

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: 5KV
Surge strength: 10KV
- Plastic materials
- UL94 Flammability class V-0
- Cadmium free relay
- RoHS compliant
Please see page 5 for more information



■ PARTNUMBER INFORMATION

[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)	Contact rating	R	: 8A		

Actual marking does not carry the type name : "FTR"
E.g.: Ordering code: FTR-F1LDCA012R Actual marking: F1LDCA012R

■ SPECIFICATION

Item		FTR-F1L
Contact Data	Configuration	2 form A, 2 form C
	Construction	Single
	Material	AgSnO ₂
	Resistance (initial)	Max. 100mΩ at 1A, 6VDC
	Contact rating	8A, 250VAC / 24VDC
	Max. carrying current	8A
	Max. switching voltage	400VAC, 300VDC
	Max. switching power	2,000VA, 192W
	Min. switching load *	10mA, 5VDC
Life	Mechanical	Min. 3 x 10 ⁶ operations
	Electrical	Min. 50 x 10 ³ operations
Coil Data	Rated power (20 °C)	1 coil : 400mW 2 coils: 600mW
	Operating temperature range	-40 °C to +85 °C (no frost)
Timing Data	Set / reset (at nominal voltage)	Max. 15ms (without bounce, without diode)
	Coil excitation (at nominal coil voltage)	Min. 30ms, max. 1,000ms
Insulation	Resistance (initial)	Min. 1,000MΩ at 500VDC
	Dielectric strength	Open contacts 1,000VAC, 1min. 50/60Hz
		Adjacent contacts 3,000VAC, 1min. 50/60Hz
		Coil to contacts 5,000VAC, 1 min. 50/60Hz
	Surge strength	coil to contacts 10,000V/ 1.2 x 50μs standard wave
	Clearance	8mm
	Creepage	8mm
Other	Vibration resistance	Misoperation >1μs 10 to 55Hz double amplitude 1.65 mm
		Endurance 10 to 55Hz double amplitude 3.3 mm
	Shock	Misoperation >1μs Min. 200m/s ² (11±1ms)
		Endurance Min. 1,000m/s ² (6±1ms)
	Weight	Approximately 13g

* 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 DATA

Coil Code	1 coil			2 coils		
	Operating range		Coil Resistance +/- 10% (Ohm)	Operating range		Coil Resistance +/- 10% (Ohm)
	Min. VDC	Max. VDC		Min. VDC	Max. VDC	
5	3.5	9	62.5	3.5	9	41.7
12	8.4	21.2	360	8.4	21.2	240
24	16.8	42.2	1,440	16.8	42.2	960

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

* Specified operate values are valid for pulse wave voltage.

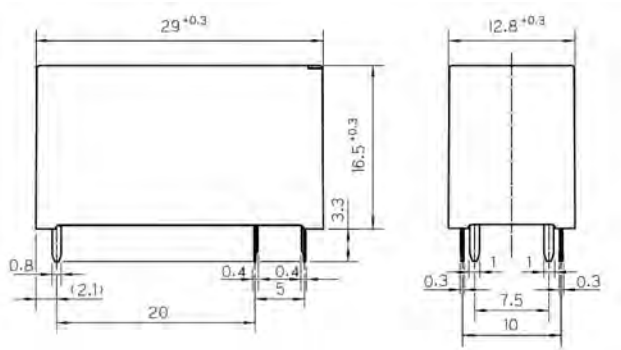
COIL POLARITY

Version	1 coil		2 coils			
Coil terminal division	4	7	4	5	6	7
Set	-	+			-	+
Reset	+	-	+	-		

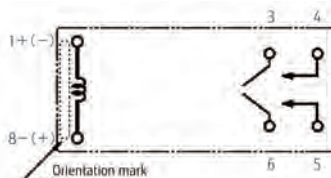
DIMENSIONS

FTR-F1LA type

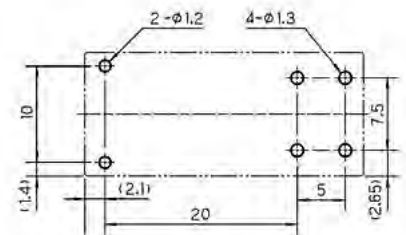
Dimensions



Schematics



PC board mounting hole layout (BOTTOM VIEW)



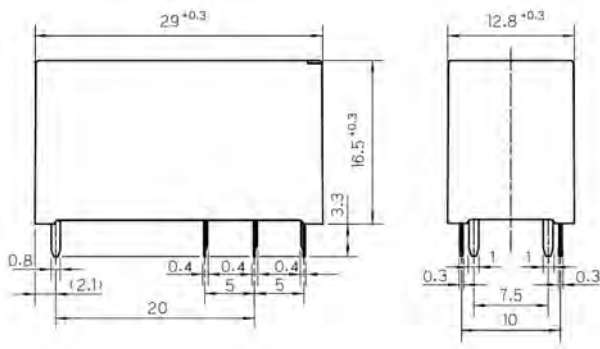
(...) dimension tolerance ± 0.1mm

FTR-F1 L SERIES

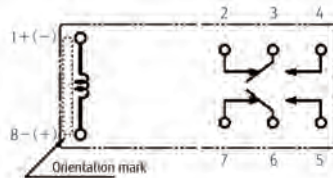
■ DIMENSIONS

FTR-F1LC type

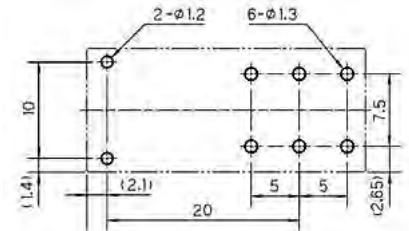
- **Dimensions**



- **Schematics**



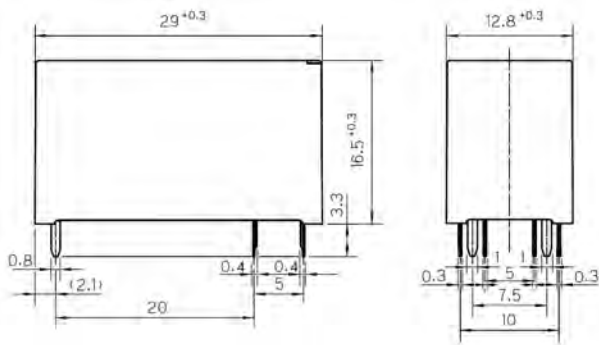
- **PC board mounting hole layout (BOTTOM VIEW)**



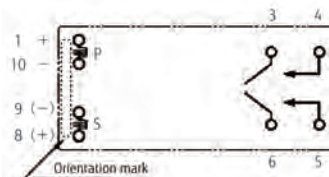
(...) dimension tolerance $\pm 0.1\text{ mm}$

FTR-F1LDA type

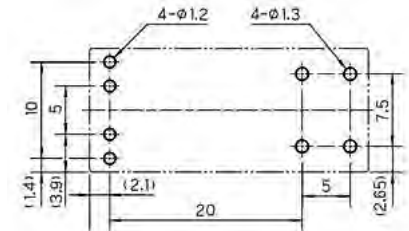
- **Dimensions**



- **Schematics**



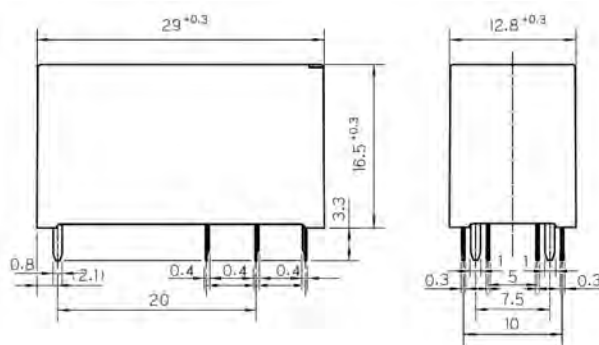
- **PC board mounting hole layout (BOTTOM VIEW)**



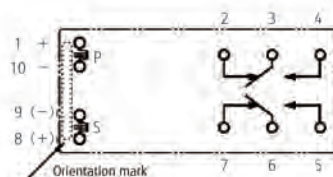
(...) dimension tolerance $\pm 0.1\text{ mm}$

FTR-F1LDC type

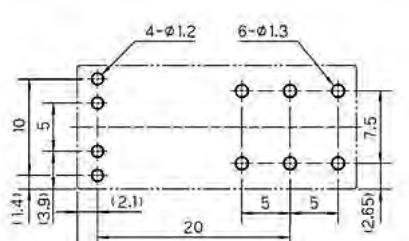
- **Dimensions**



- **Schematics**



- **PC board mounting hole layout (BOTTOM VIEW)**



(...) dimension tolerance $\pm 0.1\text{ mm}$

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 9 sec.
Soldering: dip within 5 sec. at
255 °C \pm 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.

Fujitsu Components International Headquarter Offices

Japan

Fujitsu Component Limited
Gotanda-Chuo Building
3-5, Higashigotanda 2-chome, Shinagawa-ku
Tokyo 141, Japan
Tel: (81-3) 5449-7010
Fax: (81-3) 5449-2626
Email: promothq@ft.ed.fujitsu.com
Web: www.fcl.fujitsu.com

North and South America

Fujitsu Components America, Inc.
250 E. Caribbean Drive
Sunnyvale, CA 94089 U.S.A.
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: components@us.fujitsu.com
Web: <http://us.fujitsu.com/components>

Europe

Fujitsu Components Europe B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: (31-23) 5560910
Fax: (31-23) 5560950
Email: info@fceu.fujitsu.com
Web: emea.fujitsu.com/components/

Asia Pacific

Fujitsu Components Asia Ltd.
102E Pasir Panjang Road
#01-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcal@fcal.fujitsu.com
Web: <http://www.fujitsu.com.sg/services/micro/components/>

©2013 Fujitsu Components Europe B.V. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

The contents, data and information in this datasheet are provided by Fujitsu Component Ltd. as a service only to its user and only for general information purposes.

The use of the contents, data and information provided in this datasheet is at the users' own risk.

Fujitsu has assembled this datasheet with care and will endeavor to keep the contents, data and information correct, accurate, comprehensive, complete and up to date.

Fujitsu Components Europe B.V. and affiliated companies do however not accept any responsibility or liability on their behalf, nor on behalf of its employees, for any loss or damage, direct, indirect or consequential, with respect to this datasheet, its contents, data, and information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof.

Nor do Fujitsu Components Europe B.V. and affiliated companies accept on their behalf, nor on behalf of its employees, any responsibility or liability for any representation or warrant of any kind, express or implied, including warranties of any kind for merchantability or fitness for particular use, with respect to these datasheets, its contents, data, information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Rev. August 22, 2013

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[FCL Components:](#)

[FTR-F1LDAA005R](#) [FTR-F1LDAA012R](#) [FTR-F1LDCA005R](#)