

POWER RELAY

1 POLE - 5A, TV-3 / TV-5 Type Relay

FTR-F3 Series

■ FEATURES

- High inrush 51A/78A, TV rating capability
- Flat and slim power relays
Flat type (right angle type): height: 7mm
Mounting space: 330mm²
Slim type (standard type)
Width: 7mm
Mounting space: 142mm²
- High inrush current contacts
- High insulation
Insulation distance: minimum 6mm between coil and contacts
(conforms to IEC 60065)
Dielectric strength: 4KV
Surge strength: 10KV
- Cadmium free contact for eco-program
- Safety standards
UL, CSA, VDE, CQC
- Plastic sealed relay, RTIII
- RoHS compliant
Please see page 6 for more information



■ Part Numbers

[Example]	FTR-F3	P	A	012	V
	(a)	(b)	(c)	(d)	(e)

(a)	Relay type	FTR-F3 : FTR-F3 series
(b)	Contact configuration	A : 1 form A, slim type P : 1 form A, flat type
(c)	Coil type (power)	A : 280mW
(d)	Coil rated voltage	012 : 3..... 24VDC Coil rating table at page 3
(e)	Contact material	V : AgSnO ₂ , TV-5 type T : AgSnO ₂ , TV-3 type

Actual marking does not carry the type name: "FTR"

E.g.: Ordering code: FTR-F3PA012V Actual marking: F3PA012V

FTR-F3 Series

■ Specifications

Item			FTR-F3(A;P)A(...)V	FTR-F3(A;P)A(...)T	Remarks / conditions
Contact data	Configuration		1 form A (SPST)		
	Construction		Single		
	Material		T and V: AgSnO ₂		
	Resistance		Max. 100mΩ		Initial at 1A, 6VDC
	Contact rating		5A, 250VAC, 30VDC		Resistive
	Max. inrush current		78A, 250VAC (TV-5)	51A, 250VAC (TV-3)	
	Max. carrying current		5A		
	Max. switching voltage		277VAC, 30VDC		
	Max. switching power		1,250VA, 150W		
	Min. switching load *1		10 mA, 5VDC		
Coil	Rated power (20°C)		280mW		
	Operating temperature range		-40°C ~ +85°C (at rated voltage)		No frost
Timing data	Operate		Max. 10ms		without bounce, no diode
	Release		Max. 10ms		without bounce, no diode
Life	Mechanical		Min. 5 x 10 ⁶ operations		
	Electrical (resistive)		Min. 100 x 10 ³ operations (3A, 250VAC/30VDC) Min. 50 x 10 ³ operations (5A, 250VAC/30VDC)		At rated load
	Electrical (lamp)		Min. 25 x 10 ³ ops. (UL, TV-5)	Min. 25 x 10 ³ ops. (UL, TV-3)	
Insulation	Insulation resistance		Min. 1000MΩ at 500VDC		
	Dielectric strength	Open contacts	750VAC (50/60Hz), 1 minute		
		Coil contact	4000VAC (50/60Hz), 1 minute		
	Surge strength	Coil to contacts	10,000V / 1.2 x 50μs standard wave		
	Clearance		6mm		
	Creepage		6mm		
	EN61810-1, VDE0435	Voltage	250V		
		Pollution	2		
		Material group	III		
Other	Vibration resistance	Misoperation ≥1us	10Hz ~ 55Hz ~ 10Hz single amplitude 0.75mm		Direction X, Y, Z, contact ON/OFF total 6 cycles
		Endurance	10Hz ~ 55Hz ~ 10Hz single amplitude 0.75mm		Direction X, Y, Z, contact OFF total 6 hours
	Shock resistance	Misoperation ≥1us	Min. 100m/s ² (11 ± 1ms)		Direction X, Y, Z, contact ON/OFF total 36 times
		Endurance	Min. 1,000m/s ² (6 ± 1ms)		Direction X, Y, Z, contact OFF total 18 times
	Dimensions / weight		Slim type: 7.0 x 20.3 x 15.0 mm Flat type: 15.0 x 20.3 x 7.0 mm / approx. 6g		
	Sealing		Plastic sealed RTIII		

*1: 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 conditions

FTR-F3 Series

■ Coil Data

Coil code	Rated Coil Voltage (VDC)	Coil Resistance +/-10% (Ω)	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Rated Power (mW)
003	3	32.1	2.25	0.3	280
005	5	90	3.75	0.5	
006	6	130	4.5	0.6	
009	9	290	6.75	0.9	
012	12	515	9	1.2	
018	18	1,160	13.5	1.8	
024	24	2,060	18	2.4	

Note: All values in the table are valid at 20°C and zero contact current, unless otherwise specified.

*: Specified operated values are valid for pulse wave voltage.

Note: Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

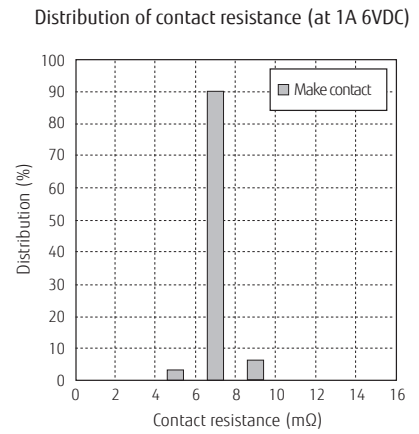
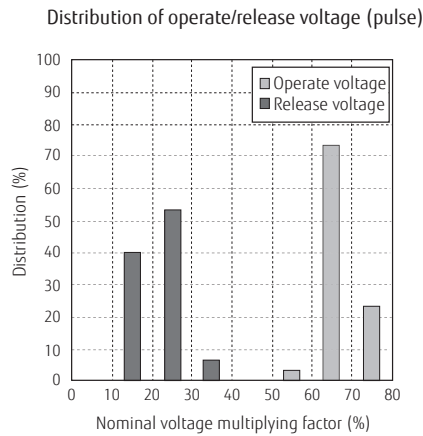
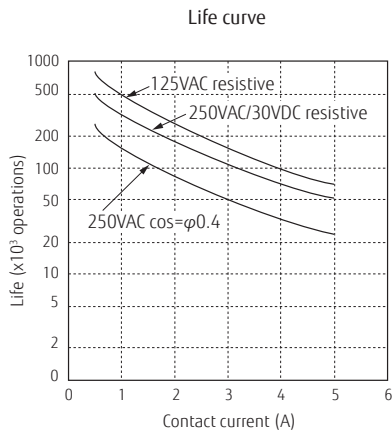
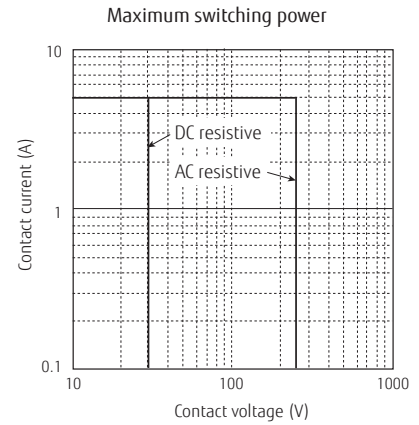
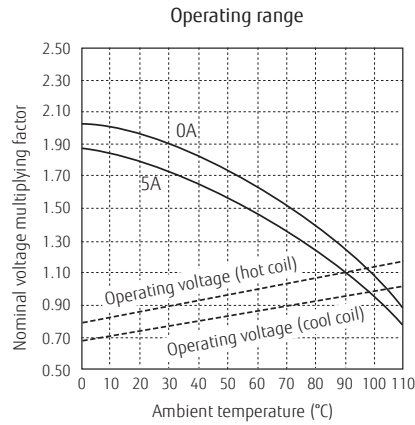
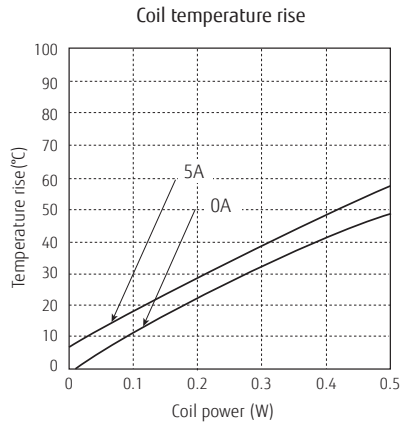
■ Safety Standards

Type	Compliance	Contact rating
UL	UL 508 File No. E63614	Flammability: UL 94-V-0 (plastics) FTR-PA(...)V, FTR-F3AA(...)V 3A, 250VAC / 30VDC resistive 5A, 250VAC / 30VDC resistive TV-5, 120VAC FTR-F3PA(...)T, FTR-F3AA(...)T 3A, 250VAC/30VDC resistive 5A, 250VAC/30VDC resistive TV-3, 120VAC
CSA	C22.2 No. 14 File No. LR 40304	
VDE	IEC/EN61810-1 EN60065 clause 14.6.1	FTR-F3PA(...)V, FTR-F3AA(...)V 3A, 250 VAC, $\cos\phi = 1$ 5A, 250 VAC, $\cos\phi = 1$ 3A, 30VDC (L/R=0ms) 5A, 30VDC (L/R=0ms) FTR-F3PA(...)T, FTR-F3AA(...)T 3A, 250 VAC, $\cos\phi = 1$ 5A, 250 VAC, $\cos\phi = 1$ 3A, 30VDC (L/R=0ms) 5A, 30VDC (L/R=0ms)
CQC	GB15092.1 / GB/T21711.1 10002049449, 17002164382	5A 250VAC / 30VDC

FTR-F3 Series

■ Characteristic Data (Reference)

* Characteristic data is not guaranteed value but measured values of samples from production line.

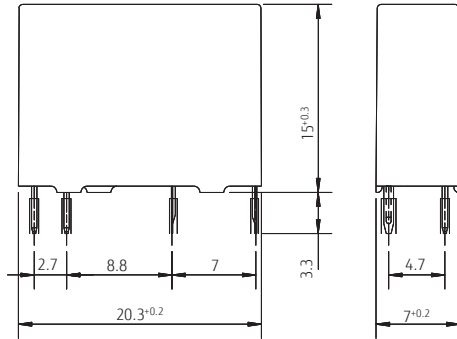


FTR-F3 Series

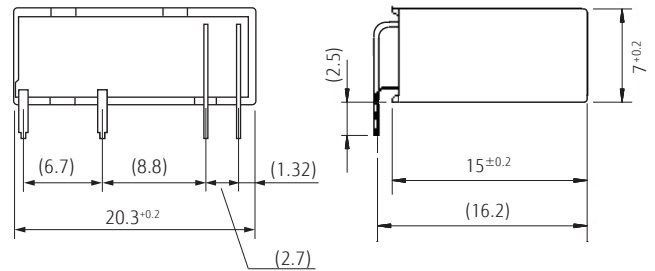
■ Dimensions

- Dimensions

Standard type - FTR-F3AA(...)(V,T)



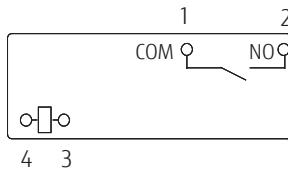
Right angle type - FTR-F3PA(...)(V,T)



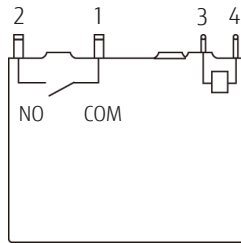
* Dimensions of the terminals do not include thickness of pre-solder.

- Schematics
(BOTTOM VIEW)

Standard type - FTR-F3AA(...)(V,T)

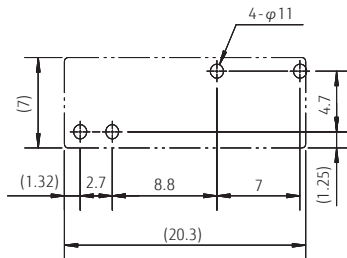


Right angle type - FTR-F3PA(...)(V,T)

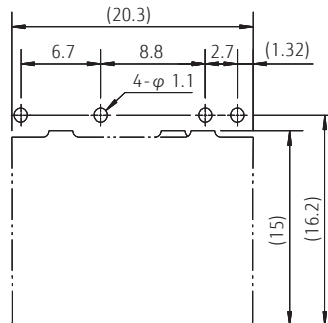


- PC Board Mounting Hole Layout
(BOTTOM VIEW)

Standard type - FTR-F3AA(...)(V,T)



Right angle type - FTR-F3PA(...)(V,T)



(): Reference value

Unit: mm

* Tolerance of PC board mounting hole layout : ±0.1 unless otherwise specified.

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GENERAL INFORMATION

1. ROHS Compliance

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Use of Cadmium in electrical contacts is exempted as per Annex III of the RoHS directive 2011/65/EU. Please consider expiry date of exemption. Relays with Cadmium containing contacts are not to be used for new designs.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: <http://www.fujitsu.com/downloads/MICRO/fcai/relays/lead-free-letter.pdf>
- Characteristic data is not guaranteed values, but measured values of samples from production line.

2. Recommended lead free solder condition

- Recommended solder for assembly: Sn-3.0Ag-0.5Cu.

Flow Solder Condition:

Pre-Heating: maximum 120°C
within 90 sec.
Soldering: dip 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 350-360°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.

FTR-F3 Series

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