

POWER RELAY

1 POLE - 5A, TV-5 TYPE (ATEX COMPLIANT)

FTR-F3 Series

RoHS Compliant

■ FEATURES

- Compliant to IEC60079-15 EU ATEX Directive (type of protection "nC") for use in hazardous location
- It is certified to UL explosion-proof standard UL121201 (Class I, Division 2) (HAZLOC)
- High inrush 78A, TV rating capability
- 1 pole, 5A, 1a (1 Form A) contacts
- Width: 7mm, mounting space: 142mm²
- High insulation
Insulation distance:
Minimum 6mm between coil and contacts
Dielectric strength: 4,000V
Surge strength: 10,000V
- Through hole
- Plastic sealed relay
- Plastic material: UL 94V-0 flammability



■ APPLICATIONS

LCD TVs and other ome appliances that require smaller power supplies used in hazardous location

■ PART NUMBERS

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

(a)	Relay type	FTR-F3 series
(b)	Contact configuration	A : 1a (1 Form A), slim type
(c)	Coil type (power)	A : 280mW
(d)	Coil rated voltage	012 : 12, 24VDC Please refer to coil rating table
(e)	Contact material	V : AgSnO ₂ , TV-5 type
(f)	Special type	B : ATEX compliant

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

■ SPECIFICATIONS

Item			Specifications	Remarks/Conditions
Contact Data	Configuration		1a (1 Form A, SPST)	
	Construction		Single	
	Material		AgSnO ₂	
	Resistance		Max. 100mΩ	Initial at 1A, 6VDC
	Contact rating		5A, 250VAC/30VDC	Resistive
	Max. inrush current		78A, 250VAC (TV-5)	
	Max. carrying current		8A	
	Max. switching voltage		277VAC/30VDC	
	Max. switching power		1,250VA/150W	
	Min. switching load *1		10mA, 5VDC	
Coil	Rated power (20°C)		280mW	
	Operating temperature range		-40°C to +85°C (at rated voltage)	No frost
Time	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)	
Insulation	Insulation resistance		Min. 1000MΩ	At 500VDC
	Dielectric strength	Open contacts	750VAC (50/60Hz), 1 minute	
		Coil to contacts	4,000VAC (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	
Others	Vibration resistance	Misoperation ≥1μs	10 to 55 to 10Hz single amplitude 0.75mm	Coil ON/OFF, 3 axis, total 6 cycles
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm	Coil OFF, 3 axis, total 6 hours
	Shock resistance	Misoperation ≥1μs	Min. 100m/s ² (11±1ms)	Coil ON/OFF, 3 axis, total 36 operations
		Endurance	Min. 1,000m/s ² (6 ±1ms)	Coil OFF, 3 axis, total 18 operations
	Dimensions / Weight		7.0 x 20.3 x 15.0 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 and expected reliability level.

■ COIL DATA

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage ^{*1} (VDC)	Must Release Voltage ^{*1} (VDC)	Rated Power (mW)
012	12	515	9	1.2	280
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.

*1: 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

●Certifications

Certified Body/Type	Certification No./Certified Part Number/Applicable Standard	Contact Rating
UL	Certification No.: E63614 Part number: FTR-F3AA()V▲ Standard: UL60947-1, UL60947-4-1	5A, 250VAC/30VDC (resistive), 85°C (CSA 40°C) TV-5, 120VAC 85°C (CSA 40°C)
	Certification No. E225300 Part number: FTR-F3AA()V▲▲ Standard: UL121201 (Class I, Division 2)	
CSA	Certification No.: LR40304 Part number: FTR-F3AA()V Standard: C22.2 No.14	
VDE	Certification: No.: 40015024 Part number: FTR-F3AA()V Standard: IEC/EN61810-1	5A, 250VAC (cosφ=1), 85°C 5A, 30VDC (L/R=0ms), 85°C
	Certification No.: 40015024 Part number: FTR-F3AA()V Standard: EN60065 clause 14.6.1	5A, Peak inrush 80A), 250VAC, 85°C
CQC	Certification No.: 10002049449 (Malaysia factory) Part number: FTR-F3AA()V Standard: GB/T21711.1, GB4943.1; IEC61810-1	5A, 250VAC/30VDC, 85°C

The part numbers on the safety standards' certifications and the ordering part numbers may differ. Coil code is in ().

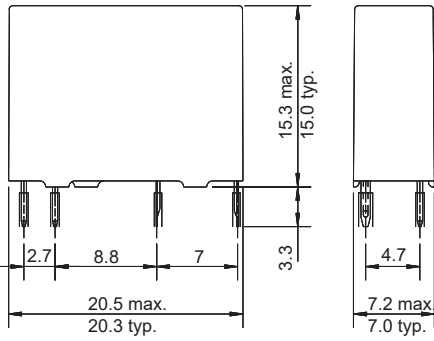
●ATEX directive compliance

Certified Body/Type	Certification No./Certified Part Number/Applicable Standard	Contact Rating
UL	UL registration No. :UL 24 ATEX 3158U Part number: FTR-F3AA()E-B Standard: IEC/EN 60079-0, IEC/EN 60079-15 Equipment protection level:  II 3G Ex nC IIC Gc	8A, 250VAC/30VDC (resistive), 85°C TV-5, 120VAC 85°C

Coil code is in ().

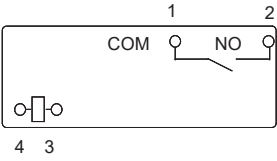
■ DIMENSIONS

Dimensions

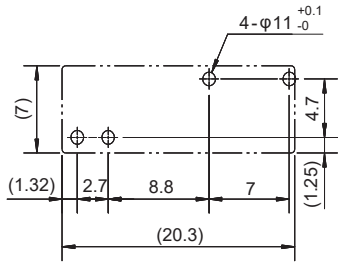


Dimensions of the terminals do not include thickness of pre-soldering.
Tolerance of PC board mounting hole layout : ± 0.1 unless otherwise specified.

Schematics
(BOTTOM VIEW)



PC board mounting hole layout
(BOTTOM VIEW)

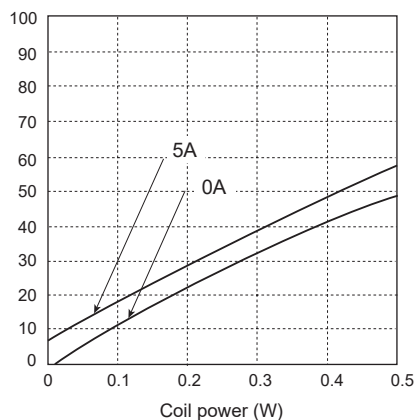


Unit: mm
(): Reference

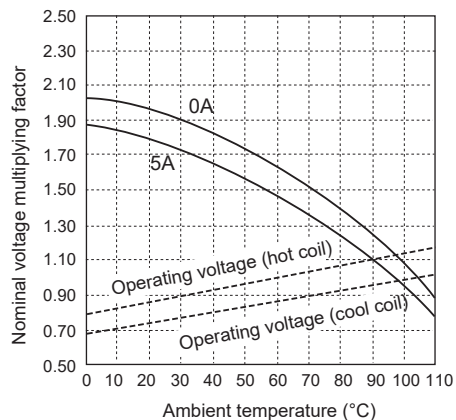
■ CHARACTERISTIC DATA

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

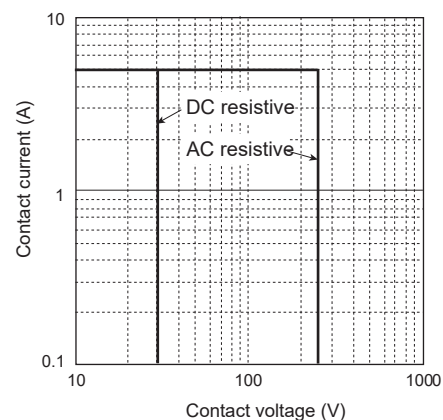
Coil temperature rise



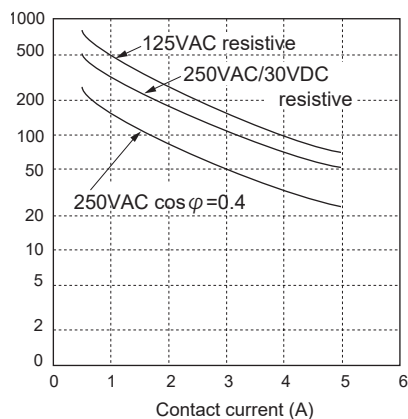
Operating range



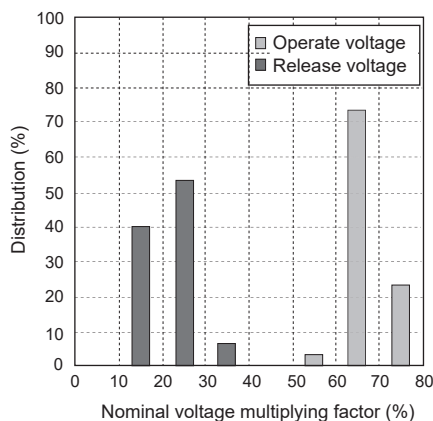
Maximum switching power



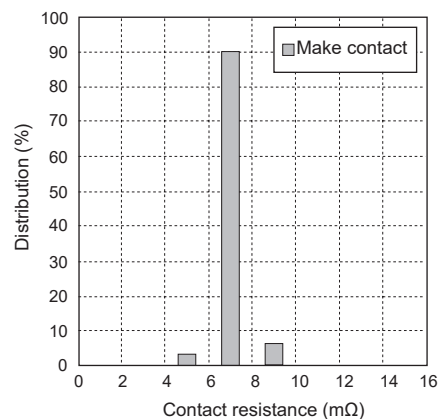
Life curve



Distribution of operate/release voltage (pulse)



Distribution of contact resistance (at 1A 6VDC)



■ PART NUMBER LIST

Part Number	Figure	Contact Configuration	Contact Rating	Rated Power	Contact Material	TV Rating	Special Type
FTR-F3AA()V-B	Slim	1a (1 Form A)	5A, 250VAC/30VDC	Approx. 280mW	AgSnO ₂	UL TV-5	ATEX complilant

CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- Reflow soldering is prohibited.
- Do not use relays in the atmosphere with sulfide gas, chloride gas or nitric oxide. Contact resistance may increase.
- Do not use silicon or silicon-containing product or materials near relays. It may cause contact failure.

GENERAL INFORMATION

1. ROHS Compliance

- All relays produced by FCL Components are compliant with RoHS directive 2011/65/EU, including commission delegated directive 2015/863.

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 340-360°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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