

# HF115F-Q

# MINIATURE HIGH POWER RELAY



File No.: E134517



File No.: 116934



File No.: CQC08002028130



## Features

- Ambient temperature up to 125 °C
- 5kV dielectric strength (between coil and contacts)
- Low height: 15.7mm
- Creepage distance >8mm
- Meeting VDE 0700, 0631 reinforce insulation
- UL94, V-0 flammability class
- Product in accordance to IEC 60335-1 available
- UL insulation system: Class F
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: Vertical: (41.0 x 12.7 x 15.7) mm  
Horizontal: (45.0 x 12.7 x 15.7) mm

## CONTACT DATA

Contact arrangement	1A, 1B
Contact resistance	100mΩ max.(at 1A 6VDC)
Contact material	AgSnO <sub>2</sub> , AgNi
Contact rating	20A 250VAC
Max. switching voltage	440VAC / 300VDC
Max. switching current	20A
Max. switching power	5000VA
Mechanical endurance	1 x 10 <sup>7</sup> OPS
Electrical endurance	1H type: 3 x 10 <sup>4</sup> OPS (20A 277VAC, Resistive load, Room temp., 1s on 9s 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 *	1A: 10Hz to150Hz 10g	
	1B: 10Hz to150Hz 5g	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 125°C	
Termination	PCB & QC	
Unit weight	Approx. 16g	
Construction	Flux proofed	

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

## COIL

Coil power	Approx. 400mW
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## COIL DATA

at 23°C

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	7.5	62 x (1±10%)
6	4.20	0.6	9.0	90 x (1±10%)
9	6.30	0.9	13.5	202 x (1±10%)
12	8.40	1.2	18.0	360 x (1±10%)
18	12.6	1.8	27.0	810 x (1±10%)
24	16.8	2.4	36.0	1440 x (1±10%)
48 <sup>2)</sup>	33.6	4.8	72.0	5760 x (1±15%)
60 <sup>2)</sup>	42.0	6.0	90.0	7500 x (1±15%)
110 <sup>2)</sup>	77.0	11.0	165.0	25200 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).

## SAFETY APPROVAL RATINGS

VDE	AgNi	1 Form A	18A 250VAC at 105°C 16A 250VAC at 125°C 12A 400VAC at 105°C
		1 Form B	16A 250VAC at 125°C 12A 400VAC at 105°C
UL/CUL	AgNi	1 Form A 1 Form B	20A 277VAC

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

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



HONGFA RELAY

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

2015 Rev. 1.00

## ORDERING INFORMATION

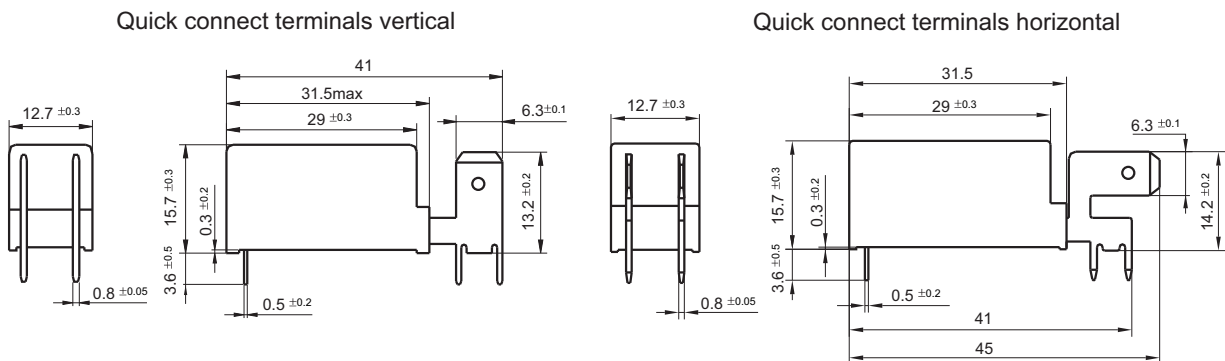
Type	HF115F-Q / 012 -1H 3 T (XXX)				
Coil voltage	5, 6, 9, 12, 18, 24, 48, 60, 110VDC				
Contact arrangement	1H: 1 Form A	1D: 1 Form B			
Terminals	3: Quick connect terminals horizontal		Nil: Quick connect terminals vertical		
Contact material	T: AgSnO <sub>2</sub>	Nil: AgNi			
Special code <sup>3)</sup>	XXX: Customer special requirement		Nil: Standard		

- Notes: 1) Flux-proofed relays can not be used in the environment with pollutants like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.  
 2) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB.  
 3) The customer special requirement express as special code after evaluating by Hongfa. e.g.(335) stands for product in accordance to IEC 60335-1 (GWT).

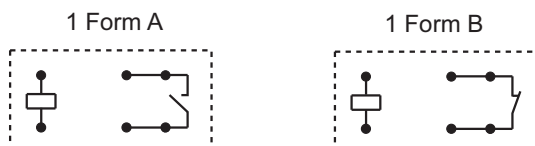
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

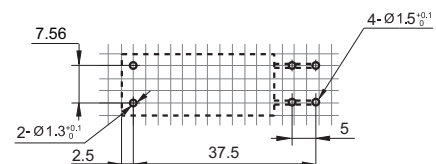
### Outline Dimensions



### Wiring Diagram (Bottom view)



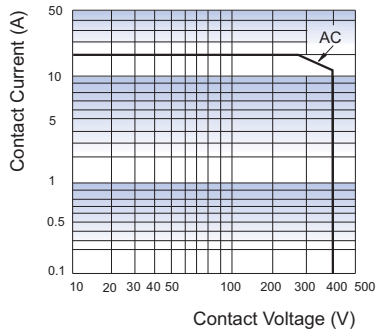
### PCB Layout (Bottom view)



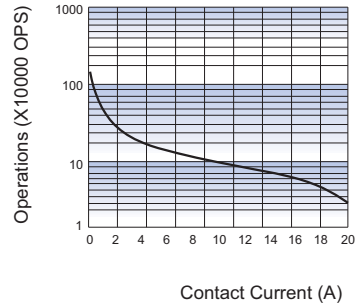
- Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension > 1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension > 5mm, tolerance should be ±0.4mm.  
 2) The tolerance without indicating for PCB layout is always ±0.1mm.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

## CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



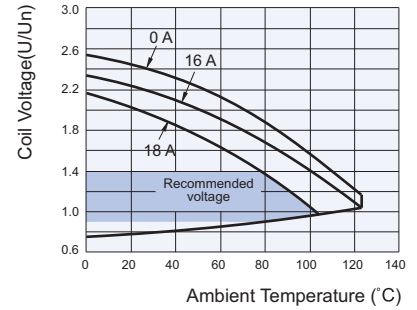
ENDURANCE CURVE



**Notes:**

- 1) Curve: 1H type
- 2) Test conditions:  
NO, 250VAC, Resistive load, 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 abver 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.