

# POWER RELAY

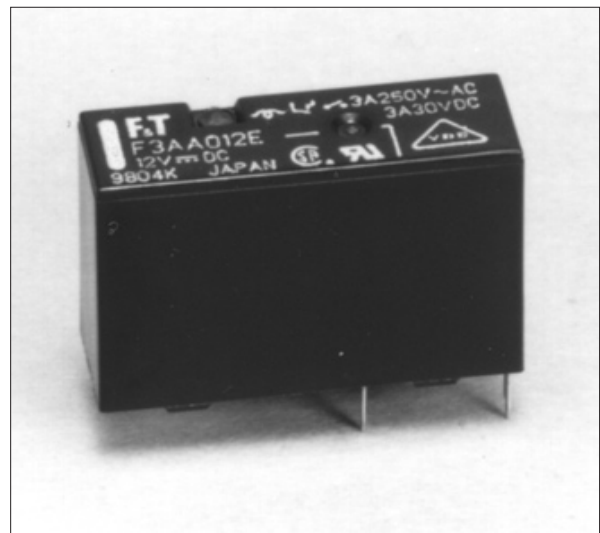
## 1 POLE 3A SLIM TYPE RELAY

### FTR-F3 Series

RoHS compliant

#### ■ FEATURES

- HIGH DENSITY MOUNTING  
Slim type with 7mm width but capable of 250 VAC/30 DC, 5A
- HIGH ISOLATION  
Insulation Distance: Minimum 6mm between coil and contact (conforms to IEC 65)  
Dielectric Strength: 4KV  
Surge Strength: 10KV
- HIGH COIL SENSITIVITY  
Nominal coil power consumption of 200mW
- HIGH FLAMMABILITY RESISTANCE  
Flammability grade of 94V-0, UL Class B (130°C)
- CADMIUM FREE CONTACT FOR ECO-PROGRAM
- SAFETY STANDARDS  
UL, CSA, VDE approved, SEMKO pending
- Plastic sealed relay
- RoHS compliant since date code: 0435R1, 0432R2, 0429R3, 0434R4, 0437L2  
Please see page 5 for more information



#### ■ ORDERING INFORMATION

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

(a)	Series Name	FTR-F 3
(b)	Contact Arrangement	A : 1 Form A (SPST-NO)
(c)	Coil Type	A : Standard (200mW)
(d)	Coil Nominal Voltage	005 : 5DC      012 : 12DC 006 : 6DC      024 : 24DC 009 : 9DC      048 : 48DC
(e)	Contact Material	E : Silver alloy
(f)	Contact Rating	Nil : 3A HA : 5A KS : sealing confirmed (3A)

Remarks: Actual marking on relay would not carry code FTR and be as below:

Ordering code                      Actual marking  
 FTR-F3AA012E                      →                      F3AA012E

# FTR-F3 SERIES

## ■ SAFETY STANDARD AND FILE NUMBERS

UL508 (File No. E63614); C22.2 No. 14 (File No. LR40304), VDE 0435 (File No. 11039-4940-0021)

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..

Type	Nominal Voltage	Contact Rating
FTR-F3	5 to 24 VDC	1/8 HP 277 VAC 1/10 HP 125V 3A 30 VDC/277 VAC res., Pilot duty D300
FTR-F3-HA	5 to 24 VDC	1/10 HP 125 VAC 1/8 HP 277VAC 5A 30VDC / 277 VAC resistive, Pilot duty D300

## ■ SPECIFICATIONS

Item		5A	3A
		FTR-F3 ( ) -HA	FTR-F3 ( )
Contact	Arrangement	1 Form A (SPST-NO)	
	Material	Silver Alloy	
	Resistance (initial)	Maximum 100 m ohm (at 1A 6VDC)	
	Rating (resistive)	250 VAC/30 VDC, 5 A	250 VAC/30 VDC, 3A
	Maximum Carrying Rating	5A	
	Maximum Switching Power	1250 VA/150 W	750 VA/90 W
	Maximum Switching Voltage	277VAC / 30VDC	
	Maximum Switching Current	5A	
	Minimum Switching Load*1	10mA, 5VDC	
Coil	Nominal Power (at 20° C)	0.2W	
	Operate Power (at 20° C)	0.11W	
	Operating Temperature	-40° C to +70° C (no frost)	
Time Value	Operate Time (at nominal voltage)	Maximum 10ms	
	Release Time (at nominal voltage)	Maximum 10ms	
Insulation	Resistance (at 500VDC)	Minimum 1,000 M ohm	
	Dielectric Strength	between open contacts	750 VAC 1 minute
		between coil and contacts	4,000 VAC 1 minute
Surge Strength	10,000V / 1.2 x 50 ms Between Coil and Contacts		
Life	Mechanical	5 x 10 <sup>6</sup> operations minimum	
	Electrical	100 x 10 <sup>3</sup> ops. min.	200 x 10 <sup>3</sup> ops. min.
Vibration	Misoperation	10-55 Hz (double amplitude of 1.5mm)	
	Endurance	10-55 Hz (double amplitude of 1.5mm)	
Shock	Misoperation	100m/s <sup>2</sup> (11±1ms)	
	Endurance	1,000m/ s <sup>2</sup> (6±1ms)	
Weight	Approximately 4g		

\*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.

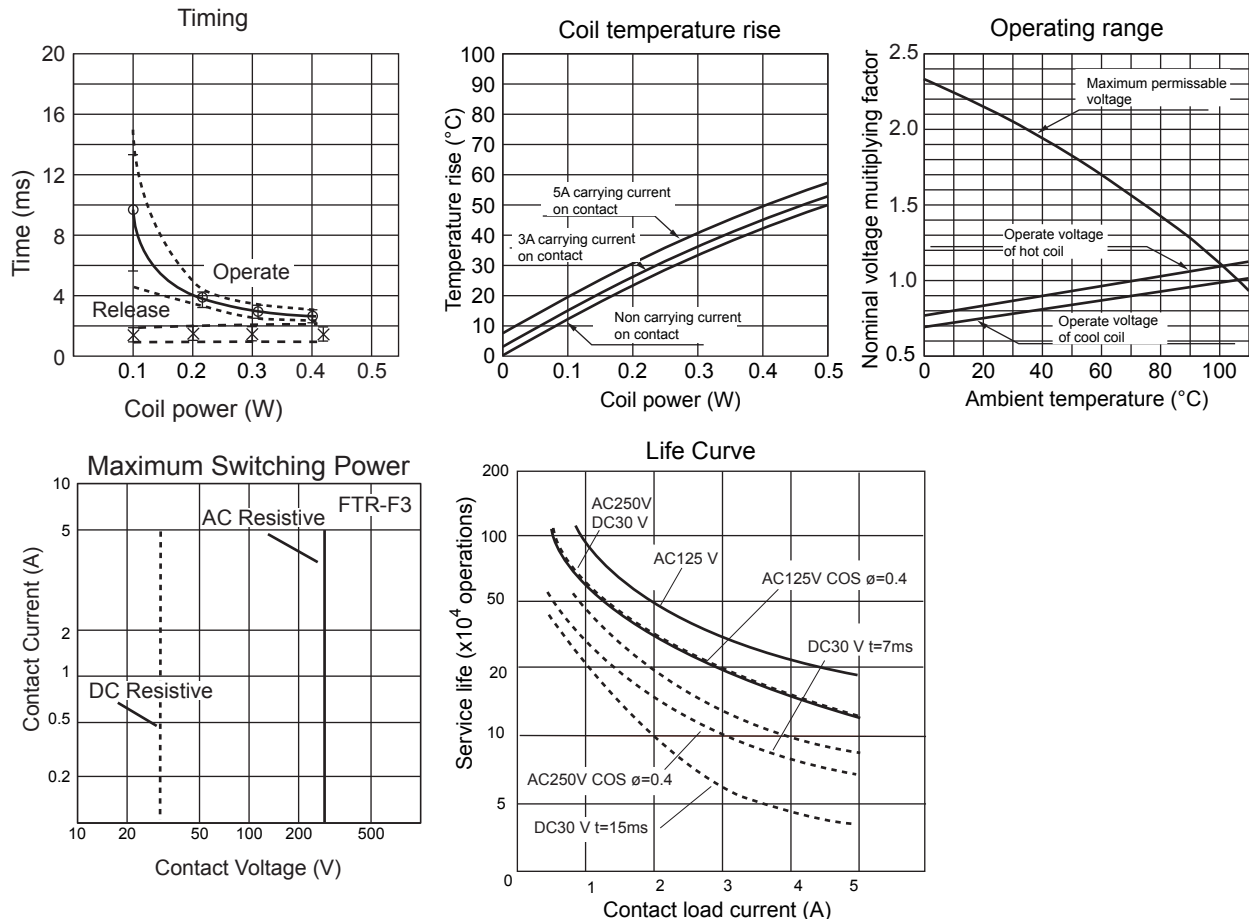
# FTR-F3 SERIES

## COIL DATA CHART

MODEL	Nominal Voltage	Coil Resistance	Operate Voltage	Release Voltage	Nominal Power
FTR-F3AA005E-( )	5VDC	125 Ω	3.75VDC	0.5VDC	200mW
FTR-F3AA006E-( )	6VDC	180 Ω	4.5VDC	0.6VDC	200mW
FTR-F3AA009E-( )	9VDC	405 Ω	6.75VDC	0.9VDC	200mW
FTR-F3AA012E-( )	12VDC	720 Ω	9.0VDC	1.2VDC	200mW
FTR-F3AA018E-( )	18VDC	1,620 Ω	13.5VDC	1.8VDC	200mW
FTR-F3AA024E-( )	24VDC	2,880 Ω	18.0VDC	2.4VDC	200mW

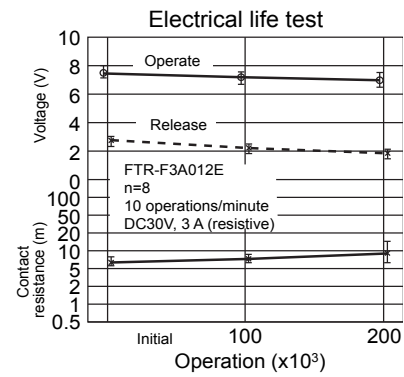
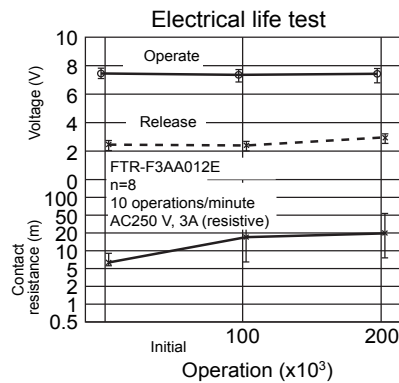
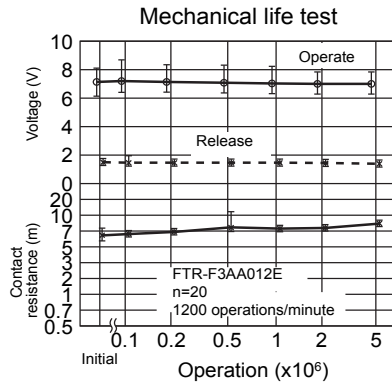
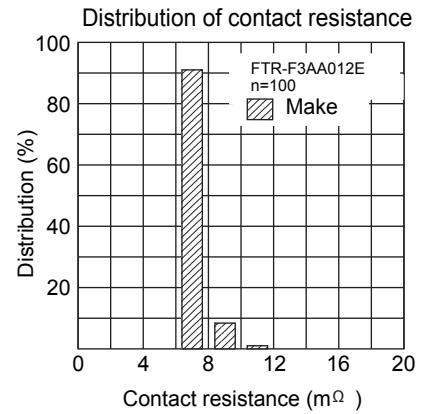
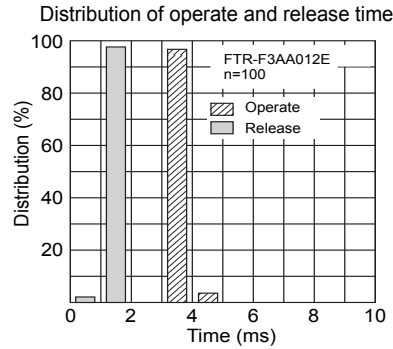
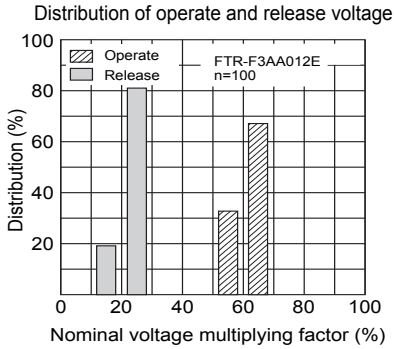
Note: All values in the table are measured at 20°C.

## CHARACTERISTIC DATA



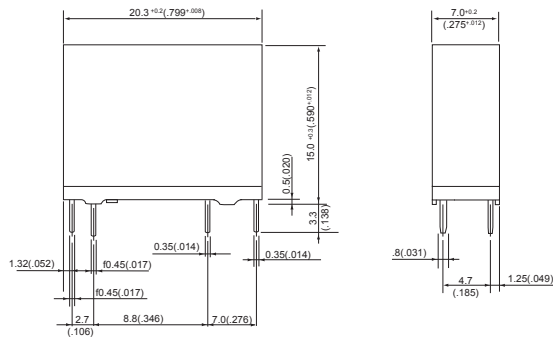
# FTR-F3 SERIES

## REFERENCE DATA

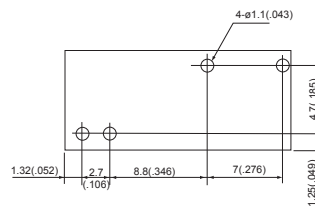


## DIMENSIONS

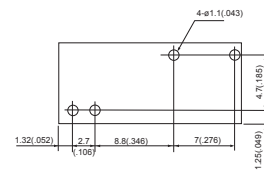
- Dimensions



- Schematics (BOTTOM VIEW)



- PC board mounting hole layout (BOTTOM VIEW)



Creepage distance 6mm

Clearance distance 6mm

## 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.

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