FUJITSU

POWER RELAY
1 POLE - 10A Relay Type
FTR-H2 Series

■ FEATURES

- High density mounting
  Saves space by 26% compared to FTR-H1 type
- High insulation
  Insulation distance: minimum 6mm between coil and contact
  Dielectric strength: 4KV
  Surge strength: 10KV
- TV-5 rating
- Heat resistance, flammability
  Class B (130° C) wire class, flammability 94V-0
- Cadmium free contact for eco-program
- Safety standards
  UL, CSA, VDE approved
  UL/CSA TV-5 rating approved
- Flux proof relay, RT II
- RoHS compliant
  Please see page 6 for more information

■ PARTNUMBER INFORMATION

[Example] FTR-H2 (a) A (b) K (c) 012 (d) T (e)

(a)	Relay type	FTR-H2	: FTR-H2-Series
(b)	Contact configuration	A	: 1 form A (SPST-NO)
(c)	Coil type / enclosure	K L	: Standard type (530mW) : High sensitive type (250mW)
(d)	Coil rated voltage	012	: 5.....48 VDC Coil rating table at page 3
(e)	Contact material / TV type	T	: Silver-tin oxide / TV-5

Actual marking does not carry the type name : "FTR"
E.g.: Ordering code: FTR-H2AK012T Actual marking: H2AK012T

■ SPECIFICATION

Item			H2 AK ( ) T	H2 AL ( ) T
Contact Data	Configuration		1 form A (SPST-NO)	
	Construction		Single	
	Material		Silver tin oxide ($AgSnO_2$)	
	Resistance (initial)		Max. 100mΩ at 6VDC, 1A	
	Contact rating		250VAC / 30VDC ,10A	
	Max. carrying current		10A	
	Max. inrush current		78A 250VAC	
	Max. switching voltage		400VAC / 300VDC	
	Max. switching power		2,500VA / 300W	
	Min. switching load*		100mA, 5VDC	
Life	Mechanical		Min. 2 x 10^6 operations	
	Electrical	AC contact rating	Min. 100 x 10^3 operations	
		DC contact rating	Min. 100 x 10^3 operations	
		Lamp load (TV-5)	Min. 25 x 10^3 operations	
Coil Data	Rated Power (20 °C)		530mW	250mW
	Operate Power (20 °C)		260mW	160mW
	Operating temperature range		-40 °C to +70 °C (no frost)	
Timing Data	Operate		Max. 15ms (without bounce)	
	Release		Max. 5ms (without bounce)	
Insulation	Resistance (Initial)		Min. 1,000MΩ at 500VDC	
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1min	
		Contacts to coil	4,000VAC (50/60Hz) 1min	
	Surge strength	Coil to contacts	10,000V / 1.2 x 50μs standard wave	
	Clearance		6mm	
	Creepage		6mm	
	DIN EN61810-1, VDE0435	Voltage	250V	
		Pollution degree	2	
		Material group	III	
		Category	B / 250V	
Other	Vibration resistance	Misoperation>1us	10 to 55 to 10 single amplitude 0.75mm	
		Endurance	10 to 55 to 10 single amplitude 0.75mm	
	Shock	Misoperation>1us	Min. 200m/s² (11 ± 1ms)	
		Endurance	Min. 1,000m/s² (6 ± 1ms)	
	Weight		Approximately 13g	
	Sealing		Flux proof RTII	

* 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

Standard type (530 mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release-Voltage (VDC) *	Rated Power (mW)
005	5	47	3.5	0.25	530
006	6	68	4.2	0.3	
009	9	155	6.3	0.45	
012	12	270	8.4	0.6	
018	18	610	12.6	0.9	
024	24	1,110	16.8	1.2	
048	48	4,400	33.6	2.4	

High sensitive type (400 mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release-Voltage (VDC) *	Rated Power (mW)
005	5	100	4	0.25	250
006	6	145	4.8	0.3	
009	9	325	7.2	0.45	
012	12	575	9.6	0.6	
015	15	900	12	0.75	
024	24	2,310	19.2	1.2	

Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are measured by 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.

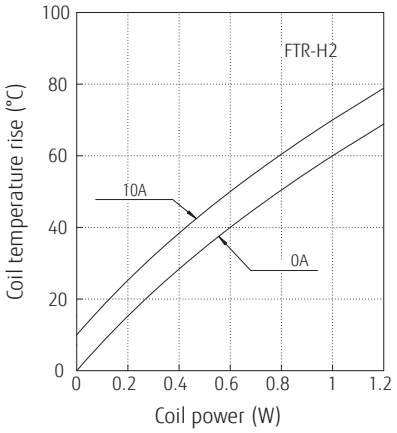
■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics) 10A, 250VAC/30VDC (resistive) 15A, 125VAC (resistive) (UL) 1/6 hp, 125VAC 1/2 hp, 250VAC TV-5, 120 VAC/240VAC Pilot duty: C300
CSA	C22.2 No. 14 LR 40304	
VDE	IEC/EN61810-1, EN60065 clause 14.6.1 40014652	10A, 250 VAC (cosφ=1) 3A, 250 VAC (cosφ=0.4) 10A, 30 VDC (0ms) 5/80A, 250VAC
CQC	GB/T21711.1, GB15092.1 03001005579	10A 250VAC

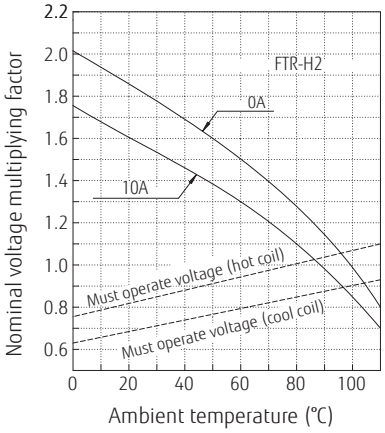
■ CHARACTERISTIC DATA (Reference)

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

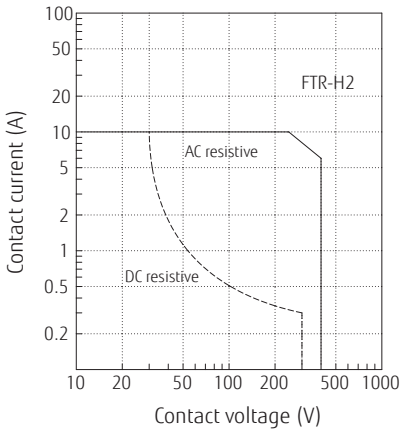
Coil temperature raise



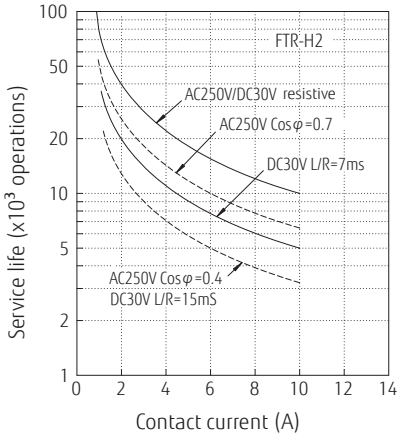
Operating range



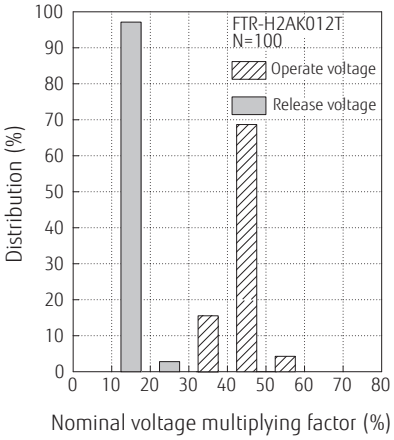
Maximum switching power



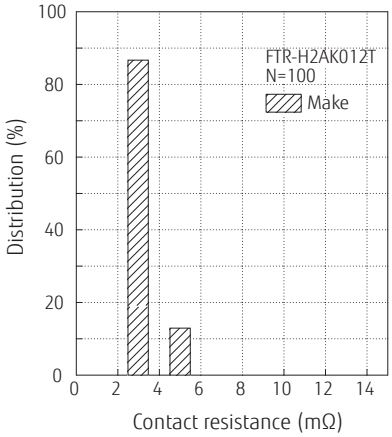
Life curve



Distribution of operate & release voltage

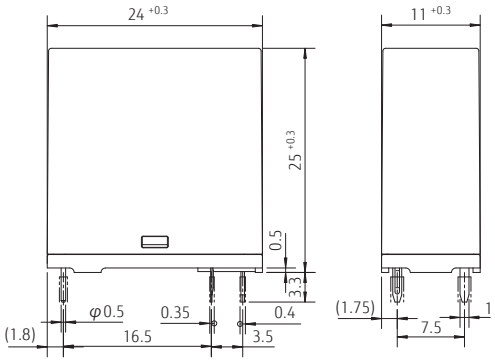


Distribution of contact resistance

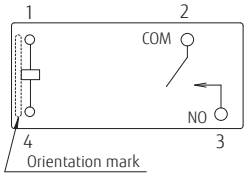


■ DIMENSIONS

● Dimensions

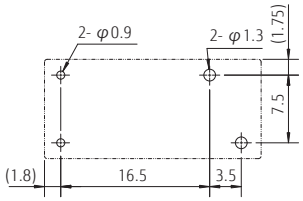


● Schematics



● PC board mounting hole layout

(BOTTOM VIEW)



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

Unit: mm

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 Temperature:	30-60W 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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