

POWER RELAY

2 POLES - 8A Polarized Latching Relay

FTR-F1L Series

■ FEATURES

- Low profile (height: 16.5mm)
- High insulation
Insulation Distance (between coil and contacts): 8mm min.
Dielectric strength : 5,000 VAC
Surge strength : 10,000 V
- Plastic materials
UL94 Flammability class V-0
- Cadmium free relay
- RoHS compliant (Please see page 7 for more information)



■ Part Numbers

[Example] FTR-F1L - D C A 012 R
 (a) (b) (c) (d) (e) (f)

(a)	Relay type	FTR-F1L : FTR-F1L series
(b)	Coil type	Nil : 1 Coil D : 2 Coil
(c)	Contact configuration	A : 2 form A C : 2 form C
(d)	Coil power	A : Standard, 400mW (1 coil) 600mW (2 coil)
(e)	Coil rated voltage	012 : 5.....24 VDC Coil rating table at page 3
(f)	Special type	R : 8A

Actual marking does not carry the type nameL "FTR"

E.g.: Ordering code: "FTR-F1LDCA012R" Actual marking: "F1LDCA012R"

FTR-F1L Series

■ Specifications

Item	FTR-F1L		Remarks / conditions
Contact data	Configuration	2 form A, 2 form C	
	Construction	Single	
	Material	AgSnO ₂ (Movable: Gold plate)	
	Resistance	Max. 100mΩ at 6VDC, 1A	Initial
	Contact rating	8A, 250VAC / 24VDC	Resistive
	Max. carrying current	8A	
	Max. switching current	8A	
	Max. switching power	200VA / 192W	
	Max. switching voltage	400VAC, 300VDC	
	Min. switching load ^{*1}	10 mA, 5VDC	
Coil data	Rated power (20°C)	1 coil: 400mW 2 coils: 600mW	
	Pulse width	30ms to 1000ms	
	Operating temperature range	-40°C ~ +85°C	No frost
Timing data	Set / reset	Max. 15ms	without bounce, no diode
Life	Mechanical	Min. 3 x 10 ⁶ operations	
	Electrical	Min. 50 x 10 ³ operations	At rated load
Insulation	Insulation resistance		Min. 1000MΩ at 500VDC
	Dielectric strength	Open contacts	1000VAC (50/60Hz), 1 minute
		Coil contact	5000VAC (50/60Hz), 1 minute
		Adjacent contacts	3000VAC (50/60Hz), 1 minute
	Surge strength	Coil to contacts	10000V / 1.2 x 50μs standard wave
	Clearance		8mm
Other	Creepage		8mm
	Vibration resistance	Misoperation	10Hz ~ 55Hz ~ 10Hz single amplitude 0.825mm
		Endurance	10Hz ~ 55Hz ~ 10Hz single amplitude 1.65mm
	Shock resistance	Misoperation	Min. 200m/s ² (11 ± 1ms)
		Endurance	Min. 1,000m/s ² (6 ± 1ms)
	Dimensions / weight		12.8 x 29.0 x 16.5 mm / approx. 12.0g

^{*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 levels.

FTR-F1L Series

■ Coil Data

1 coil

Coil code	Set voltage (VDC)	Reset voltage (VDC)	Coil Resistance +/-10% (Ω)	Max. applied Voltage* (VDC)
5	+3.5	-3.5	62.5	9.0
12	+8.4	-8.4	360	21.2
24	+16.8	-16.8	1440	42.2

2 coils

Coil code	Set voltage (VDC)	Reset voltage (VDC)	Coil Resistance +/-10% (Ω)	Max. applied Voltage* (VDC)
5	+3.5	-	P 41.7	9.0
	-	+3.5	S 41.7	
12	+8.4	-	P 240	21.2
	-	+8.4	S 240	
24	+16.8	-	P 960	42.2
	-	+16.8	S 960	

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.

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.

■ Coil Data

Version	1 coil		2 coils			
Coil terminal division	1	8	8	9	10	1
Set	-	+			-	+
Reset	+	-	+	-		

■ Safety Standards

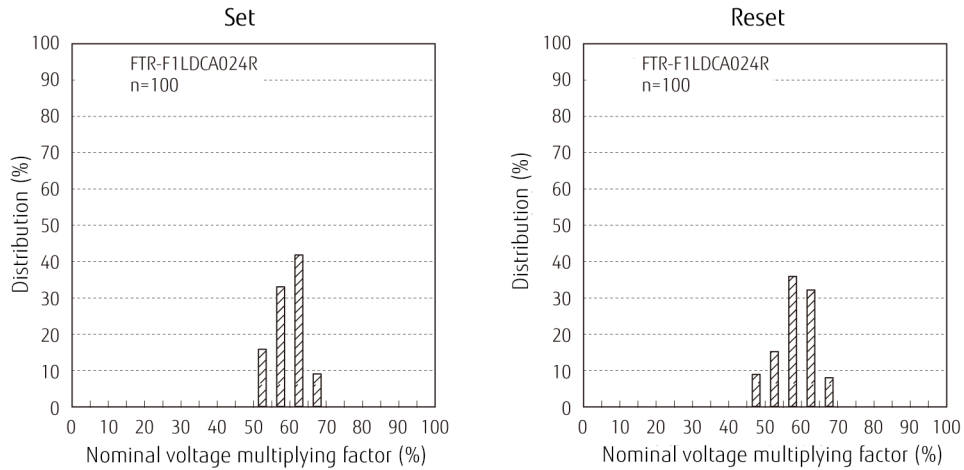
Type	Compliance	Contact rating
UL	UL 508 (No. E63614)	Flammability: UL 94-V0 (plastics) 8A, 250VAC/ 24VDC (resistive), 85°C 1/6hp, 125VAC, 85°C 1/4hp, 250VAC, 85°C TV-3 (only make contact), 85°C Pilot duty: C300, R300
CSA	C22.2 No. 14 (No. LR40304)	8A, 250VAC/ 24VDC (resistive)
VDE	IEC/EN61810-1 EN60335-1 clause 15.3; 16.3; 29.1; 29.2; 29.3 EN60730-1 clause 12.2; 13.2; 20.1; 20.2; 20.3 EN60065 clause 14.6.1	8A, 250VAC ($\cos\phi=1$) 8A, 24VDC (0ms) 3A/51A, 250VAC (1a)
CQC	GB15092.1 (No.17001164878)	8A, 24VDC/250VAC

FTR-F1L Series

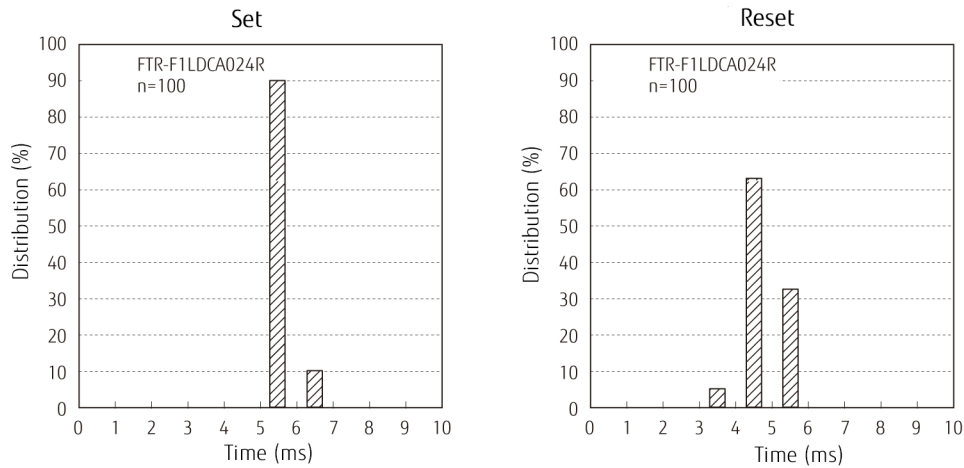
■ Characteristic Data (Reference)

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

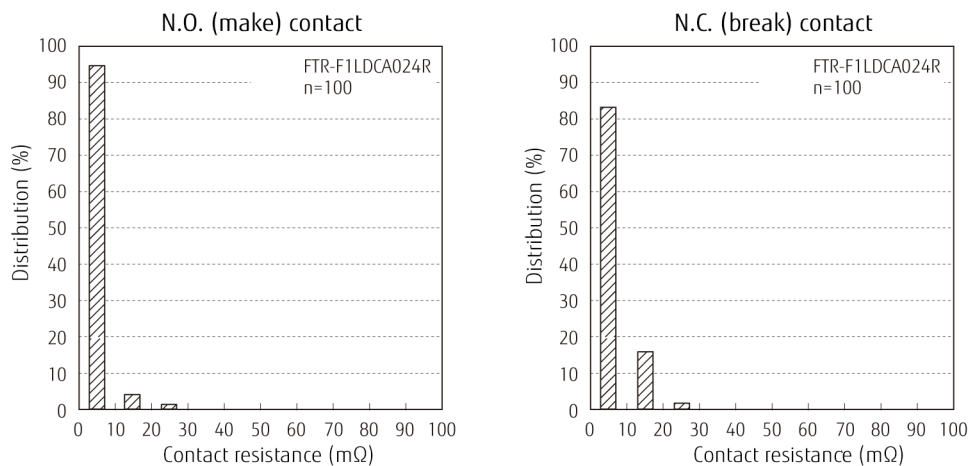
Distribution of set/reset voltage



Distribution of set/reset time



Distribution of contact resistance

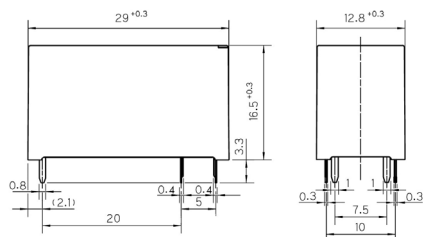


FTR-F1 L Series

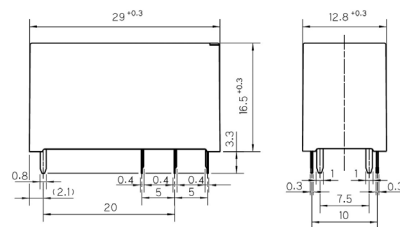
■ Dimensions

- Dimensions

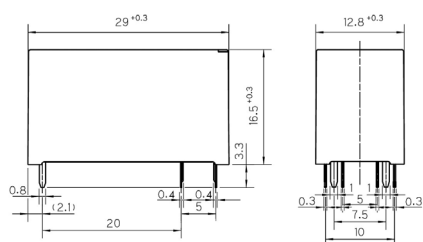
FTR-F1LA type



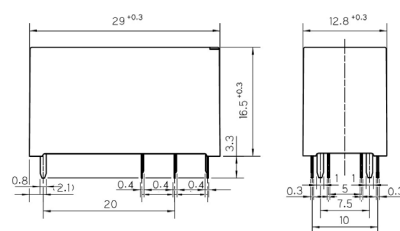
FTR-F1LC type



FTR-F1LDA type



FTR-F1LDC type

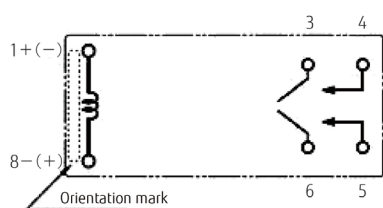


* Dimensions of the terminals do not include thickness of pre-solder.

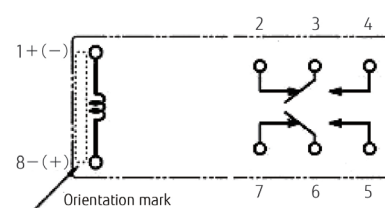
Unit: mm

- Schematics
(BOTTOM VIEW)

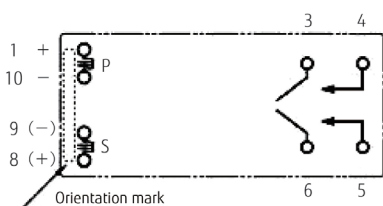
FTR-F1LA



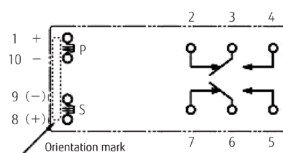
FTR-F1LC



FTR-F1 LDA



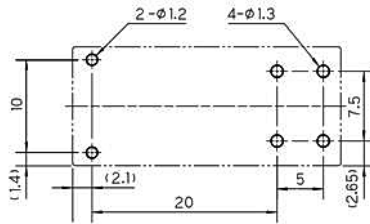
FTR-F1 LDC



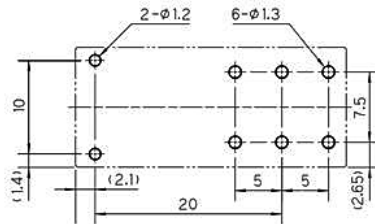
FTR-F1L Series

- PC board mounting hole layout
(BOTTOM VIEW)

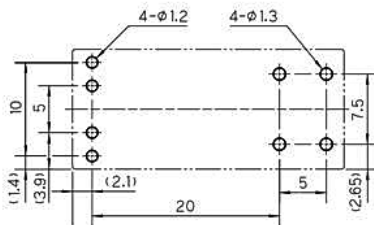
FTR-F1LA type



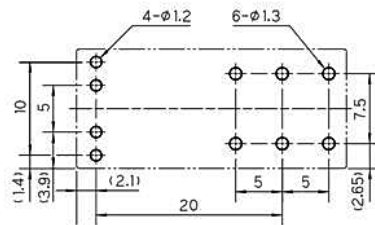
FTR-F1LC type



FTR-F1LDA type



FTR-F1LDC type



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

FTR-F1L Series

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-F1L Series

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