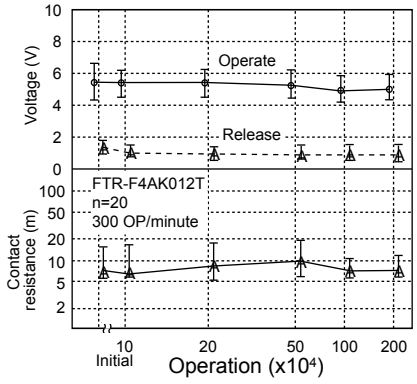
Distribution of operate and release time



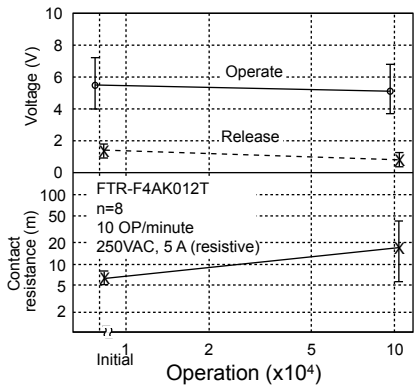
Distribution of contact resistance



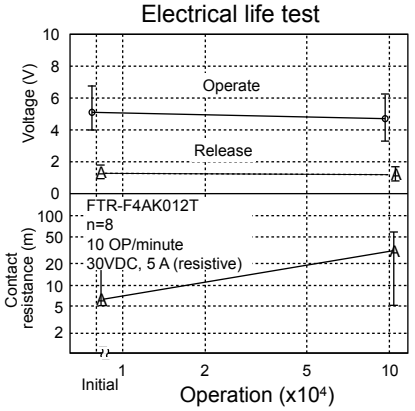
Mechanical life test



Electrical life test



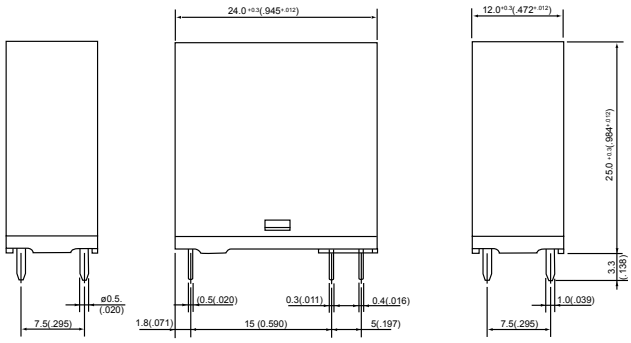
Electrical life test



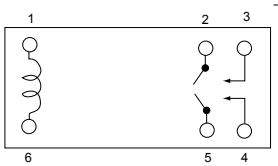
■ DIMENSIONS

● **Dimensions**

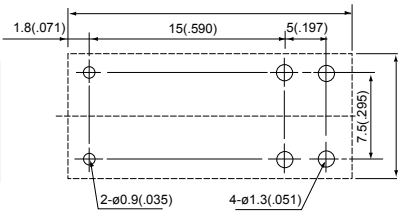
FTR-F4 type



● **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. All 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 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 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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