

SILENT POWER RELAY

1 POLE—

78A/120A INRUSH CURRENT TYPE

FTR-H3 SERIES

RoHS compliant

■ FEATURES

- Pin compatible with widely used VS and FTR-H1 series power relays
- Ultra silent relay with patented unique U-shape spring. Noise level is about 50dB at 5cm.
- Low profile (height 16.5 mm)/ cadmium free contacts
- High isolation in small package
 - Insulation distance : 8 mm (between coil and contacts)
 - Dielectric strength : 5,000 VAC
 - Surge strength : 10,000 V
- An electric life of 100,000 operations at rated load (10A, 250VAC, cos Phi 1) and satisfy at TV-5 standard.
- Low coil power (530mW)
- UL (conforms to UL508, 873), CSA (conforms to CSA22.2 No.14), VDE (conforms to VDE 0435, 0631, 0700, 0860)
- Conforms to FIMKO, DEMKO
- Sealed type relay
- Complies with TV-5 / TV-8
Inrush 78A (TV-5)/ 120A (TV-8)



■ ORDERING INFORMATION

[Example] $\frac{\text{FTR-H3}}{\text{(a)}} \frac{\text{A}}{\text{(b)}} \frac{\text{A}}{\text{(c)}} \frac{\text{012}}{\text{(d)}} \frac{\text{V}}{\text{(e)}}$

(a)	Series Name	FTR-H3: FTR-H3 Series			
(b)	Contact Arrangement	A	:	1 form A (SPST-NO)	
(c)	Coil Type	A	:	Standard type (530 mW)	
(d)	Nominal Voltage	005	:	5 VDC	012 : 12 VDC
		009	:	9 VDC	024 : 24 VDC
(e)	Contact Material/TV TypeT	V	:	Silver tin oxide +TV-5 rating	
		T	:	Silver tin oxide +TV-8 rating	

Ordering Code Actual Marking
FTR-H3AA05V H3AA05V

FTR-H3 SERIES

■ PART NUMBERS

Ordering Part Number	Series	Contact	Coil Power	Coil Voltage	Contact Material
FTR-H3AA005V	FTR-H3	1 form A	A: Standard (530 mW)	5	V: Silver tin oxide (TV-5)
FTR-H3AA009V				9	
FTR-H3AA012V				12	
FTR-H3AA024V				24	
FTR-H3AA005T				5	T: Silver tin oxide (TV-8)
FTR-H3AA009T				9	
FTR-H3AA012T				12	
FTR-H3AA024T				24	

■ COIL DATA CHART

Coil Voltage	Nominal Voltage (VDC)	Max. Coil Voltage* ¹	Coil Resistance (±10%)	Must Operate Voltage* ²	Must Release Voltage* ²	Nominal Power (±10%)
005	5	8.2 VDC	47 Ω	3.5 VDC	0.5 VDC	530 mW
009	9	9.9 VDC	155 Ω	6.3 VDC	0.9 VDC	
012	12	19.8 VDC	270 Ω	8.4 VDC	1.2 VDC	
024	24	39.6 VDC	1,100 Ω	16.80 VDC	2.2 VDC	

Note: All values in the table are measured at 20°C.

*1: No contact current at 20°C

*2: Specified values are subject to pulse wave voltage

FTR-H3 SERIES

■ SPECIFICATIONS

Item		FTR-H3 AA () V	FTR-H3 AA () T	
Contact	Arrangement	1 form A (SPST-NO)		
	Material	Silver tin oxide (movable: gold plated)		
	Style	Single		
	Resistance (initial)	Maximum 100 mΩ at 6 VDC, 1 A		
	Rating	10 A, 250 VAC / 30 VDC		
	Maximum Carrying Current*1	14A		
	Maximum Switching Power	2,500 VA / 300W		
	Maximum Switching Voltage	400VAC / 300VDC		
	Maximum Switching Load*2	10mA 5VDC		
	Maximum Inrush Current	78A 120VAC (at lamp load)		
Coil	Nominal Power (at 20°C)	530 mW		
	Operate Power (at 20°C)	260 mW		
	Operating Temperature	-40°C to +75°C (no frost)		
Time Value	Operate Time (without diode)	Maximum 10 ms (at nominal voltage, without bounce)		
	Release Time (without diode)	Maximum 5 ms (at nominal voltage, without bounce)		
Life	Mechanical	2 x 10 ⁷ operations minimum		
	Electrical	AC resistive	1 x 10 ⁵ operations minimum	
		DC resistive	1 x 10 ⁵ operations minimum	
		Lamp	TV-5	TV-8
Other	Vibration Resistance	Misoperation	10 to 55 Hz, at double amplitude of 1.65 mm	
		Endurance	10-55Hz, at double amplitude of 3.3 mm	
	Shock Resistance	Misoperation	Min. 100m/s ² (11±1ms)	
		Endurance	Min. 1,000m/s ² (6±1ms)	
	Weight	Approximately 12g		
	Average sound pressure	Approximately 50dB at 5cm		

*1 When maximum carrying current is more than 10A, PCB layout needs to be considered.

*2 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

■ INSULATION

Item		FTR-H3	Note
Resistance (initial)		Minimum 1,000 MΩ 1 min.	at 500 VDC
Dielectric Strength	open contacts	1,000 VAC (50/60 Hz) 1 min.	
	coil and contacts	5,000 VAC (50/60 Hz) 1 min.	
Surge Voltage (coil and contact)		10,000 V	1.2 x 50μs standard wave
Clearance/Creepage		8 mm / 8 mm	
Insulation (DIN EN61810-1 VDE0435)			
Voltage		250 V	
Pollution		2	
Isolation material group		IIIa	
Isolation category / Reference voltage (VDE01106)		B / 250 V	

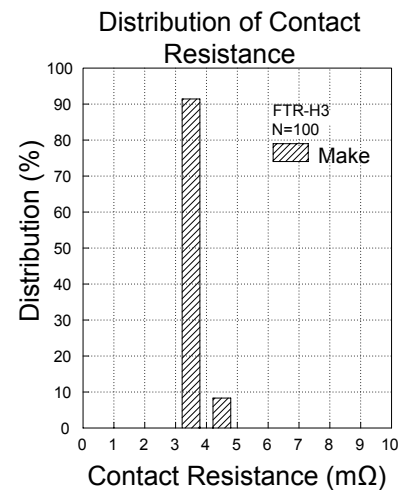
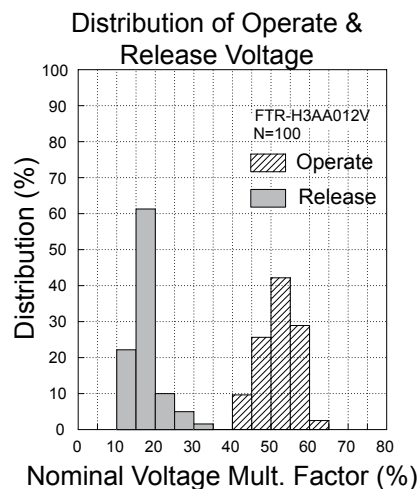
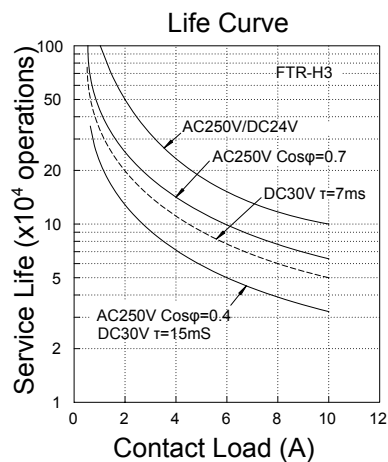
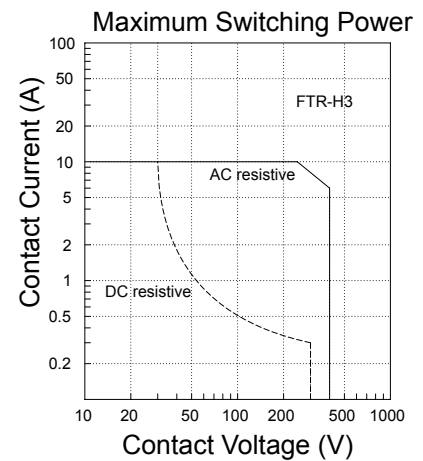
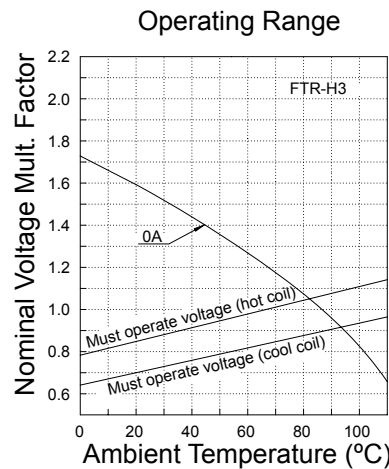
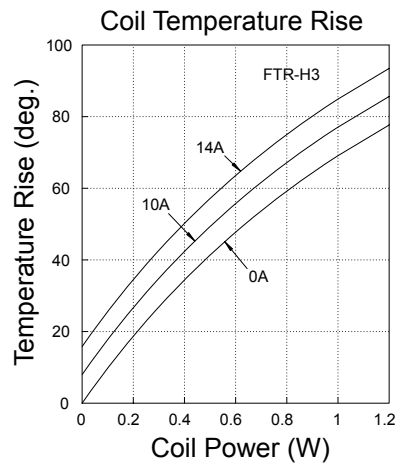
FTR-H3 SERIES

SAFETY STANDARDS

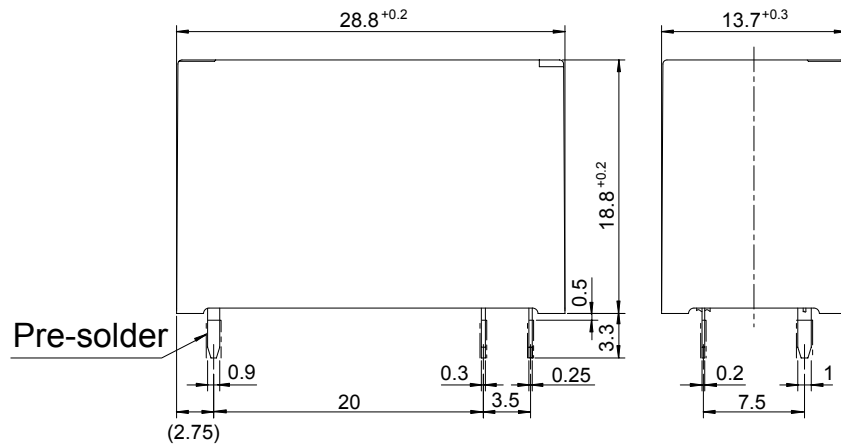
Type	Compliance	Contact rating
UL	UL 508 E63614	Flammability: UL 94-V0 (plastics) 10A, 30 VDC/ 277 VAC (resistive) 1/3 HP, 125VAC
CSA	C22.2 No. 14 LR 40304	1/2 HP, 250VAC TV-5, 120VAC TV-8, 120VAC/240VAC (T type) Pilot duty: B300, Q300 (T type)
VDE	0435, 0860, 0700, 0631	10A, 250 VAC ($\cos\phi=1$) 3A, 250 VAC ($\cos\phi=0.4$) 10A, 30 VDC (0ms) 5/80A, 250 VAC (V-type) 8/120A, 250VAC (T type)

Complies with CQC

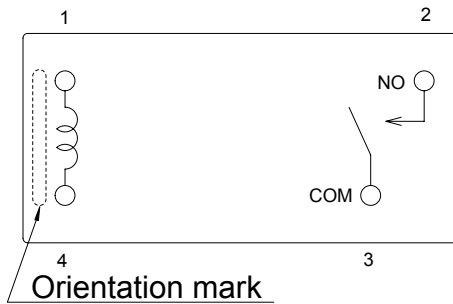
REFERENCE DATA



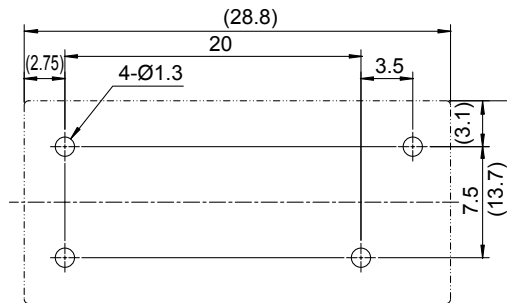
■ DIMENSIONS



● Schematics
(BOTTOM VIEW)



● PC board mounting
hole layout
(BOTTOM VIEW)



Unit: mm

RoHS Compliance and Lead Free Relay Information

1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. All our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (<http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
- We will ship leaded relays as long as the leaded relay inventory exists.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu.

Reflow Solder condition

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.

4. Tin Whisker

- Dipped SnAgCu solder is known as low risk tin whisker. No considerable length whisker was found by our in house test.

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