

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

[Example] FTR-K2G A K 012 T
 (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 °C to +70 °C (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/s ² (11 ± 1ms) |
| | | Endurance | 1,000m/s ² (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.

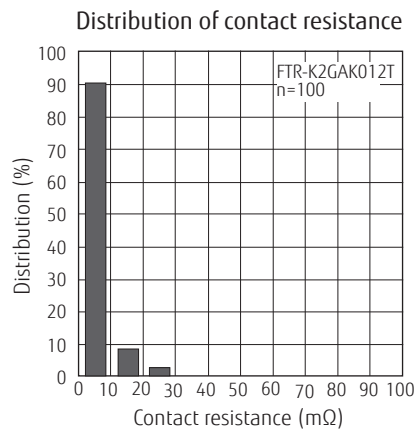
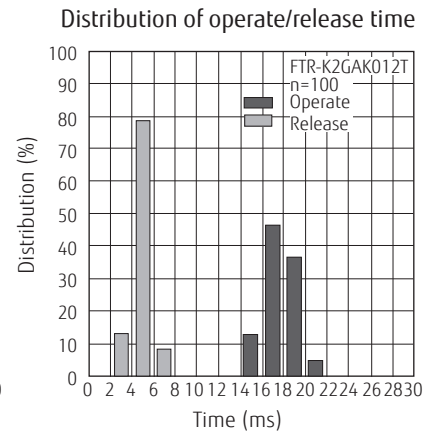
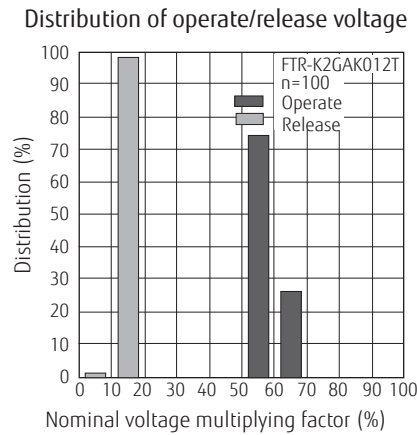
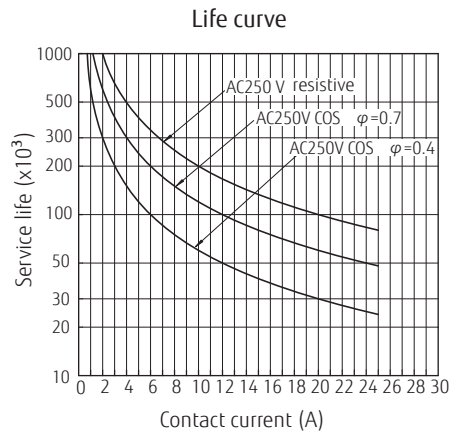
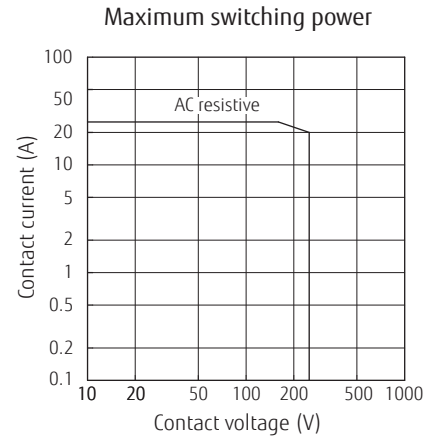
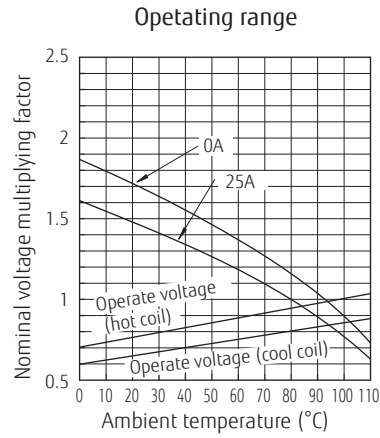
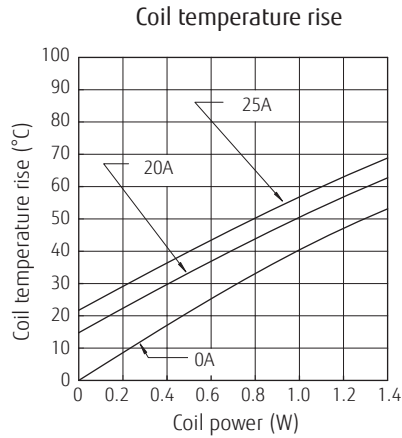
Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

■ 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 ($\cos\phi=1$), 70°C 8A/120A, 250VAC, 70°C |

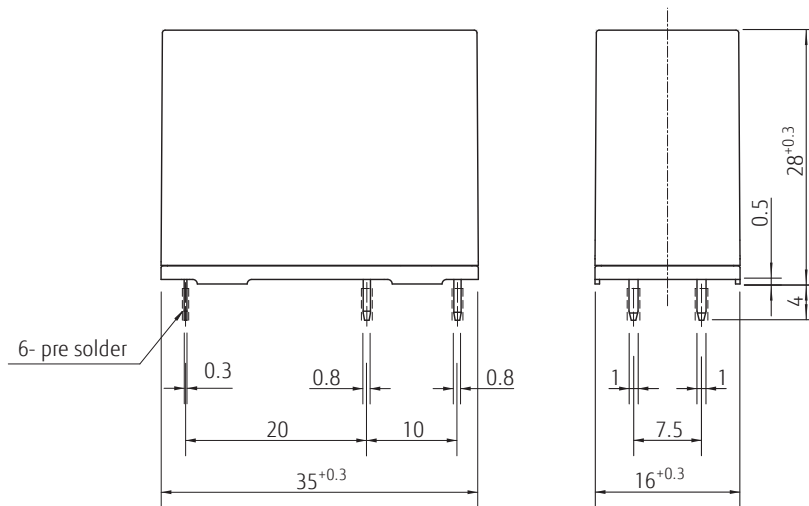
■ CHARACTERISTIC DATA (Reference)

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

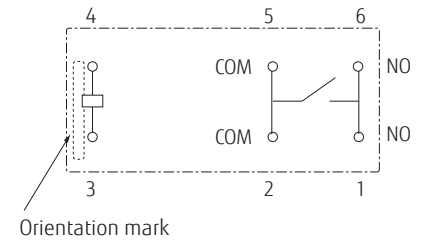


■ DIMENSIONS

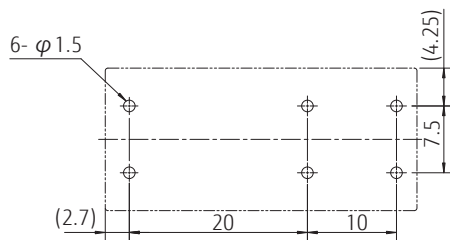
● Dimensions



● 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 \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.

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