

# HF115F-T/TH

# MINIATURE HIGH POWER RELAY



File No.: E134517



File No.:116934



File No.:CQC08002028130



## Features

- High Temperature: 105°C
- Low height 15.7 mm
- 5kV dielectric strength (between coil and contacts)
- Creepage distance: 10mm
- Meeting VDE 0700, 0631 reinforce insulation
- Product in accordance to IEC 60335-1 available
- UL insulation system: Class F
- Sockets available
- Plastic sealed and flux proofed types available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (29.0 x 12.7 x 15.7) mm

## CONTACT DATA

Contact arrangement	1A, 1C
Contact resistance	100mΩ max.(at 1A 6VDC)
Contact material	See ordering info.
Contact rating (Res. load)	HF115F-TH: 10A 250VAC HF115F-T: 16A 250VAC
Max. switching voltage	440VAC / 300VDC
Max. switching current	HF115F-TH:10A HF115F-T:16A
Max. switching power	HF115F-TH: 2500VA HF115F-T: 4000VA
Mechanical endurance	1 x 10 <sup>7</sup> ops
Electrical endurance	HF115F-T 1H3B type: 5 x 10 <sup>4</sup> ops (16A 250VAC, Resistive load, at 105°C, 5s on 5s off) HF115F-TH 1H3B type: 5 x 10 <sup>4</sup> ops (10A 250VAC, Resistive load, at 105°C, 5s on 5s off)

## CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts 5000VAC 1min
	Between open contacts 1000VAC 1min
Surge voltage (between coil & contacts)	10kV (1.2 / 50μs)
Operate time (at nomi. volt.)	15ms max.
Release time (at nomi. volt.)	8ms max.
Temperature rise (at nomi. volt.)	55K max.
Shock resistance *	Functional 98m/s <sup>2</sup>
	Destructive 980m/s <sup>2</sup>
Vibration resistance *	10Hz to 150Hz 10g/5g
Humidity	5% to 85% RH
Ambient temperature	-40°C to 105°C
Termination	PCB
Unit weight	Approx. 13.5g
Construction	Plastic sealed, Flux proofed

Notes: 1) The data shown above are initial values.  
2) \* Index is not that of relay length direction.

## COIL

Coil power	HF115F-TH: Approx. 250mW; HF115F-T: Approx. 400mW
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## COIL DATA

at 23°C

### Standard type (HF115F-T)

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC <sup>1)</sup>	Coil Resistance Ω
5	3.50	0.5	6.5	62 x (1±10%)
6	4.20	0.6	7.8	90 x (1±10%)
9	6.30	0.9	11.7	202 x (1±10%)
12	8.40	1.2	15.6	360 x (1±10%)
18	12.6	1.8	23.4	810 x (1±10%)
24	16.8	2.4	31.2	1440 x (1±10%)
48 <sup>2)</sup>	33.6	4.8	62.4	5760 x (1±15%)
60 <sup>2)</sup>	42.0	6.0	78	7500 x (1±15%)

### Sensitive type (HF115F-TH)

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC <sup>1)</sup>	Coil Resistance Ω
5	3.75	0.5	6.5	100 x (1±10%)
6	4.50	0.6	7.8	144 x (1±10%)
9	6.75	0.9	11.7	324 x (1±10%)
12	9.00	1.2	15.6	576 x (1±10%)
18	13.50	1.8	23.4	1296 x (1±10%)
24	18.00	2.4	31.2	2304 x (1±10%)
48 <sup>2)</sup>	36.00	4.8	62.4	9216 x (1±15%)
60 <sup>2)</sup>	45.00	6.0	78	12857 x (1±15%)

Notes: 1) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.  
2) For products with rated voltage ≥ 48V, measures should be taken to prevent coil overvoltage in order to protect coil in test and application (eg. Connect diodes in parallel).



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2014 Rev. 1.02

## SAFETY APPROVAL RATINGS

VDE	HF115F-T-1H(S)3A	18.4A 250VAC at 105°C
	HF115F-TH -1H(S)3	10A 250VAC at 105°C 6A 400VAC at 105°C
	HF115F-T-1H(S)3B	16A 250VAC at 105°C
	HF115F-TH -1H(S)3B	10A 250VAC at 105°C
	HF115F-T-1Z(S)3B	NO: 16A 250VAC at 105°C NC: 5A 250VAC at 105°C
UL/CUL	HF115F-TH -1H(S)3B	10A 277VAC
	HF115F-TH -1H(S)3A	10A 277VAC
	HF115F-T-1H(S)3B	16A 277VAC
	HF115F-T-1H(S)3A	16A 250VAC

Notes: 1) All values unspecified are at room temperature.

2) Only typical loads are listed above. Other load specifications can be available upon request.

## ORDERING INFORMATION

<b>HF115F-T/TH 012 -1H S 3 A (XXX)</b>	
<b>Type</b>	HF115F-T: Standard HF115F-TH: High Sensitive
<b>Coil voltage</b>	5, 6, 9, 12, 18, 24, 48, 60VDC
<b>Contact arrangement</b>	<b>1H:</b> 1 Form A <b>1Z:</b> 1 Form C
<b>Construction</b> <sup>1)2)</sup>	<b>S:</b> Plastic sealed <b>Nil:</b> Flux proofed
<b>Version</b>	<b>3:</b> 5.0mm
<b>Contact material</b>	<b>A:</b> AgSnO <sub>2</sub> <b>B:</b> AgNi <b>Nil:</b> AgCdO
<b>Customer special code</b>	e.g. (335) stands for product in accordance to IEC 60335-1(GWT).

Notes: 1) We recommend flux proofed types for a clean environment (free from contaminations like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.).

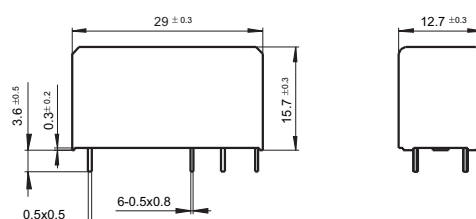
We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.).

2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

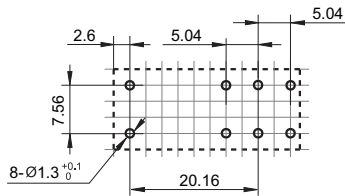
### Outline Dimensions



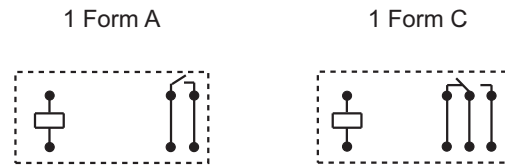
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout  
(Bottom view)



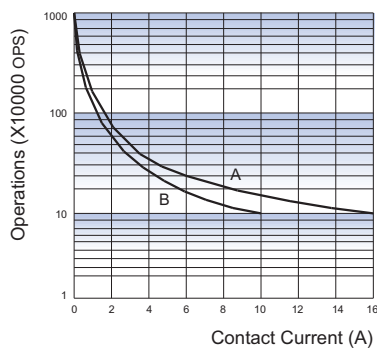
Wiring Diagram  
(Bottom view)



- Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should be  $\pm 0.4\text{mm}$ .  
 2) The tolerance without indicating for PCB layout is always  $\pm 0.1\text{mm}$ .  
 3) The width of the gridding is 2.52mm.

## CHARACTERISTIC CURVES

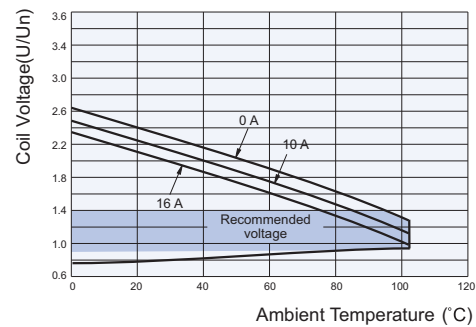
ENDURANCE CURVE



**Notes:**

- Curve A: HF115F-T 1H3B type  
Curve B: HF115F-TH 1H3B type
- Test conditions:  
NO, Resistive load, 250VAC, Flux proofed,  
Room temp., 1s on 9s off

COIL OPERATING RANGE (DC) \*



- Notes:** \* The use of a relay with an energising voltage other than the rated coil voltage may lead to reduced electrical life.  
An energising voltage over the above range may damage the insulation of relay coil.

### Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.