

# SILENT POWER RELAY

## 1 POLE - 78A/120A Inrush Current Type

### FTR-H3 Series

#### ■ FEATURES

- Pin compatible with widely used VS and FTR-H1 series power relays
- Silent relay with patented unique U-shape spring.  
Noise level  $\approx$  50dB at 5cm.
- Low profile (height 18.8 mm) / cadmium free contacts
- High insulation in small package  
Insulation distance : 8 mm (between coil and contacts)  
Dielectric strength : 5,000 VAC  
Surge strength : 10,000 V
- Electric life of 100,000 operations at rated load (10A, 250VAC, cos Phi 1). TV-5 / TV-8 standard version.
- 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, RT III
- Complies with TV-5 / TV-8  
Inrush 78A (TV-5) / 120A (TV-8)
- RoHS compliant  
Please see page 5 for more information



#### ■ PARTNUMBER 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)	Relay type	FTR-H3 : FTR-H3-Series
(b)	Contact configuration	A : 1 form A (SPST-NO)
(c)	Coil type / enclosure	A : Standard type (530mW)
(d)	Coil rated voltage	012 : 5.....24 VDC Coil rating table at page 3
(e)	Contact material / TV-type	V : Silver-tin oxide / TV-5 rating T : Silver-tin oxide / TV-8 rating

Actual marking does not carry the type name : "FTR"  
E.g.: Ordering code: FTR-H3AA012V    Actual marking: H3AA012V

# FTR-H3 SERIES

## ■ SPECIFICATION

Item			FTR-H3 AA ( ) V	FTR-H3 AA ( ) T
Contact Data	Configuration		1 form A (SPST-NO)	
	Construction		Single	
	Material		Silver tin oxide (movable: gold plated)	
	Resistance (initial)		Max. 100mΩ at 6VDC, 1A	
	Contact rating		10A, 250VAC / 30VDC	
	Max. carrying current * <sup>1</sup>		14A	
	Max. switching voltage		400VAC / 300 VDC	
	Max. switching power		2,500VA / 300W	
	Min. switching load * <sup>2</sup>		10mA, 5VDC	
	Max. inrush current		78A / 120VAC	120A / 240VAC
Life	Mechanical		Min. 20 x 10 <sup>6</sup> operations	
	Electrical	AC resistive	Min. 100 x 10 <sup>3</sup> operations	
		DC resistive	Min. 100 x 10 <sup>3</sup> operations	
		Lamp load	TV-5	TV-8
Coil Data	Rated power		530mW	
	Operate power		260mW	
	Operating temperature range		-40 °C to +75 °C (no frost)	
Timing Data	Operate		Max. 10ms (no diode, without bounce)	
	Release		Max. 5ms (no diode, without bounce)	
Insulation	Resistance (initial)		Min. 1,000MΩ 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	2	
		Material group	III a	
		Category	B / 250V	
Other	Vibration Resistance	Misoperation>1us	10 to 55Hz double amplitude 1.65mm	
		Endurance	10 to 55Hz double amplitude 3.3mm	
	Shock	Misoperation>1us	Min. 100m/s <sup>2</sup> (11 ± 1ms)	
		Endurance	Min. 1,000m/s <sup>2</sup> (6 ± 1ms)	
	Weight		Approximately 12g	
	Average sound pressure		Approximately 50dB at 5cm	
Sealing		Sealed, RT III		

\* 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 actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

# FTR-H3 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	47	3.5	0.5	8.2	530
009	9	155	6.3	0.9	9.9	
012	12	270	8.4	1.2	19.8	
024	24	1,100	16.8	2.2	39.6	

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

\* Specified operate values are valid for pulse wave voltage.

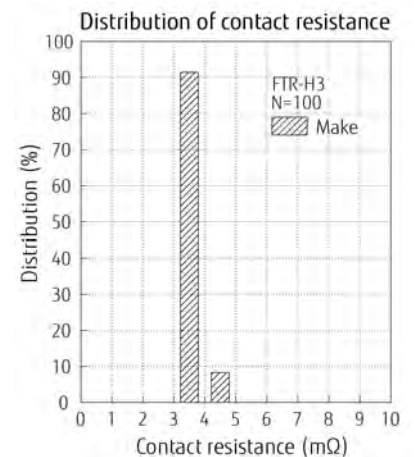
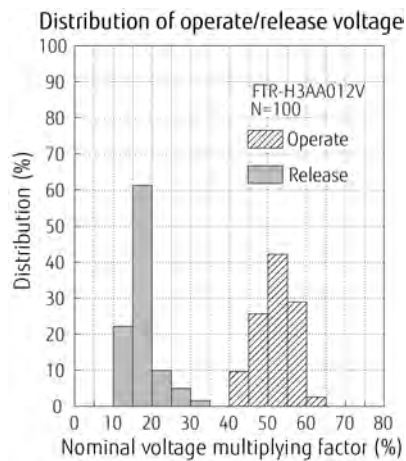
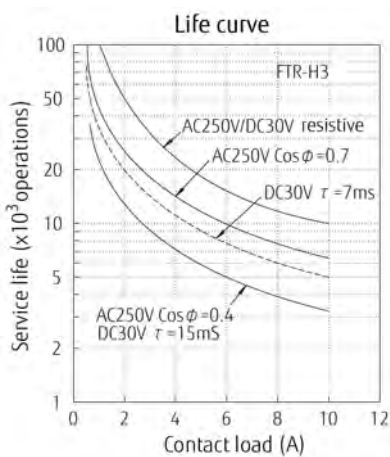
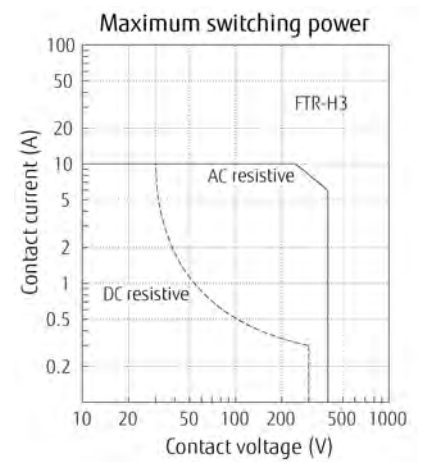
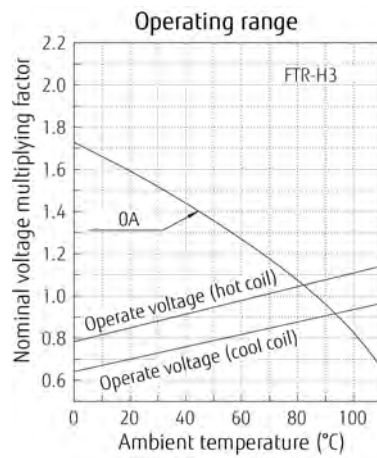
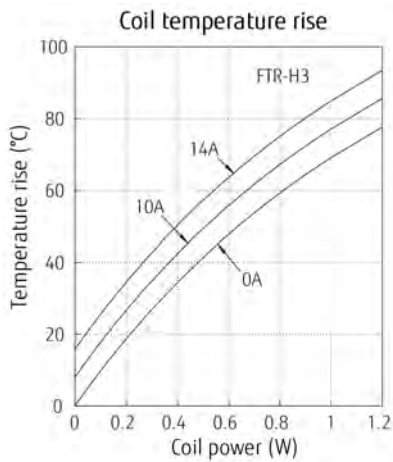
## ■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508	Flammability: UL 94-V0 (plastics)
	E63614	10A, 30 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 (cosφ=1) 3A, 250 VAC (cosφ=0.4)
	40015008	10A, 30 VDC (0ms) 5/80A, 250 VAC (V-type) 30k 8/120A, 250VAC (T type) 30k

Complies with CQC

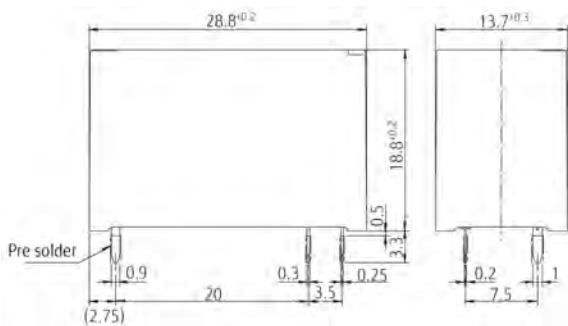
# FTR-H3 SERIES

## CHARACTERISTIC DATA

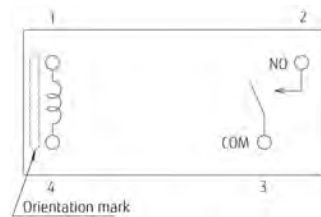


## DIMENSIONS

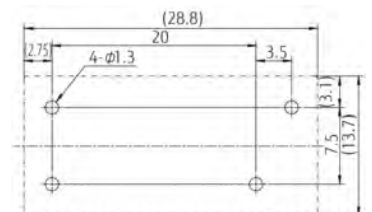
### Dimensions



### Schematics



### 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.

## Fujitsu Components International Headquarter Offices

### Japan

Fujitsu Component Limited  
Gotanda-Chuo Building  
3-5, Higashigotanda 2-chome, Shinagawa-ku  
Tokyo 141, Japan  
Tel: (81-3) 5449-7010  
Fax: (81-3) 5449-2626  
Email: [promothq@ft.ed.fujitsu.com](mailto:promothq@ft.ed.fujitsu.com)  
Web: [www.fcl.fujitsu.com](http://www.fcl.fujitsu.com)

### North and South America

Fujitsu Components America, Inc.  
250 E. Caribbean Drive  
Sunnyvale, CA 94089 U.S.A.  
Tel: (1-408) 745-4900  
Fax: (1-408) 745-4970  
Email: [components@us.fujitsu.com](mailto:components@us.fujitsu.com)  
Web: <http://us.fujitsu.com/components>

### Europe

Fujitsu Components Europe B.V.  
Diamantlaan 25  
2132 WV Hoofddorp  
Netherlands  
Tel: (31-23) 5560910  
Fax: (31-23) 5560950  
Email: [info@fceu.fujitsu.com](mailto:info@fceu.fujitsu.com)  
Web: [emea.fujitsu.com/components/](http://emea.fujitsu.com/components/)

### Asia Pacific

Fujitsu Components Asia Ltd.  
102E Pasir Panjang Road  
#01-01 Citilink Warehouse Complex  
Singapore 118529  
Tel: (65) 6375-8560  
Fax: (65) 6273-3021  
Email: [fcal@fcal.fujitsu.com](mailto:fcal@fcal.fujitsu.com)  
Web: <http://www.fujitsu.com/sg/services/micro/components/>

©2012 Fujitsu Components Europe B.V. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

The contents, data and information in this datasheet are provided by Fujitsu Component Ltd. as a service only to its user and only for general information purposes.

The use of the contents, data and information provided in this datasheet is at the users' own risk.

Fujitsu has assembled this datasheet with care and will endeavor to keep the contents, data and information correct, accurate, comprehensive, complete and up to date.

Fujitsu Components Europe B.V. and affiliated companies do however not accept any responsibility or liability on their behalf, nor on behalf of its employees, for any loss or damage, direct, indirect or consequential, with respect to this datasheet, its contents, data, and information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof.

Nor do Fujitsu Components Europe B.V. and affiliated companies accept on their behalf, nor on behalf of its employees, any responsibility or liability for any representation or warrant of any kind, express or implied, including warranties of any kind for merchantability or fitness for particular use, with respect to these datasheets, its contents, data, information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Rev. August 07, 2012