

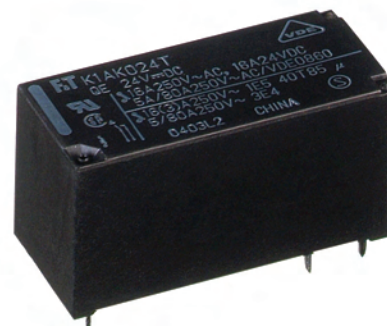
POWER RELAY

1 POLE - 16A 80A Inrush type

FTR-K1 Series

■ FEATURES

- Peak 80A inrush current (1 form A type)
- Low profile (height: 15.7mm)
- HIGH INSULATION
Insulation distance (between coil and contacts): 10mm min.
Dielectric strength: 5KV
Surge strength: 10KV
- Class F coil wire
- Low coil power (400mW)
- Cadmium free contacts
- SAFETY STANDARDS
UL, CSA, VDE, SEMKO approved
UL, CSA TV-5 rating approved (1 form A type)
- Flux proof, RTII
- RoHS compliant
Please see page 6 for more information



■ PARTNUMBER INFORMATION

[Example] FTR-K1 C K 012 W - BG
 (a) (b) (c) (d) (e) (f)

| | | |
|-----|----------------------------|--|
| (a) | Relay type | FTR-K1: FTR-K1 Series |
| (b) | Contact configuration | A : 1 form A (SPST-NO) C : 1 form C (SPDT) (standard type "K" only) |
| (c) | Coil type | K : Standard type (400mW / Flux proof) |
| (d) | Coil rated voltage | 012 : 5....110VDC Coil rating table at page 3 |
| (e) | Contact material / TV type | W : AgSnO ₂ (1 form C contact type only) T : AgSnO ₂ / TV-5 rated (1 form A / TV-5 contact type only) |
| (f) | Special type | Nil : Standard type (without gold plate) BG : Gold plated 3μm |

Actual marking does not carry the type name : "FTR"

E.g.: Ordering code: FTR-K1CK012W

Actual marking: K1CK012W

FTR-K1 SERIES

■ SPECIFICATION

| Item | | | FTR-K1 AK () T Standard | FTR-K1 CK () W Standard |
|--------------|------------------------------|---|--|--------------------------------------|
| Contact Data | Configuration | | 1 form A | 1 form C |
| | Construction | | Single | |
| | Material | | AgSnO ₂ | |
| | Resistance (initial) | | Max. 100mOhm at 1A, 6VDC | |
| | Contact rating (resistive) | | 16A, 250VAC / 24VDC | |
| | Max. carrying current *1 | | 20A | |
| | Max. inrush current | | 80A (20ms) 250VAC (only make contact) | |
| | Max. switching voltage | | 440VAC / 300VDC | |
| | Max. switching power | | 4,000VA / 384W | |
| | Min. switching load *2 | | 100mA, 5VDC | |
| Life | Mechanical | | Min. 20 x 10 ⁶ operations | |
| | Electrical | AC contact rating | Min. 100 x 10 ³ operations | Min. 50 x 10 ³ operations |
| | | DC contact rating | Min. 100 x 10 ³ operations | Min. 30 x 10 ³ operations |
| | | Peak Inrush (80A) | Min. 10 x 10 ³ operations (only make contact) | |
| | Lamp load (UL TV-5) | Min. 25 x 10 ³ operations | Min. 25 x 10 ³ operations (only make contact) | |
| Coil Data | Rated power (20 °C) | | 400mW (430mW at 48V coil) | |
| | Operate power (20 °C) | | 200mW (210mW at 48V coil) | |
| | Operating temperature range | | -40 °C to +85 °C (no frost) | |
| Timing Data | Operate (at nominal voltage) | | Max. 15ms (without bounce) | |
| | Release (at nominal voltage) | | Max. 5ms (without bounce, no diode) | |
| Insulation | Resistance (initial) | | Min. 1,000MOhm at 500VDC | |
| | Dielectric strength | Open contacts | 1,000VAC (50/60Hz) 1min | |
| | | Contacts to coil | 5,000VAC (50/60Hz) 1min | |
| | Surge strength | Coil to contacts | 10,000V / 1.2 x 50µs standard wave | |
| | Clearance | | 10mm | |
| | Creepage | | 10mm | |
| | EN61810-1, VDE0435 | Voltage | 250V | |
| | | Pollution degree | 3 | |
| | | Material group | III a | |
| | Category | C / 250V (Reference voltage) (VDE0110b) | | |
| Other | Vibration resistance | Misoperation≥1us | 10 to 55Hz double amplitude 0.7mm | |
| | | Endurance | 10 to 55Hz double amplitude 1.5mm | |
| | Shock | Misoperation≥1us | 100m/s ² (11 ± 1ms) | |
| | | Endurance | 1,000m/s ² (6 ± 1ms) | |
| | Weight | | Approximately 13g | |
| | Sealing | | Flux proof, RTII | |

* 1: Need to consider the heat from PCB when max. current is more than 10A.

* 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

FTR-K1 SERIES

■ COIL RATING

| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release-Voltage (VDC) * | Max. Coil Voltage (VDC) | Rated Power (mW) |
|-----------|--------------------------|-------------------------------|------------------------------|------------------------------|-------------------------|------------------|
| 005 | 5 | 62 | 3.5 | 0.5 | 12.2 | 400 |
| 006 | 6 | 90 | 4.2 | 0.6 | 14.7 | |
| 009 | 9 | 202 | 6.3 | 0.9 | 22 | |
| 012 | 12 | 360 | 8.4 | 1.2 | 29.4 | |
| 018 | 18 | 810 | 12.6 | 1.8 | 44.1 | |
| 022 | 22 | 1,210 | 15.4 | 2.2 | 53.9 | |
| 024 | 24 | 1,440 | 16.8 | 2.4 | 58.8 | |
| 028 | 28 | 1,960 | 19.6 | 2.8 | 68.6 | |
| 048 | 48 | 5,360 | 33.6 | 4.8 | 117.6 | 430 |
| 060 | 60 | 8,570 | 42.0 | 6.0 | 147.0 | 420 |
| 110 | 110 | 28,800 | 77.0 | 11.0 | 269.5 | |

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

* Specified operate values are valid for pulse wave voltage.

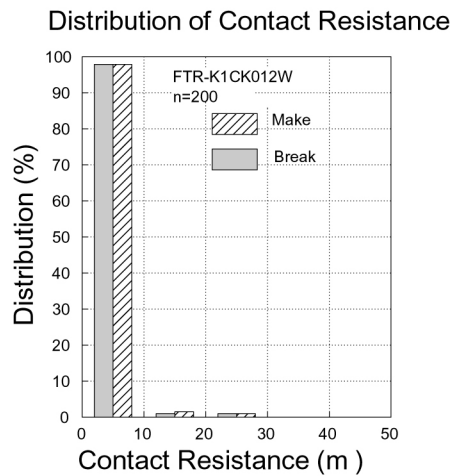
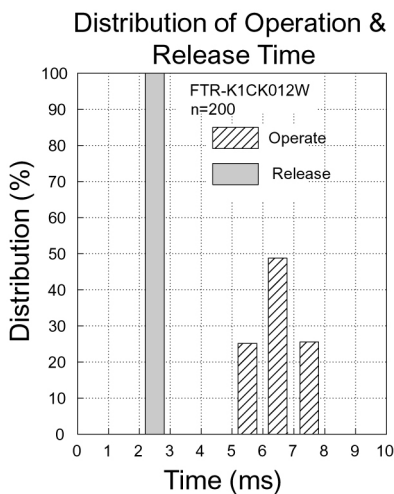
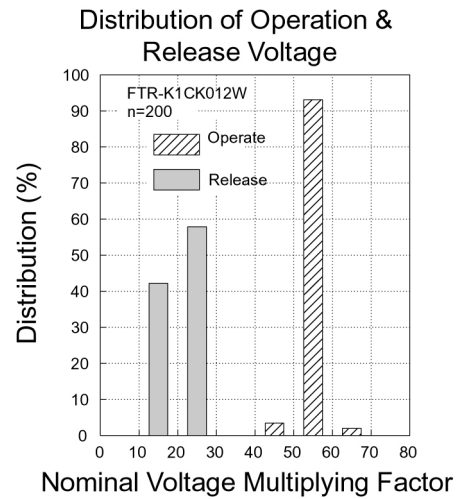
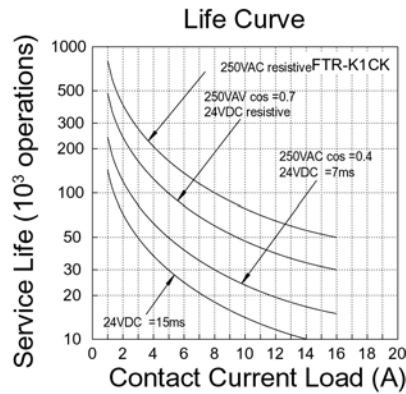
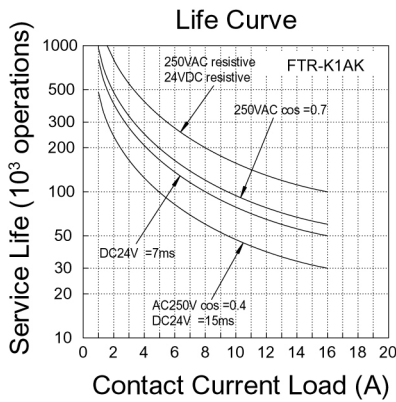
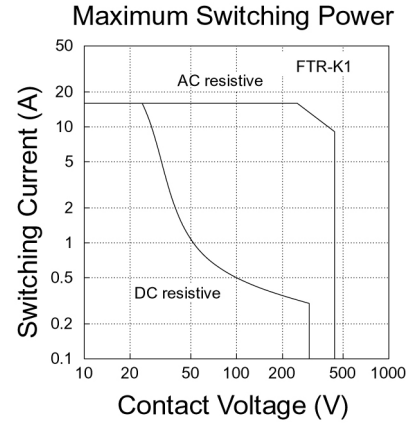
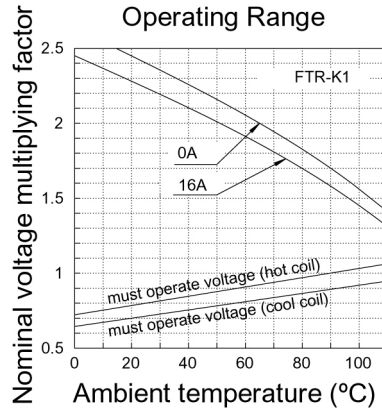
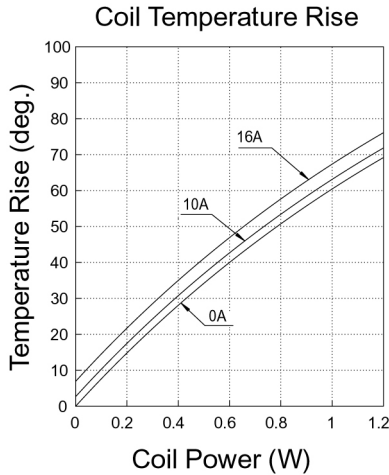
■ SAFETY STANDARDS

| Type | Compliance | Contact rating | |
|-------|--|--|--|
| UL | UL 508 E63614 | FTR-K1CK () W | FTR-K1AK () T |
| | | Flammability: UL 94-V0 (plastics) | |
| CSA | C22.2 No. 14 LR 40304 | 16A, 277VAC/24VDC (resistive) 20A, 277VAC (resistive) 1 HP, 277VAC 1/2 HP, 125VAC 1/8 HP, 125VAC TV-5, 120VAC, 25,000 cycles (only make contact) Pilot duty: B300 | 16A, 24VAC (resistive) 16A, 277VAC (resistive) 20A, 277VAC (resistive) 1 HP, 277VAC 1/2 HP, 125VAC TV-5, 120VAC 25,000 cycles Pilot duty: A300 |
| VDE | 0435, 0631, 0700, 0860, 40013848 | 16A, 250VAC (cosφ=1), 85°C 3.5A, 250VAC (cosφ=0.4), 85°C 16 A 24VDC (0ms), 85°C 5A/80A, 250VAC 10,000 times, 85°C (only make contact) | |
| SEMKO | EN 61058-1:1992 and A1 EN 61095:1993 and A1+A11 | 250VAC, 16 (3)A 40T85 5A/80A 250VAC 40T85 (only make contact) | |

Complies with NEMKO, DEMKO, FIMKO

FTR-K1 SERIES

CHARACTERISTIC DATA

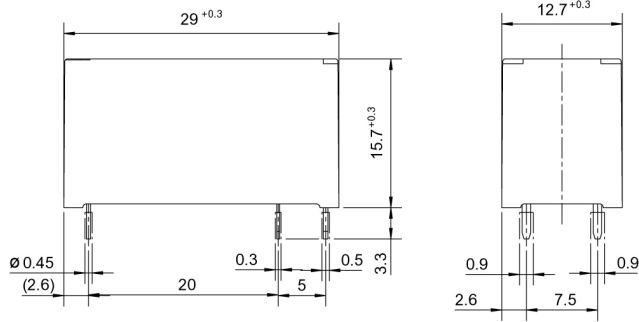


FTR-K1 SERIES

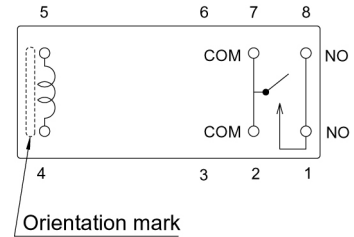
■ DIMENSIONS

• Dimensions

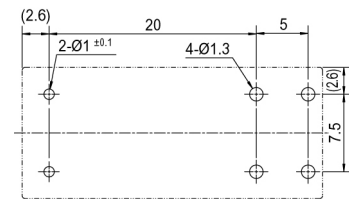
FTR-K1AK () T



• Schematics (BOTTOM VIEW)

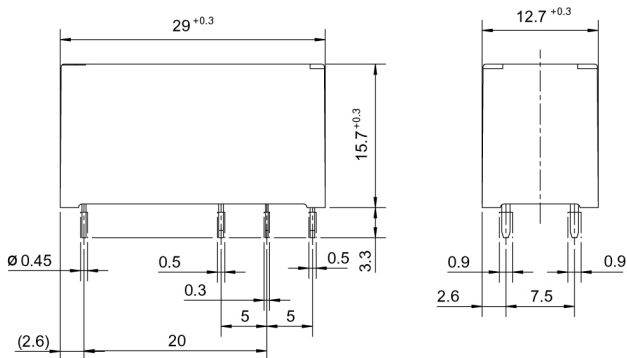


• PC board mounting hole layout (BOTTOM VIEW)

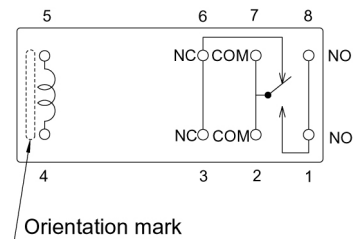


• Dimensions

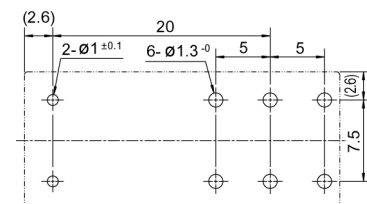
FTR-K1CK () W



• Schematics (BOTTOM VIEW)



• PC board mounting hole layout (BOTTOM VIEW)



Unit: mm

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
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 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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