FUJITSU THE POSSIBILITIES ARE INFINITE

POWER RELAY

1 POLE—20A (Contact Gap 3.0mm type)

FTR-K2G SERIES

RoHS compliant

■ FEATURES



- Contact gap min. 3.0mm
- Full disconnection
- 1 Pole, 1 Form A
- Maximum inrush current 120A (TV-8)
- HIGH INSULATION
  Reinforced insulation
  Insulation Distance between coil and contact:
  - Clearance min. 8.0mm, Creepage min. 9.5mm
  - Dielectric Strength: 5KV
  - Surge Strength: 10KV
- HEAT RESISTANCE, FLAMMABILITY
  Class B (130°C) coil insulation,
  flammability UL94V-0 (plastic)
- SAFETY STANDARDS
  UL, CSA, VDE approved
- RoHS compliant
  Please see page 7 for more information

■ ORDERING INFORMATION

[Example] FTR-K2G (a) A (b) K (c) 012 (d) T (e)

(a)	Series name	FTR-K2G
(b)	Contact arrangement	A: 1 Form A (SPST-NO)
(c)	Coil type	K: Standard (1000mW)
(d)	Coil nominal voltage	005 : 5VDC 012 : 12VDC 048 : 48VDC 006 : 6VDC 018 : 18VDC 060 : 60VDC 009 : 9VDC 024 : 24VDC 110 : 110VDC
(e)	Contact material	T: $AgSnO_2$ (TV-8)

Actual marking does not carry the type name : "FTR"
E.g.: Ordering code: FTR-K2GAK012T Actual marking: -K2GAK012T

■ PART NUMBERS

Standard type: 1000mW

Ordering Part Number	Series	Contact	Coil Voltage	Contact Material
FTR-K2GAK005T	FTR-K2G	1 form A	5	T: $AgSnO_2$ (TV-8 rated)
FTR-K2GAK006T			6	
FTR-K2GAK009T			9	
FTR-K2GAK012T			12	
FTR-K2GAK018T			18	
FTR-K2GAK022T			22	
FTR-K2GAK024T			24	
FTR-K2GAK048T			48	
FTR-K2GAK060T			60	
FTR-K2GAK110T			110	

■ COIL DATA CHART

Standard Type 1000mW

Coil Voltage	Nominal Voltage (VDC)	Max. Coil Voltage*1	Coil Resistance (±10%)	Must Operate Voltage*2	Must Release Voltage*2	Nominal Power (mW)
005	5	8.5 VDC	25 Ω	3.25 VDC	0.25 VDC	1,000
006	6	10.2 VDC	36 Ω	3.9 VDC	0.3 VDC	
009	9	15.3 VDC	81 Ω	5.85 VDC	0.45 VDC	
012	12	20.4 VDC	145 Ω	7.8 VDC	0.6 VDC	
018	18	30.6 VDC	325 Ω	11.7 VDC	0.9 VDC	
022	22	37.4 VDC	485 Ω	14.3 VDC	1.1 VDC	
024	24	40.8 VDC	580 Ω	15.6 VDC	1.2 VDC	
048	48	81.6 VDC	2,200Ω	31.2 VDC	2.4 VDC	1,050
060	60	102.0 VDC	3,600Ω	39.0 VDC	3.0 VDC	1,000
110	110	187.0 VDC	13,000 Ω	71.5 VDC	5.5 VDC	930

Note: All values at 20°C.

*1: No contact current at 20°C. Please see 'operating range' data for other conditions.

*2: Specified values are subject to pulse shape voltage

■ SPECIFICATIONS

Item			FTR-K2G2AK ( )T
Contact	Arrangement		1 form A (SPST-NO)
	Material		$AgSnO_2$
	Resistance (initial)		Maximum 100 mΩ (at 6VDC, 1A)
	Rating (resistive)		20A / 250 VAC
	Maximum Carrying Current*1		25A
	Maximum Switching Power		5000VA
	Maximum Switching Voltage		440VAC
	Minimum Switching Load*2		100 mA, 5 VDC (reference value)
Coil	Nominal Power (20°C)		Approximately 1000 mW
	Operate Power (20°C)		Approximately 420 mW
	Operating Temperature		-40ºC to +70ºC (no frost)
Time Value	Operate Time (at nominal voltage)		Maximum 30 ms (without bounce)
	Release Time (without diode)		Maximum 15 ms
Life	Mechanical		1 x 10^6 operations minimum
	Electrical	Resistive	100 x 10^3 operations min.
		Lamp load (TV-8)	25 x 10^3 operations minimum
Other	Vibration Resistance	Misoperation	10 to 55 Hz, at double amplitude of 1.5 mm
		Endurance	10 to 55Hz, at double amplitude of 1.5 mm
	Shock Resistance	Misoperation	100m/s^2 (11±1ms)
		Endurance	1,000m/s^2 (6±1ms)
	Weight		Approximately 34g

*1 Need to consider the heat when mounted on PCB at carry currents > 10A. Please confirm at actual condition.
*2 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

■ INSULATION

Item		FTR-K2G	Note
Resistance		Minimum 1,000 MΩ	at 500 VDC
Dielectric Strength	between open contacts	2,000 VAC (50/60 Hz) 1 min.	
	between coil and contacts	5,000 VAC (50/60 Hz) 1 min.	
Surge Voltage (between coil and contact)		10,000 V	1.2 x 50μs standard wave
Clearance/Creepage distance		8.0mm / 9.5mm	
Insulation (DIN EN61810-1 VDE0435) Voltage Pollution Isolation material group		 250 V 3 III a	

■ SAFETY STANDARDS

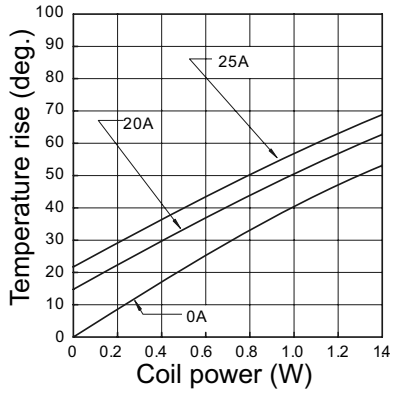
Type	Compliance	Compliance rating
UL	UL 508 CSA22.2 No.14 UL/CSA60950-1 E63614	Flammability: UL 94-V0 (plastics) 20A, 277VAC (resistive) TV-8, 120 VAC
VDE	0435, 0631, 0700, 0860 400 22822	20A, 250 VAC (cosø=1) 70°C 100k operations 8/120A, 250VAC 70°C 30k operations

■ PACKAGING

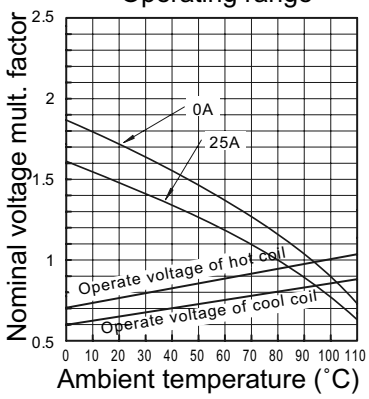
Package	MOQ	Weight of relay
Tube	200 pieces	Approximately 34 g

■ CHARACTERISTIC DATA

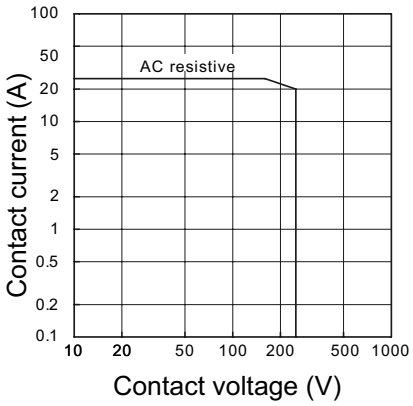
Coil temperature rise



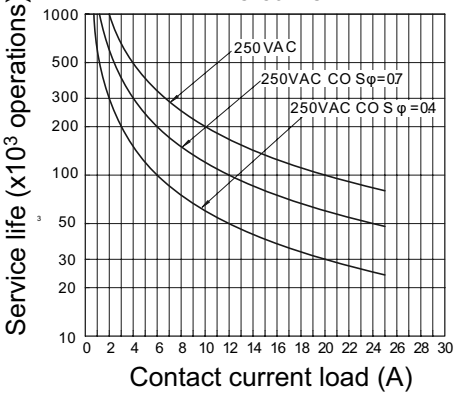
Operating range



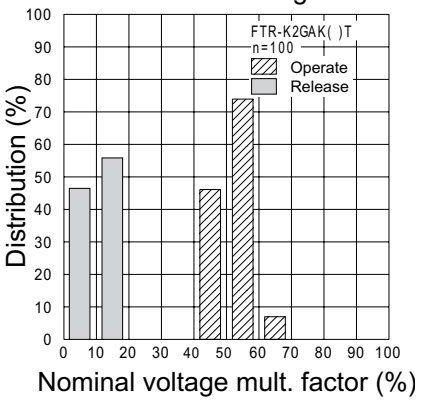
Maximum switching power



Life curve

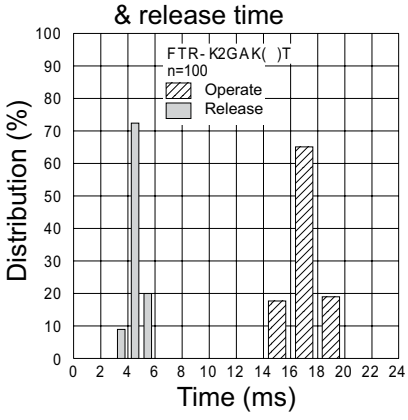


Distribution of operate & release voltage

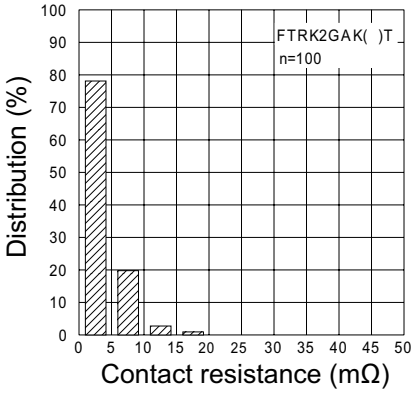


■ REFERENCE DATA

Distribution of operate & release time

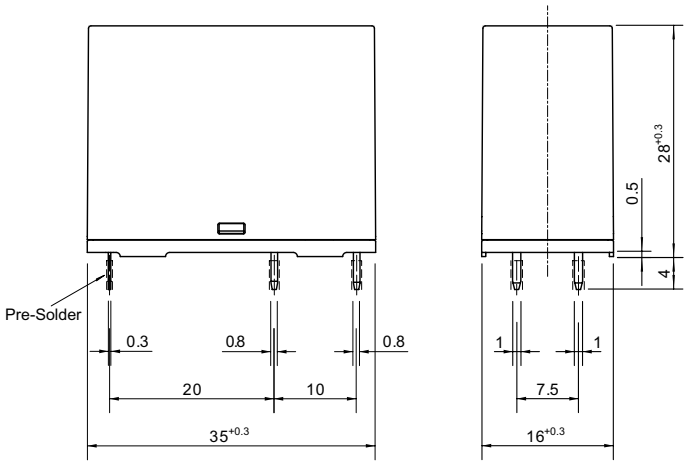


Distribution of contact resistance

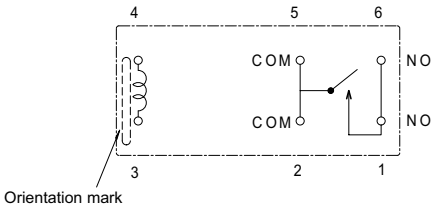


■ DIMENSIONS

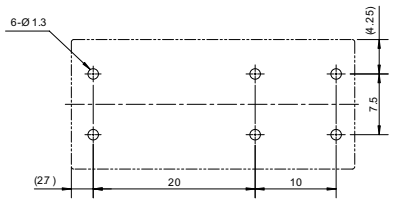
● **Dimensions**



● Schematics
(BOTTOM VIEW)



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



Unit: mm

RoHS Compliance and Lead Free Relay Information

1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu.

Solder condition

Flow Solder condition:

Pre-heating:	maximum 120˚C
Soldering:	dip within 5 sec. at 260˚C solder bath

Solder by Soldering Iron:

Soldering Iron Temperature:	maximum 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 realys.

4. Tin Whisker

- Dipped SnAgCu solder is known as low risk tin whisker. No considerable whisker length 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

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/

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://www.fujitsu.com/us/services/edevices/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/

©2008 Fujitsu Components America, Inc. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

Fujitsu Components America or its affiliates do not warrant that the content of datasheet is error free. In a continuing effort to improve our products Fujitsu Components America, Inc. or its affiliates reserve the right to change specifications/datasheets without prior notice.
Rev. October 29, 2008.