FUJITSU

POWER RELAY

1 POLE - 120A Inrush current

FTR-F2P Series

■ FEATURES

- SPST 5A
- Comply with TV-8 rating (120A inrush current)
- HIGH DENSITY MOUNTING
  Saves space by 26% compared to FTR-H1 type
- High insulation
  Insulation distance between coil and contacts: 6mm
  Dielectric Strength: 4KV
  Surge Strength: 10KV
- Flux proof type. RTII
- HEAT RESISTANCE, FLAMMABILITY
  Class B (130° C) insulation, flammability 94V-0
- CADMIUM FREE CONTACT FOR ECO-PROGRAM
- SAFETY STANDARDS
  UL, CSA, VDE, SEMKO approved
  UL/CSA TV-5 rating approved
- RoHS Compliant

■ PARTNUMBER INFORMATION

[Example] FTR-F2 (a) P (b) L (c) 012 (d) T (e) - ** (f)

(a)	Relay type	FTR-F2 : FTR-F2 Series
(b)	Contact configuration	P : 1 form A (SPST-NO) (TV-8 rating)
(c)	Coil type / enclosure	L : High sensitivity (250mW) M : High sensitivity (250mW) and high isolation
(d)	Coil rated voltage	012 : 5....24VDC Coil rating table at page 3
(e)	Contact material	T : Silver tin oxide
(f)	Special type	** : Customer specific type designation

Actual marking does not carry the type name : "FTR"
E.g.: Ordering code: FTR-F2PL012T Actual marking: F2PL012T

■ SPECIFICATION

Item			Open type	
			F2 PL ( ) T	F2 PM ( ) T
Contact Data	Configuration		1A (SPST-NO)	
	Construction		Single	
	Material		Silver tin oxide (AgNi)	
	Resistance (Initial)		Max. 100 mOhm at 6 VDC, 1 A	
	Rated Current		5A	
	Rated Switching Voltage		250VAC, 30VDC	
	Max. Carrying Current		5A	
	Max. Switching Voltage		400VAC / 300 VDC	
	Max. Switching Power		1,250VA / 150W	
	Min. Switching Load*		100 mA, 5 VDC	
Life	Mechanical		Min. 2 x 10^6 operations	
	Electrical	AC contact rating	Min. 100 x 10^3 operations	
		DC contact rating	Min. 100 x 10^3 operations	
		Lamp load (TV-5)	Min. 25 x 10^3 operations	
Coil Data	Rated Power		250mW	
	Operate Power		160mW	
	Operating temp range		-40 °C to +70 °C (no frost)	
Timing Data	Operate		Max. 15ms (no diode, without bounce)	
	Release		Max. 5ms (no diode, without bounce)	
Insulation	Resistance (Initial)		Min. 1,000MOhm @500VDC	
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1min	
		Contacts to coil	4,000VAC (50/60Hz) 1min	
	Surge strength	Coil to contacts	10,000V / 1.2 x 50µs standard wave	12,000V / 1.2 x 50µs standard wave
	Clearance		6mm	
	Creepage		6mm	
	EN61810-1, VDE0435	Voltage	250V	
		Pollution degree	2	
		Material group	III a	
		Category	B / 250V	
Other	Vibration Resistance	Misoperation>1us	10 to 55Hz double amplitude 1.5mm	
		Endurance	10 to 55Hz double amplitude 1.5mm	
	Shock	Misoperation>1us	Min. 200m/s^2 (11+/-1ms)	
		Endurance	Min. 1,000m/s^2 (6+/-1ms)	
	Weight		Approximately 12g	
	Sealing		Flux proof, RTII	

* 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 contions and expected reliability levels.

■ COIL RATING

High sensitivity (PL) and high sensitivity / high isolation (PM) (250mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release-Voltage (VDC) *	Max. Coil Voltage (VDC)	Rated Power (mW)
005	5	100	3.5	0.25	8.5	250
006	6	145	4.2	0.3	10.2	
009	9	325	6.3	0.45	15.3	
012	12	575	8.4	0.6	20.4	
018	18	1,245	12.6	0.9	30.6	
024	24	2,310	16.8	1.2	40.8	

Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are valid for pulse wave voltage.

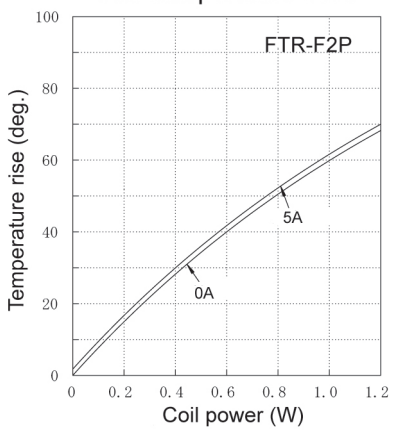
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics) 5A, 30 VDC/250VAC (resistive) 1/6 HP, 125VAC 1/2 HP, 250VAC TV-8, 120 VAC Pilot duty: C300
CSA	C22.2 No. 14 LR 40304	
VDE	0435, 0860 40014652	10A, 250VAC (cos φ 1), 5K 10A, 30VDC, 0ms, 25K
SEMKO	EN 61058-1: 1992 AND A1 EN 61095:1993 and A1+A11	250 VAC, 5 (1) or 5/80 40T70

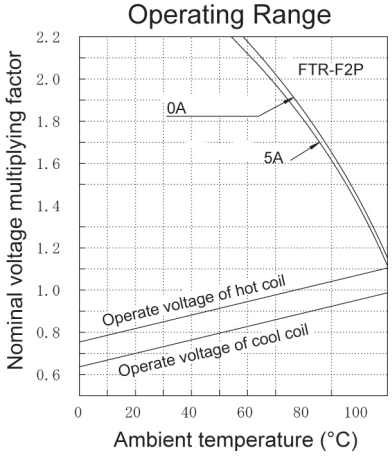
Complies with CQC, NEMKO, DEMKO, FIMKO,

■ CHARACTERISTIC DATA

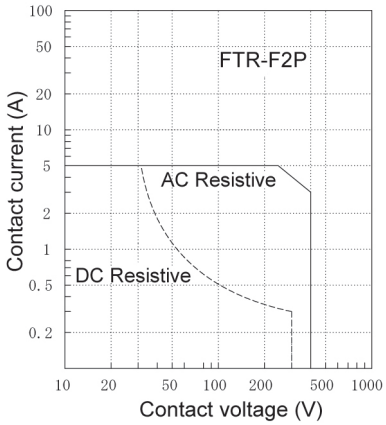
Coil Temperature Rise



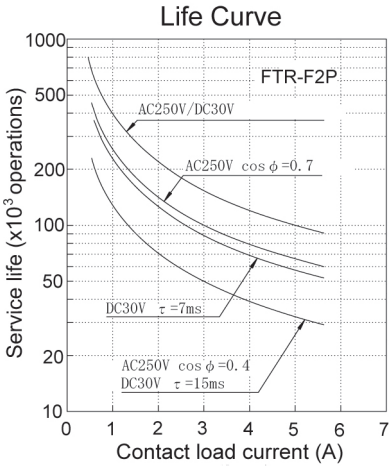
Operating Range



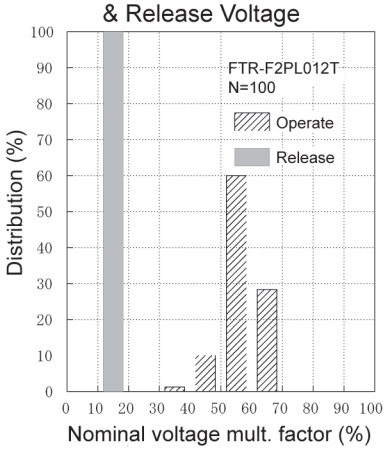
Max. Switching Power



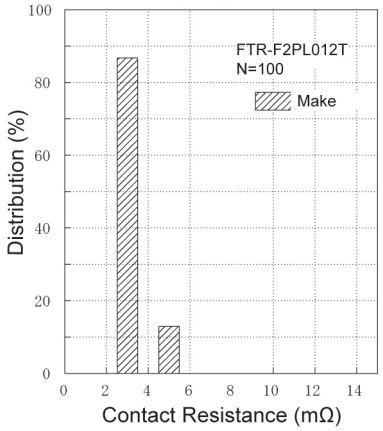
Life Curve



Distribution of Operate & Release Voltage

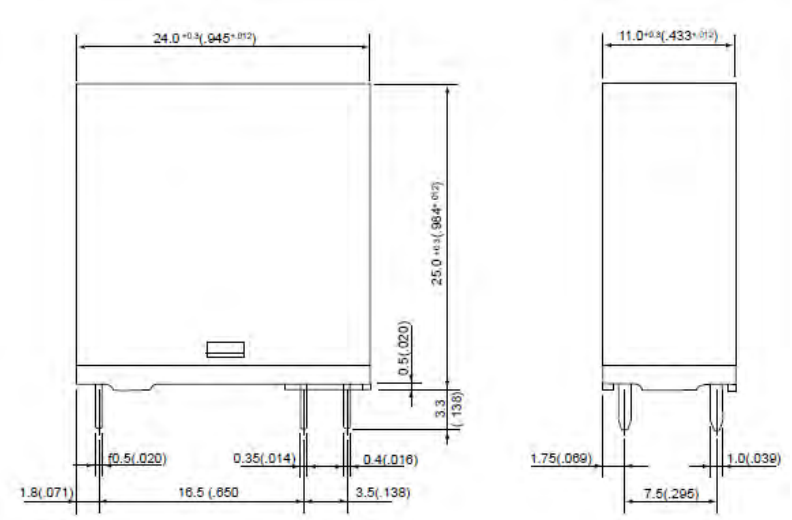


Distribution of Contact Resistance

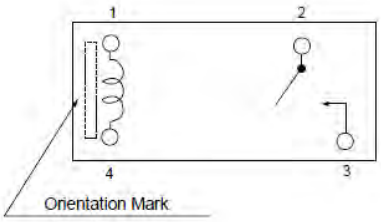


■ DIMENSIONS

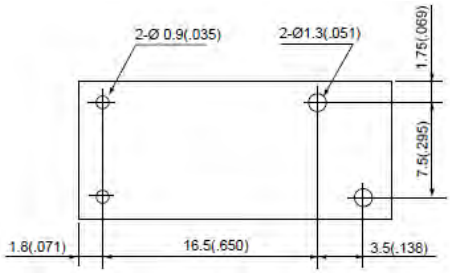
- **Dimensions**



- Schematics
(BOTTOM VIEW)



- **PC board mounting hole layout**
(BOTTOM VIEW)



Unit: mm (in.)

RoHS Compliance and Lead Free Information

1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf
- 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.

2. Recommended Lead Free Solder Profile

- Recommended solder Sn-3.0Ag-0.5Cu.

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, 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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