FUJITSU

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

■ 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 contions 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) *	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.

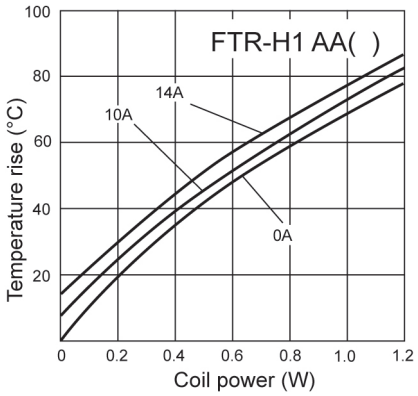
■ SAFETY STANDARDS

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

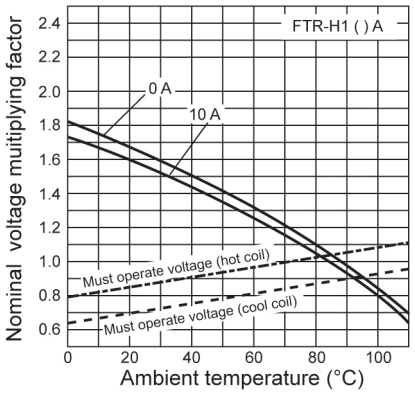
Complies with SEMKO, BSI, CQC,NEMKO, DEMKO, FIMKO

■ CHARACTERISTIC DATA

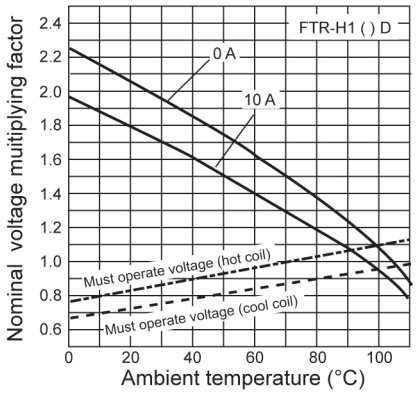
Coil temperature rise



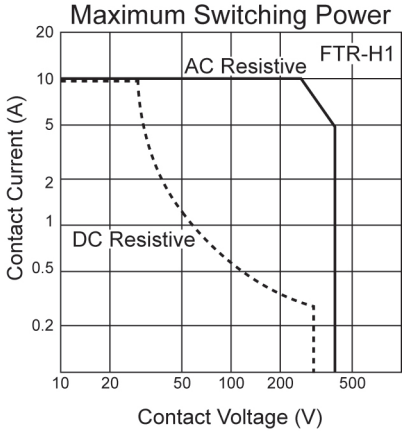
Operating range



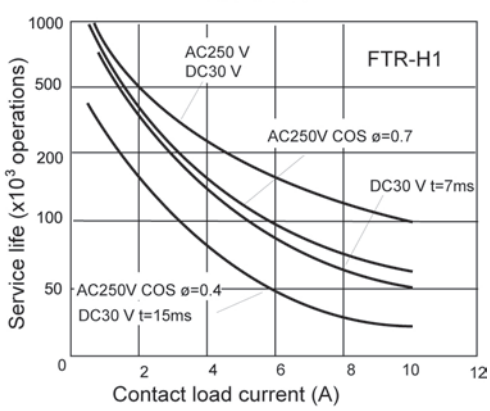
Operating range



Maximum Switching Power

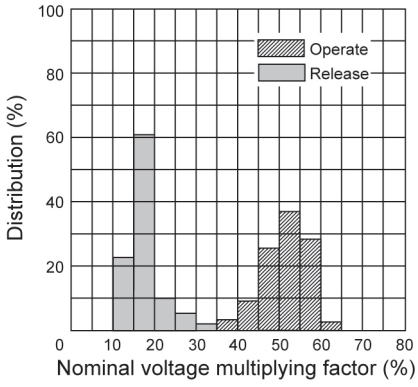


Life Curve



■ REFERENCE DATA

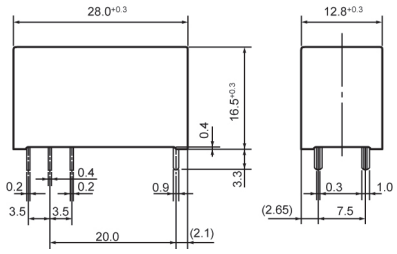
Distribution of operate and release voltage



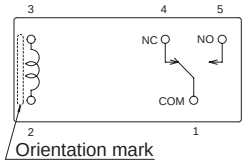
■ DIMENSIONS

● **Dimensions**

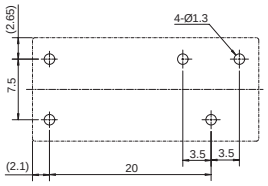
FTR-H1C type



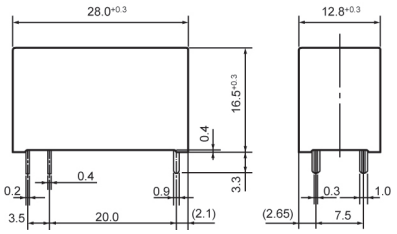
● Schematics (BOTTOM VIEW)

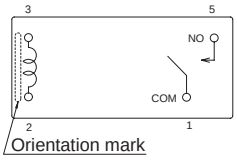


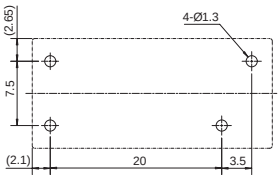
■ **PC board mounting hole layout** (BOTTOM VIEW)



FTR-H1A type







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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