

# HF115FD

# MINIATURE HIGH POWER RELAY



File No.:134517



File No.:116934



File No.:CQC12002084995  
CQC17002176309



## Features

- 16A switching capability
- Low height: 15.7 mm
- 5kV dielectric strength (between coil and contacts)
- Creepage distance: 10mm
- Meet reinforce insulation
- Product in accordance to IEC 60335-1 available
- Sockets available
- UL insulation system: Class F 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 (Resistive)	12A/16A 250VAC
Max. switching voltage	440VAC / 300VDC
Max. switching current	12A / 16A
Max. switching power	3000VA / 4000VA
Mechanical endurance	1 x 10 <sup>7</sup> ops
Electrical endurance	1H3A type: 1 x 10 <sup>5</sup> ops (16A 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 x 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 to150Hz 10g/5g	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 85°C	
Termination	PCB	
Unit weight	Approx. 13.5g	
Construction	Flux proofed	

- Notes:** 1) The data shown above are initial values.  
2) \* Index is not that of relay length direction.  
3) UL insulation system: Class F, Class B

## 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 *	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	360 x (1±10%)
18	12.60	1.8	27	810 x (1±10%)
24	16.80	2.4	36	1440 x (1±10%)
48	33.60	4.8	72	5760 x (1±15%)

**Notes:** \*Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

## SAFETY APPROVAL RATINGS

UL/CUL	AgNi	1,2 type	12A 277VAC at 85°C
		3 type	20A 277VAC at 85°C 16A 277VAC at 85°C 16A 277VAC
UL/CUL	AgSnO <sub>2</sub>	1,2 type	12A 277VAC at 85°C
		3 type	20A 277VAC at 85°C 16A 277VAC at 85°C 16A 277VAC 10A 277VAC at 105°C 1/2 hp 120VAC at 70°C 1 hp 240VAC at 70°C TV-5 120VAC B300
VDE	AgNi	1,2 type	12A 250VAC at 85°C
		3 type	16A 250VAC at 85°C
	AgSnO <sub>2</sub>	1,2 type	12A 250VAC at 85°C
		3 type	16A 250VAC at 85°C 10A 250VAC at 105°C 9A 250VAC COSφ=0.4 at 70°C

- 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

2017 Rev. 1.00T

## ORDERING INFORMATION

Type	HF115FD /	012	-1H	3	A	F	(XXX)
Coil voltage	5, 6, 9, 12, 18, 24, 48VDC						
Contact arrangement	1H: 1 Form A		1Z: 1 Form C				
Version	1: 3.5mm 1 pole 12A		2: 5.0mm 1 pole 12A		3: 5.0mm 1 pole 16A		
Contact material	A: AgSnO <sub>2</sub>		B: AgNi				
Insulation standard	F: Class F		Nil: Class B				
Customer special code	e.g. (335) stands for product in accordance to IEC 60335-1 (GWT)						

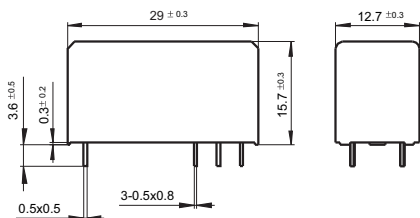
**Notes:** 1) Flux-proofed relays can not be used in the environment with pollutants like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.  
 2) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

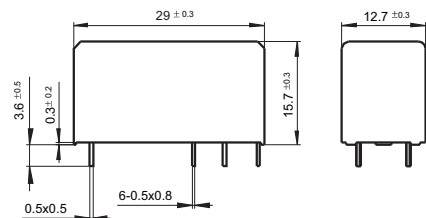
Unit: mm

### Outline Dimensions

3.5mm Pinning (HF115FD/ □□□-□□-1-□)

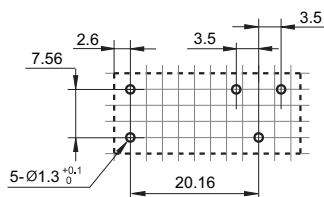


5mm Pinning (HF115FD/ □□□-□□-2/3-□)

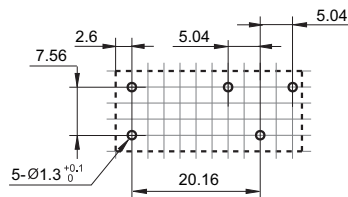


### PCB Layout (Bottom view)

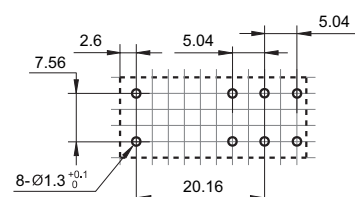
3.5mm Pinning, 1 Pole



5mm Pinning, 1 Pole



5mm Pinning, 1 Pole

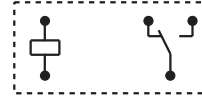


Wiring Diagram (Bottom view)

3.5/5mm Pinning, 1 Pole, 12A, HF115FD/ □□□-□□-□-1/2-□



1 Form A

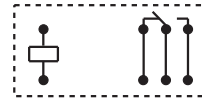


1 Form C

5mm Pinning, 1 Pole, 16A, HF115FD/ □□□-□□-□-3-□



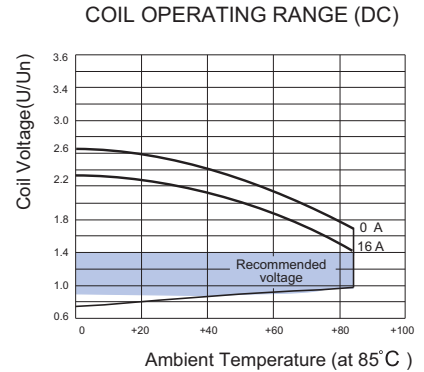
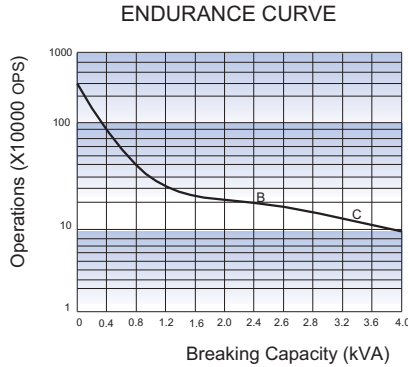
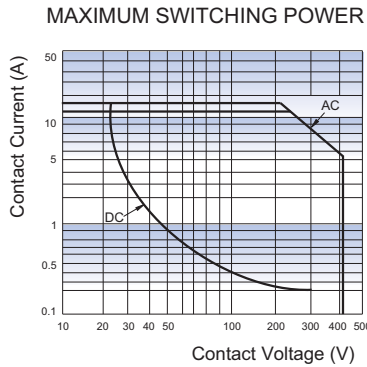
1 Form A



1 Form C

- 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**



- Remark:**  
 1. Curve B: 1H1A(1H2A)  
 Curve C: 1H3A  
 2. **Test conditions:**  
 NO, Resistive load, 250VAC,  
 Flux proofed type, Room temp., 1s on 9s off

**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.