

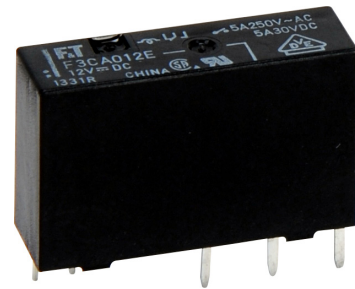
POWER RELAY

1 POLE - 5A change over relay

FTR-F3 Series

■ FEATURES

- High density mounting
 - Height: 15mm
 - Mounting space: 164 mm²
- High insulation
 - Insulation distance: 7mm between coil and contact (conforms to IEC 60065)
 - Dielectric strength: 4KV
 - Surge strength: 10KV
- Cadmium free contact for eco-program
- Safety standards
 - UL, CSA, VDE
- Plastic sealed relay, RTIII
- RoHS compliant
 - Please see page 5 for more information



■ PARTNUMBER INFORMATION

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

(a)	Relay type	FTR-F3	: FTR-F3-Series
(b)	Contact configuration	C	: 1 form C
(c)	Coil type (power)	A	: 360mW
(d)	Coil rated voltage	012	: 5.....24 VDC Coil rating table at page 3
(e)	Contact material	E	: AgNi

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

E.g.: Ordering code: FTR-F3CA012E

Actual marking: F3CA012E

■ SPECIFICATION

Item	FTR-F3		
Contact Data	Configuration		1 form C
	Construction		Single
	Material		AgNi
	Resistance (initial)		Max. 100mOhm at 1A, 6VDC
	Contact rating (resistive)		5A, 250VAC, 30VDC
	Max. carrying current		5A
	Max. switching voltage		277VAC, 150VDC
	Max. switching power		1,250VA, 150W
	Min. switching load *		10 mA, 5VDC
Life	Mechanical		Min. 2 x 10 ⁶ operations
	Electrical		Min. 100 x 10 ³ operations (3A, 250VAC/30VDC) Min. 50 x 10 ³ operations (5A, 250VAC/30VDC)
Coil Data	Rated power (20 °C)		360mW
	Operate power		200mW
	Operating temperature range		-40 °C to +70 °C (no frost)
Timing Data	Operate (at nominal voltage)		Max. 10ms (without bounce)
	Release (at nominal voltage)		Max. 10ms (without bounce)
Insulation	Resistance (initial)		Min. 1,000MOhm at 500VDC
	Dielectric strength	Open contacts	750VAC (50/60Hz) 1min
		Contacts to coil	4,000VAC (50/60Hz) 1min
	Surge strength	Contacts to coil	10,000V / 1.2 x 50µs standard wave
	Clearance		7mm
	Creepage		7mm
	EN61810-1, VDE0435	Voltage	250V
		Pollution degree	2
		Material group	III
Other	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.75mm
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm
	Shock	Misoperation	Min. 100m/s ² (11±1ms)
		Endurance	Min. 1,000m/s ² (6±1ms)
	Weight		Approximately 6g
	Sealing		Plastic sealed RTIII

* 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 and expected reliability levels.

■ COIL RATING

360mW type

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release Voltage (VDC) *	Rated Power (mW)
005	5	69	3.75	0.5	360
006	6	100	4.5	0.6	
009	9	225	6.75	0.9	
012	12	400	9	1.2	
018	18	900	13.5	1.8	
024	24	1,600	18	2.4	

Note: All values in the tables are valid for 20°C and zero contact current.

* Specified operate values are valid for pulse wave voltage.

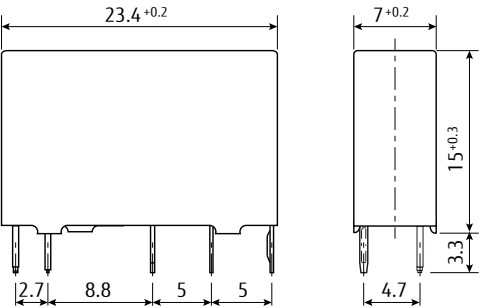
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508	Flammability: UL 94-V0 (plastics)
	E63614	5A, 30 VDC / 250VAC (resistive) 3A, 30 VDC / 250 VAC (resistive)
CSA	C22.2 No. 14 LR 40304	
VDE	IEC/EN61810-1	5A, 250 VAC, $\cos\phi=1$, 50×10^3 , 70°C 5A, 30 VDC, $\tau=0$ msec, 100×10^3 , 70°C 3A, 250 VAC, $\cos\phi=1$, 100×10^3 , 70°C 3A, 30 VDC, $\tau=0$ msec, 200×10^3 , 70°C

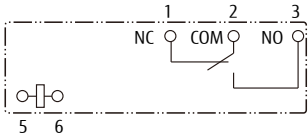
■ DIMENSIONS

Change-over-contact type

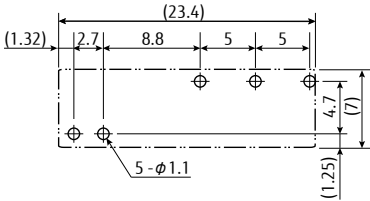
● Dimensions



● Schematics
(BOTTOM VIEW)



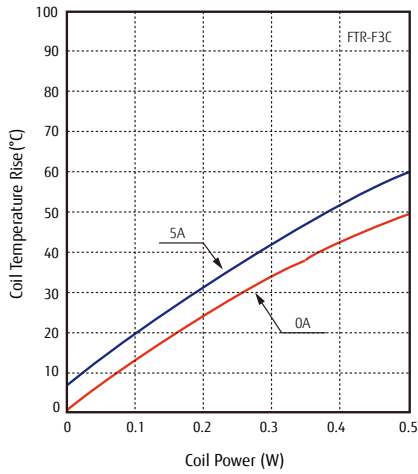
● PC board mounting
hole layout
(BOTTOM VIEW)



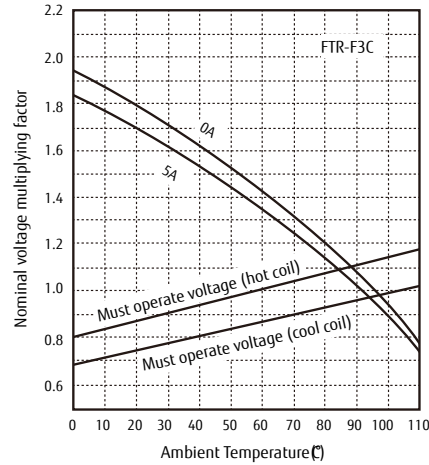
Unit: mm

CHARACTERISTIC DATA

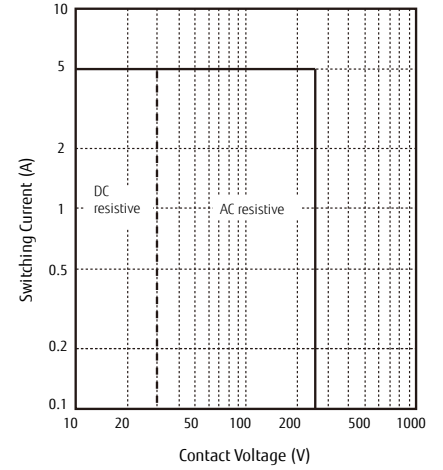
Coil Temperature Rise



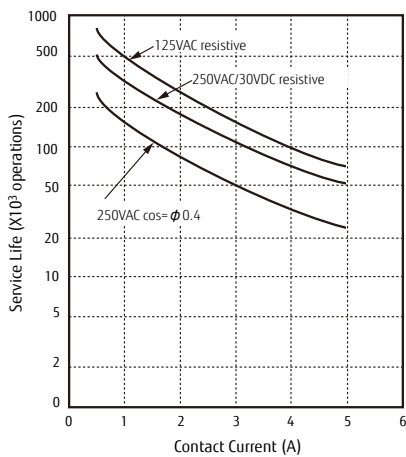
Operating Range



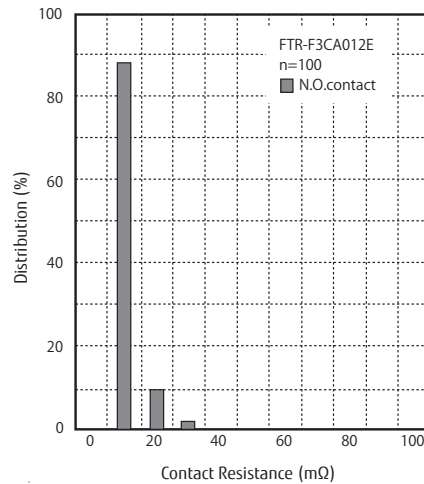
Maximum Switching Power



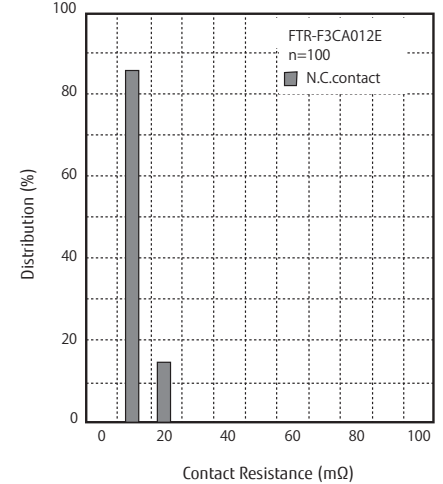
Life Curve



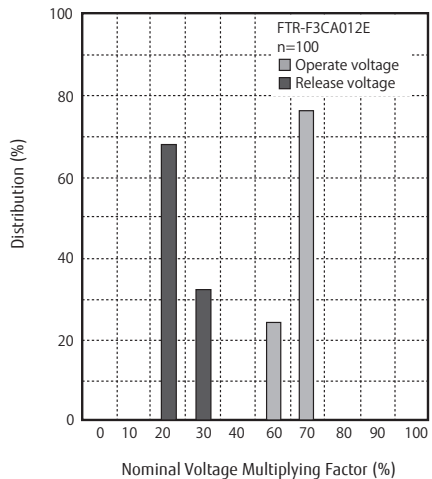
Distribution of Contact Resistance (N.O.)



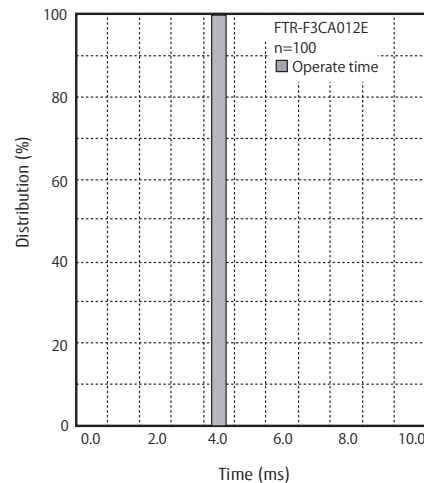
Distribution of Contact Resistance (N.C.)



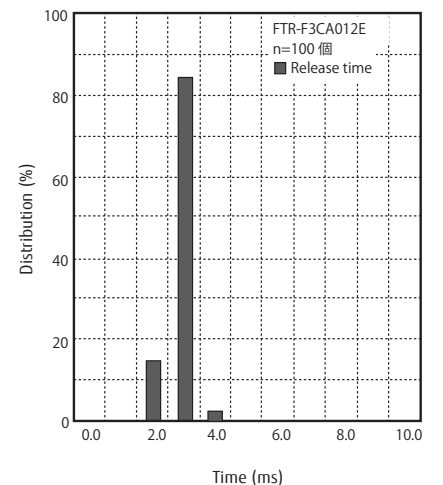
Distribution of Operation & Release Voltage



Distribution of Operation Time



Distribution of Release Time



RoHS Compliance and Lead Free Information

1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives.
As per Annex III of directive 2011/65/EU.
- 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>
- 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 Condition

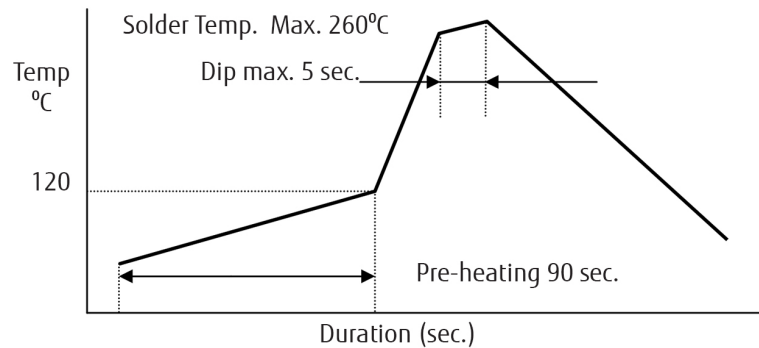
- Recommended solder Sn-3.0Ag-0.5Cu.

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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