FUJITSU

POWER RELAY
1 POLE - 20A, 3.0mm contact gap
FTR-K2G Series

■ FEATURES

- Contact gap min. 3.0mm
- Full disconnection
- 1 Pole, 1 Form A
- Maximum inrush current 120A (TV-8) (UL) (VDE)
- 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 wire class,
  flammability UL94V-0 (plastic)
- Safety standards
  UL, CSA, VDE approved
- Flux proof type. RT II
- RoHS compliant
  Please see page 6 for more information

■ PARTNUMBER INFORMATION

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

(a)	Relay type	FTR-K2G	: FTR-K2G-Series
(b)	Contact configuration	A	: 1 form A
(c)	Coil power	K	: Standard type (1,000mW)
(d)	Coil rated voltage	012	: 5.....110 VDC Coil rating table at page 3
(e)	Contact material / TV type	T	: Silver alloy / TV-8

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

■ SPECIFICATION

Item			FTR-K2GAK ( ) T
Contact Data	Configuration		1 form A (SPST-NO)
	Construction		Single
	Material		Silver alloy
	Resistance (initial)		Max. 100mΩ at 1A, 6VDC
	Contact rating (resistive)		20A / 250VAC
	Max. carrying current *1		25A
	Max. inrush current		120A / 250VAC
	Max. switching voltage		400VAC
	Max. switching power		5,000VA
	Min. switching load *2		100mA, 5VDC (reference value)
Life	Mechanical		Min. 1 x 10^6 operations
	Electrical	Resistive	Min. 100 x 10^3 operations
		Lamp load (TV-8)	Min. 25 x 10^3 operations
Coil Data	Rated power		Approximately 1,000mW
	Operate power		Approximately 420mW
	Operating temperature range		-40 ℃ to +70 ℃ (no frost)
Timing Data	Operate (at nominal voltage)		Max. 30ms (without bounce)
	Release		Max. 15ms (without bounce)
Insulation	Resistance (initial)		Min. 1,000MΩ at 500VDC
	Dielectric strength	Open contacts	2,000VAC (50/60Hz) 1min
		Coil to contacts	5,000VAC (50/60Hz) 1min
	Surge strength	Coil to contacts	10,000V / 1.2 x 50μs standard wave
	Clearance		8 mm
	Creepage		9.5 mm
	EN61710-1, VDE0435	Voltage	250V
		Pollution degree	3
		Material group	III a
		Category	B / 250V
Other	Vibration resistance	Misoperation>1us	10 to 55 to 10Hz single amplitude 0.75mm
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm
	Shock	Misoperation>1us	100m/s² (11 ± 1ms)
		Endurance	1,000m/s² (6 ± 1ms)
	Weight		Approximately 34g
	Sealing		Flux proof, RT II

* 1 Need to consider the heat when mounted on PCB at carry currents > 10A. Please confirm actual condition.
* 2 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 (mW)
005	5	25	3.25	0.25	1,000
006	6	36	3.9	0.3	
009	9	81	5.85	0.45	
012	12	145	7.8	0.6	
018	18	325	11.7	0.9	
022	22	485	14.3	1.1	
024	24	580	15.6	1.2	
048	48	2,200	31.2	2.4	1,050
060	60	3,600	39	3	1,000
110	110	13,000	71.5	5.5	930

Note: All values in the tables 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 use at over voltage.

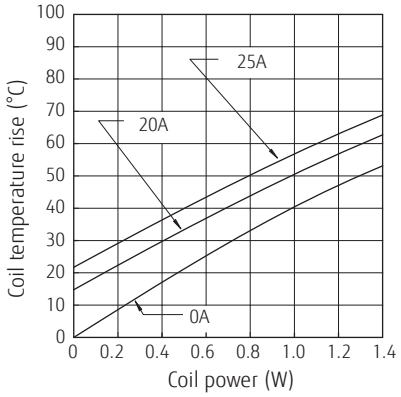
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 CSA22.2 No.14 UL/CSA 60950-1 E63614	Flammability: UL 94-V0 (plastics)
		20A, 277VAC (resistive) TV-8, 120 VAC
VDE	IEC/EN61810-1 EN60065 clause 14.6.1 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	20A, 250VAC (cosφ=1), 70°C 8A/120A, 250VAC, 70°C

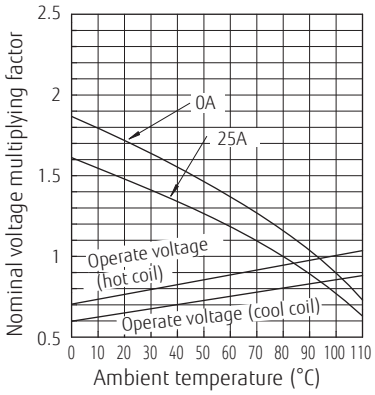
■ CHARACTERISTIC DATA (Reference)

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

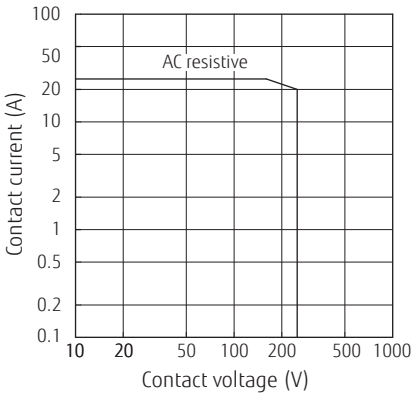
Coil temperature rise



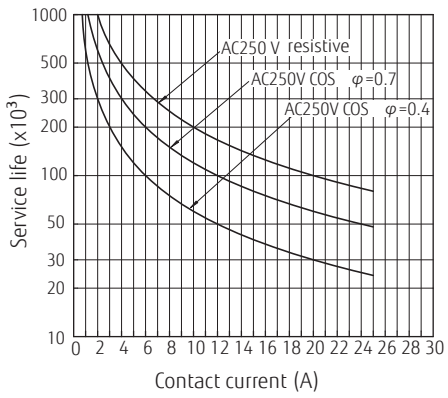
Opetating range



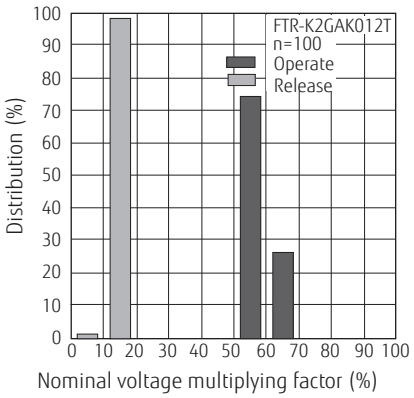
Maximum switching power



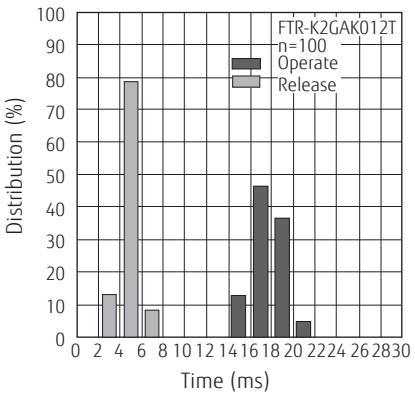
Life curve



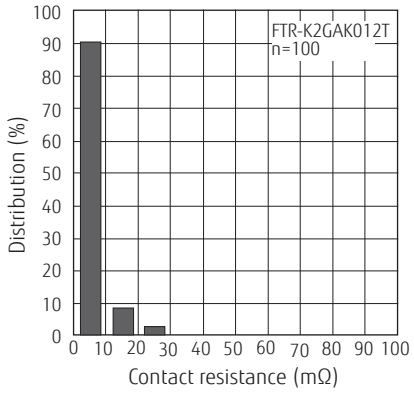
Distribution of operate/release voltage



Distribution of operate/release time

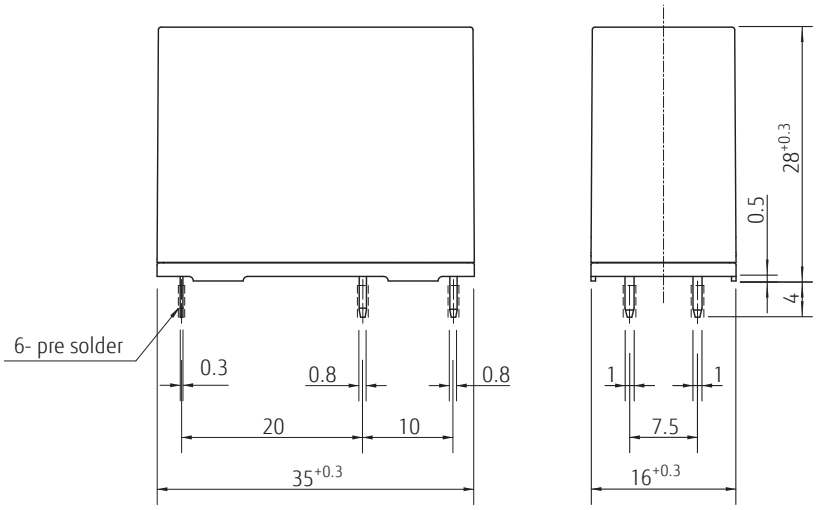


Distribution of contact resistance

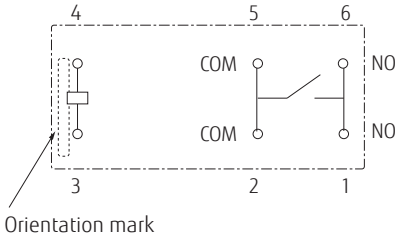


■ DIMENSIONS

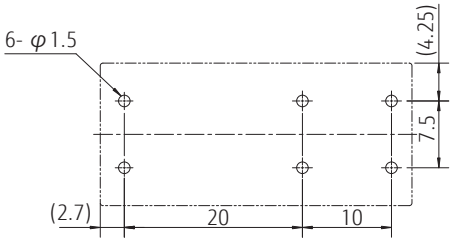
- **Dimensions**



- **Schematics**
  (BOTTOM VIEW)



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



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

Unit: mm

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

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 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 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.

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