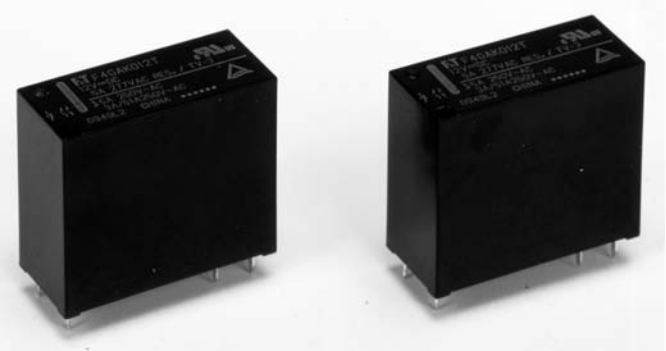
FUJITSU

POWER RELAY
2 POLE - 5A - 1.5mm contact gap
FTR-F4G Series

■ FEATURES

- 2 Pole, 5A
- 2 Form A
- Contact gap 1.5mm
  (Compliance with European photovoltaic standard VDE0126)
- Sealed type available
- High insulation in small package
  (between coil and contact)
  - Insulation distance: min 8.0mm
  - Dielectric strength: 5,000VAC
  - Surge strength: 10,000V
- Flammability UL94V-0 (plastics)
- RoHS compliant
  Features cadmium-free contacts
  Please see page 5 for more information



■ PARTNUMBER INFORMATION

[Example] FTR-F4G (a) A (b) K (c) 012 (d) T (e) - KW (f)

(a)	Relay type	FTR-F4G : FTR-F4G-Series
(b)	Contact configuration	A : 2 form A
(c)	Coil type	K : Standard type (0.8W)
(d)	Coil rated voltage	012 : 3.....60 VDC Coil rating table at page 3
(e)	Contact material / TV rating	T : Silver alloy / TV-3 rating
(f)	Optional type	Nil : Flux free type KW : Plastic sealed type

Actual marking does not carry the type name : "FTR"
E.g.: Ordering code: FTR-F4GAK012T Actual marking: F4GAK012T

■ SPECIFICATION

Item				FTR-F4G flux free type	FTR-F4G-KW plastic sealed type
Contact Data	Configuration			2 form A	
	Material			Silver alloy	
	Resistance (initial)			Max. 100mΩ at 1A, 6VDC	
	Contact rating			5A, 250VAC (resistive)	
	Max. carrying current			5A	
	Max. switching current			5A	
	Max. switching voltage			400VAC	
	Max. switching power			1,250VA	
	Min. switching load (reference) *1			100 mA, 5VDC	
Life	Mechanical			Min. 500 x 10^3 operations	
	Electrical (resistive)	Resistive (5A 250VAC)		Min. 100 x 10^3 operations	Min. 20 x 10^3 operations
		Resistive (1A 250VAC)		-	Min. 100 x 10^3 operations
		Lamp (UL TV-3)		Min. 25 x 10^3 operations	
		250W micro inverter AC output control		-	Min. 100 x 10^3 operations
Coil Data	Rated power (at 20 ℃)			Approximately 0.8W	
	Operating temperature range			-40 ℃ to +70 ℃ (no frost)	
Timing Data	Operate (at nominal voltage)			Max. 12ms (without bounce)	
	Release (at nominal voltage)			Max. 5ms (without bounce)	
Insulation	Contact gap (initial)			Minimum 1.5mm	
	Resistance (initial)			Min. 1,000MΩ at 500VDC	
	Dielectric strength		Open contacts	1,500VAC, 1min.	
			Contacts sets	3,000VAC, 1min.	
			Coil and contacts	5,000VAC, 1min.	
	Surge strength		Coil to contacts	10,000V / 1.2 x 50μs standard wave	
Other	Vibration resistance		Misoperation	10 to 55 to 10Hz single amplitude 0.75 mm	
			Endurance	10 to 55 to 10Hz single amplitude 0.75 mm	
	Shock resistance		Misoperation	Min. 100m/s² (11 ± 1ms)	
			Endurance	Min. 1,000m/s² (6 ± 1ms)	
	Weight			Approximately 18 g	

*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.

■ COIL RATING

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC)*	Must Release Voltage (VDC)*	Rated Power (W)
003	3	11.3	2.1	0.15	Approx. 0.8
005	5	31	3.5	0.25	
006	6	45	4.2	0.3	
009	9	101	6.3	0.45	
012	12	180	8.4	0.6	
018	18	405	12.6	0.9	
024	24	720	16.8	1.2	
048	48	2,880	33.6	2.4	
060	60	4,500	42.0	6.0	

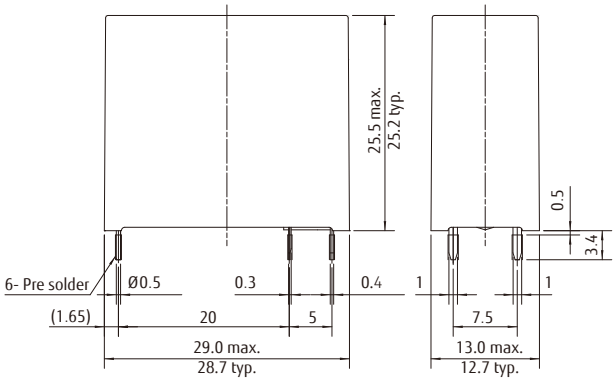
Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are valid for pulse wave voltage.
Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of at over voltage.

■ SAFETY STANDARDS

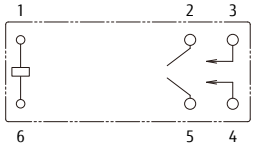
Type	Compliance	Contact rating
UL	UL 508 C22.2 No.14 (cULus) E63614	5A, 277VAC, resistive TV-3, 125VAC
TUV	IEC/EN61810-1 EN60730-1 clause 12.2; 13.2; 20.1; 20.2; 20.3 EN60335-1 clause 15.3; 16.3; 29.1; 29.2; 29.3 EN60950-1 clause 2.9; 2.10; 5.2 EN60065 clause 14.6.1	5A, 250VAC (cosφ=1) 70°C 3 / 51A, 250VAC, 70°C

■ DIMENSIONS

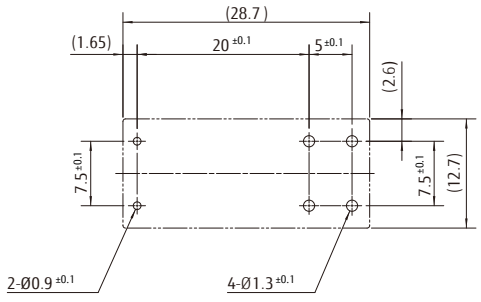
● **Dimensions**



● **Schematics**
(BOTTOM VIEW)



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

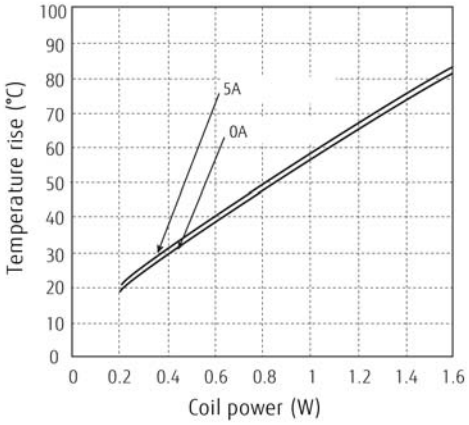


Dimensions of the terminals do not include thickness of pre-solder.

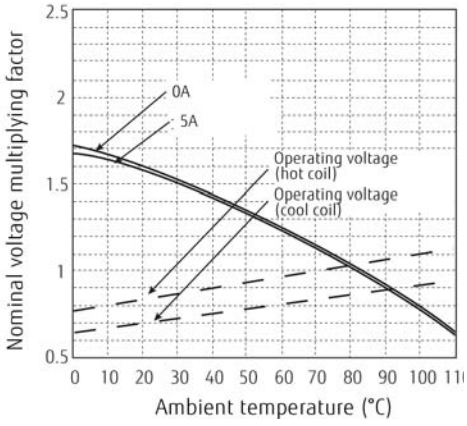
Unit: mm
( ): Reference

■ CHARACTERISTIC DATA

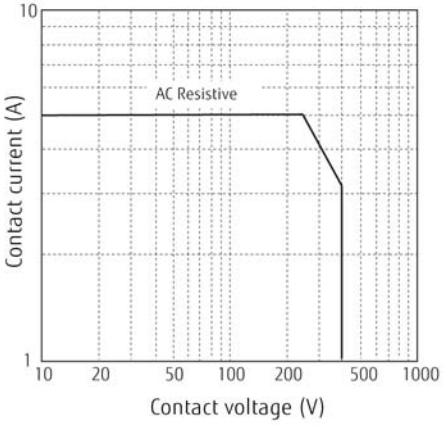
Coil temperature rise



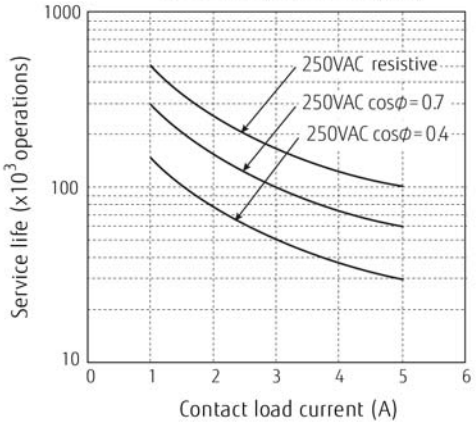
Operating range



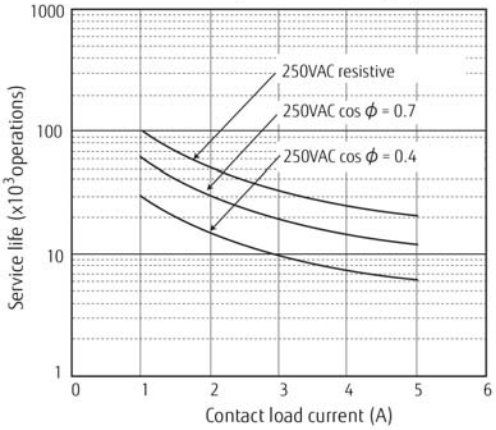
Maximum switching power



Life curve (Flux free type)



Life curve (Plastic sealed type)



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.

RoHS Compliance and Lead Free Information

1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/us/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 Profile

- **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℃±5℃ 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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