

POWER RELAY

1 POLE - 10A Low Profile Type

FTR-H1 Series

■ FEATURES

- Working class: B (for IMQ)/ C (for VDE)
- Type of service: continuous duty
- Low profile (height 16.5 mm)
- 1 form A/ 1 form C 10 A, TV-5 rating available
- Transparency cover type available
- UL class B (130°C) wire class
- High insulation in small package
Insulation distance : 8 mm (between coil and contacts)
Dielectric strength : 5,000 VAC
Surge strength : 10,000 V
- Plastic materials - UL94 flame class V-0
UL CTI level class 2
- Plastic sealed relay, RT III
- Pin configuration compatible to VS / FBR610 series
- UL, CSA, BSI, VDE, SEMKO recognized
- Conforms to FIMKO, DEMKO
- RoHS compliant
Please see page 6 for more information



■ PARTNUMBER INFORMATION

[Example] FTR-H1 A A 005 V - RG
 (a) (b) (c) (d) (e) (f)

| | | |
|-----|----------------------------|--|
| (a) | Relay type | FTR-H1: FTR-H1 Series |
| (b) | Contact configuration | A : 1 form A (SPST-NO) C : 1 form C (SPDT) |
| (c) | Coil type | A : Standard type (530mW) D : High sensitive type (400mW - V type only) |
| (d) | Coil rated voltage | 005 : 5...48VDC Coil rating table at page 3 |
| (e) | Contact material / TV type | V : Gold plate silver tin oxide (standard type) T : Gold plate silver tin oxide (TV-5 rating type, 1 form A standard) |
| (f) | Special type | RG : Transparent cover type |

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

E.g.: Ordering code: FTR-H1AA005V

Actual marking: H1AA005V

FTR-H1 SERIES

■ SPECIFICATION

| Item | | | FTR-H1 (AC) A () | FTR-H1 AA () T | FTR-H1 (AC) D () V |
|--------------|------------------------------|------------------|---|--------------------------------------|---------------------------------------|
| Contact Data | Configuration | | 1 form A (SPST-NO) 1 form C (SPDT) | 1 form A (SPST-NO) | 1 form A (SPST-NO) 1 form C (SPDT) |
| | Construction | | Single | | |
| | Material | | Movable: gold plate silver tin oxide, stationary: silver tin oxide | | |
| | Resistance (initial) | | Max. 100mOhm at 1A, 6VDC | | |
| | Contact rating | | 10A, 250VAC, 30VDC | | |
| | Max. carrying current | | 14A | | |
| | Max. switching voltage | | 400VAC, 300VDC | | |
| | Max. switching power | | 2,500VA, 300W | | |
| | Min. switching load* | | 10 mA, 5VDC | | |
| Life | Mechanical | | Min. 20 x 10 ⁶ operations | | |
| | Electrical | AC load | Min. 100 x 10 ³ operations | | |
| | | DC load | Min. 100 x 10 ³ operations | | |
| | | Lamp load (TV-5) | - | Min. 25 x 10 ³ operations | - |
| Coil Data | Rated power | | 530 mW | | 400 mW |
| | Operate power | | 260 mW | | 230 mW |
| | Operating temperature range | | -40 °C to +75 °C (no frost) (refer to characteristic data) -40 °C to +70 °C (transparent cover -RG type) | | |
| Timing Data | Operate (at nominal voltage) | | Max. 10ms (without bounce) | | |
| | Release (at nominal voltage) | | Max. 5ms (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 | | 8mm | | |
| | Creepage | | 8mm | | |
| | EN61810-1, VDE0435 | Voltage | 250V | | |
| | | Pollution degree | 3 | | |
| | | Material group | IIIa | | |
| | | Category | C / 250V | | |
| Other | Vibration resistance | Misoperation | 10 to 55Hz double amplitude 1.65mm | | |
| | | Endurance | 10 to 55Hz double amplitude 3.3mm | | |
| | Shock | Misoperation | Min. 100m/s ² (11±1ms) | | |
| | | Endurance | Min. 1,000m/s ² (6±1ms) | | |
| | Weight | | Approximately 12g | | |
| | Sealing | | Sealed RT III | | |

* 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.

FTR-H1 SERIES

■ COIL RATING

Standard type (530 mW)

| 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 | 47 | 3.5 | 0.5 | 8.2 | 530 |
| 006 | 6 | 68 | 4.2 | 0.6 | 9.9 | |
| 009 | 9 | 155 | 6.3 | 0.9 | 14.8 | |
| 012 | 12 | 270 | 8.4 | 1.2 | 19.8 | |
| 024 | 24 | 1,100 | 16.8 | 2.4 | 39.6 | |
| 048 | 48 | 4,400 | 33.6 | 4.8 | 79.2 | |

High sensitive type (400 mW)

| 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 | 3.75 | 0.5 | 9.7 | 400 |
| 006 | 6 | 90 | 4.5 | 0.6 | 11.7 | |
| 009 | 9 | 202 | 6.75 | 0.9 | 17.5 | |
| 012 | 12 | 360 | 9 | 1.2 | 23.4 | |
| 024 | 24 | 1,440 | 18 | 2.4 | 46.8 | |
| 048 | 48 | 5,760 | 36 | 4.8 | 93.6 | |

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

* Specified operate values are valid for pulse wave voltage.

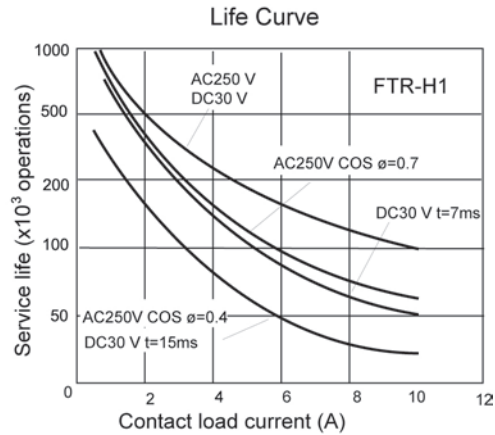
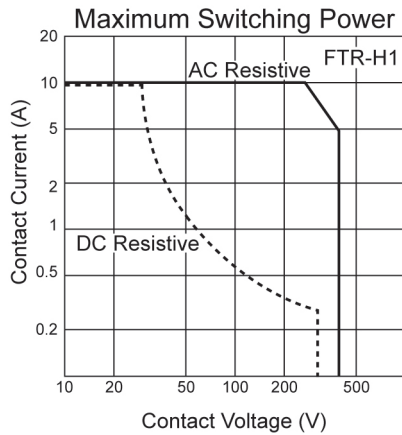
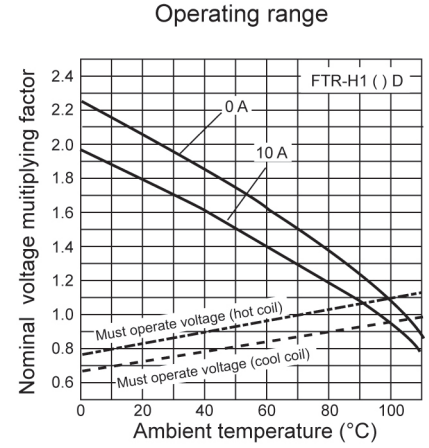
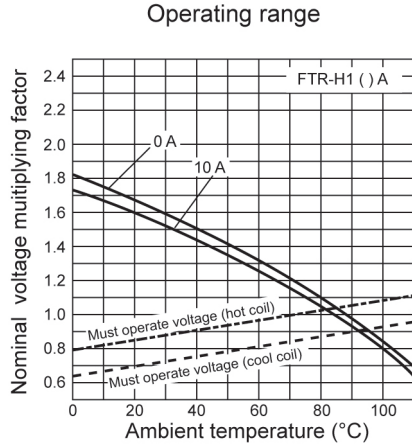
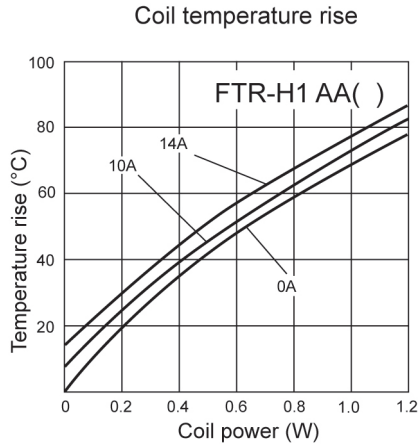
■ SAFETY STANDARDS

| Type | Compliance | Contact rating |
|------|------------------------|--|
| UL | UL 508 | Flammability: UL 94-V0 (plastics) |
| | E63614 | 10A, 30 VAC (resistive) 10A, 250 VAC (resistive) |
| CSA | C22.2 No. 14 | 12A, 250VAC (resistive) |
| | LR 40304 | 1/3 HP, 125VAC 1/2 HP, 125VAC Pilot duty: B300 TV-5 (only T type) |
| VDE | 0435, 0631, 0700, 0860 | 10A, 250 VAC (cosφ=1), 3A, 250 VAC (cosφ=0.4) 10 250 VAC (0ms) |
| | 40015054 | 5/80A, 250 VAC (T type) |

Complies with SEMKO, BSI, CQC, NEMKO, DEMKO, FIMKO

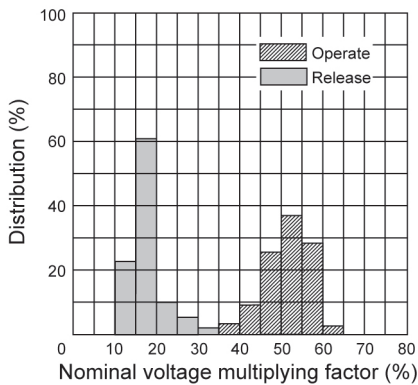
FTR-H1 SERIES

CHARACTERISTIC DATA



REFERENCE DATA

Distribution of operate and release voltage

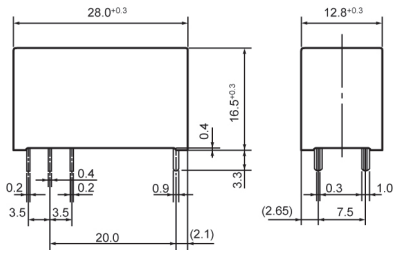


FTR-H1 SERIES

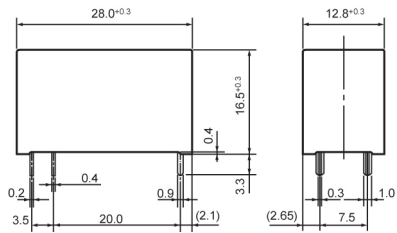
■ DIMENSIONS

● Dimensions

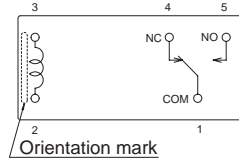
FTR-H1C type



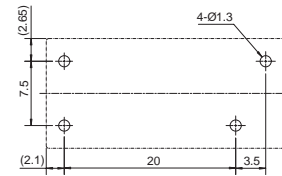
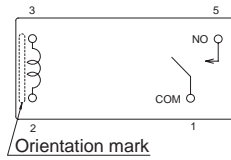
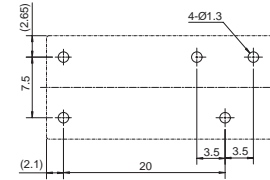
FTR-H1A type



● 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 2002/95/EC 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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