

POWER RELAY

1 POLE - 10A Slim Type Relay

FTR-F3 Series

■ FEATURES

- High density mounting
Slim type with 7mm width and 142mm² mounting space
- High insulation
Insulation distance (between coil and contacts):
6mm min. Dielectric strength: 4KV Surge strength: 10KV
- Cadmium free contacts
- RoHS compliant
Please see page 6 for more information



■ Part Numbers

[Example] FTR-F3 A A 012 E - HC
 (a) (b) (c) (d) (e) (f)

(a)	Relay type	FTR-F3 : FTR-F3 series
(b)	Contact configuration	A : 1 form A (SPST-NO)
(c)	Coil type (power)	A : 200mW
(d)	Coil rated voltage	012 : 5..... 24VDC Coil rating table at page 3
(e)	Contact material	E : AgNi
(f)	Enclosure	HC : Flux proof type HK : Plastic sealed type

Actual marking does not carry the type name: "FTR"
 E.g.: Ordering code: FTR-F3AA012E-HC Actual marking: F3AA012E-HC

FTR-F3 Series

■ Specifications

Item			FTR-F3AA()E-HC	FTR-F3AA()E-HK	Remarks / conditions	
Contact data	Configuration		1 form A (SPST-NO)			
	Construction		Single			
	Material		AgNi			
	Resistance		Max. 100mOhm		Initial at 1A, 6VDC	
	Contact rating		10A, 250VAC		Resistive	
	Max. carrying current		10A			
	Max. switching voltage		250VAC			
	Max. switching power		2,500VA			
	Min. switching load *1		100mA, 5VDC			
Coil	Rated power (20°C)		200mW			
	Operate power (20°C)		113mW			
	Operating temperature range		-40°C ~ +40°C (at rated voltage) -40°C ~ +85°C (refer to operating data)		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		Min. 50 x 10 ³ ops.	Min. 10 x 10 ³ ops.	At rated load	
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		7.0 x 20.3 x 15.0 mm / approx. 4g			
	Sealing		Flux proof	Plastic sealed		

*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

*: Values of electrical characteristics are under 15 to 35 degC, 25 to 75%RH (JIS standard condition) unless otherwise specified.

*: Care shall be taken on the heat generated on PC board when maximum carrying current exceeds 10A. Please perform the confirmation test with actual conditions

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■ Coil Data

Coil code	Rated Coil Voltage (VDC)	Coil Resistance +/-10% (Ω)	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Rated Power (mW)
005	5	125	3.75	0.5	200
006	6	180	4.5	0.6	
009	9	405	6.75	0.9	
012	12	720	9	1.2	
018	18	1,620	13.5	1.8	
024	24	2,880	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.

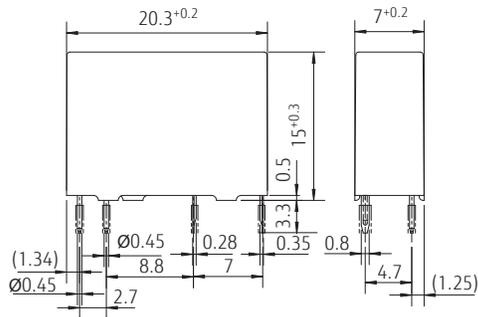
■ Safety Standards

Type	Compliance	Contact rating	
		FTR-F3AA()E-HC	FTR-F3AA()E-HK
UL	UL 508 File No. E63614	Flammability: UL 94-V0 (plastics) 10A, 250VAC, Resistive, 10x10 ³ , 85 °C Class B insulation system	
CSA	C22.2 No. 14 File No. LR 40304	10A, 250VAC (Resistive) 50x10 ³ , 85 °C	10A, 250VAC (Resistive) 50x10 ³ , 85 °C
VDE	IEC/EN61810-1	10A, 250VAC (cos ϕ =1), 50x10 ³ , 85 °C 8A, 250VAC (cos ϕ =1), 50x10 ³ , 105 °C	10A, 250VAC (cos ϕ =1), 10x10 ³ , 85 °C 8A, 250VAC (cos ϕ =1), 50x10 ³ , 105 °C
CQC	GB15092.1 / GB/T21711.1	10A 250VAC	

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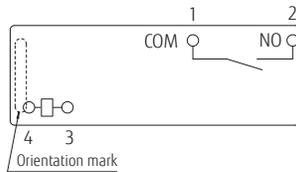
■ Dimensions

- Dimensions

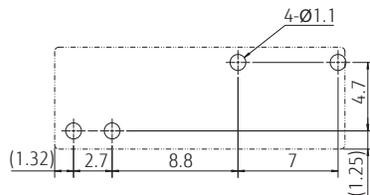


* Dimensions of the terminals do not include thickness of pre-solder.

- Schematics
(BOTTOM VIEW)



- PC Board Mounting Hole Layout
(BOTTOM VIEW)



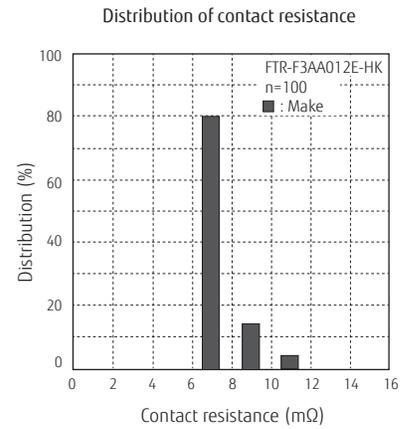
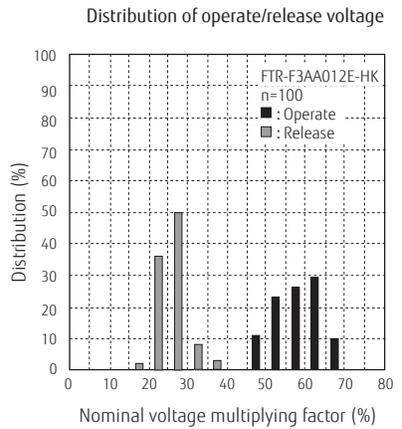
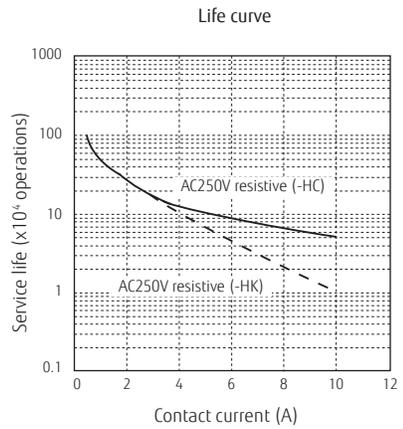
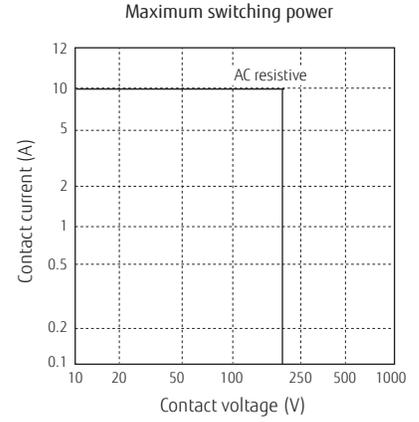
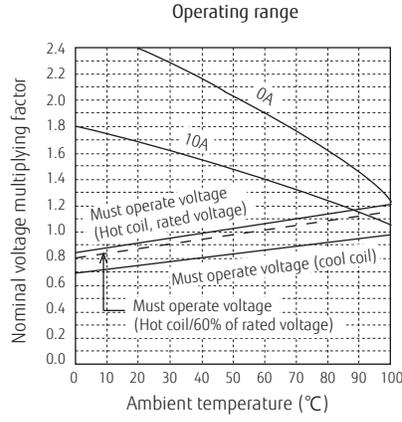
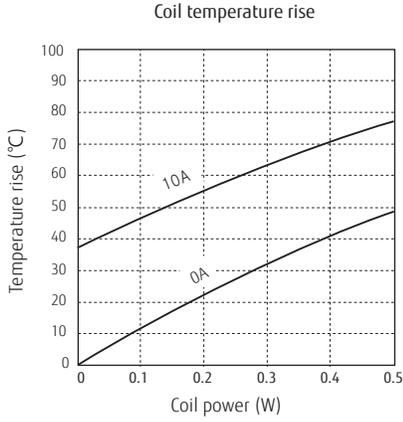
(): Reference value
Unit: mm

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

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■ Characteristic Data (Reference)

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



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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

- 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.
- 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.

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