

# HF3FF

# SUBMINIATURE HIGH POWER RELAY



File No.:E134517



File No.:40025218



File No.:R50148356



File No.:CQC13002098175



## Features

- 15A switching capability
- 1 Form A and 1 Form C configurations
- Subminiature, standard PCB layout
- Plastic sealed and flux proofed types available
- UL insulation system: Class F
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (19.0 x 15.2 x 15.5) mm

## CONTACT DATA

Contact arrangement	1A	1C	
		NO	NC
Contact resistance	100mΩ max.(at 1A 6VDC)		
Contact material	AgSnO <sub>2</sub> , AgCdO		
Contact rating (Res. load)	10A 277VAC 10A 28VDC	10A 277VAC <sup>1)</sup> 10A 28VDC <sup>1)</sup>	5A 250VAC
Max. switching voltage	277VAC / 28VDC		250VAC
Max. switching current	15A	10A	5A
Max. switching power	2770VA / 280W		1250VA
Mechanical endurance	1 x 10 <sup>7</sup> OPS		
Electrical endurance	1H type: 1x 10 <sup>5</sup> OPS (10A 250VAC, Resistive load, Room temp., 1s on 9s off)		
	1Z type: 5 x 10 <sup>4</sup> OPS (NO: 5A/NC: 5A 250VAC, Resistive load, Room temp., 5s on 5s off)		

Notes: 1) Applicable when NC is not energized with load.

## CHARACTERISTICS

Insulation resistance	100MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	1500VAC 1min
	Between open contacts	750VAC 1min
Operate time (at nomi. volt.)	10ms max.	
Release time (at nomi. volt.)	5ms max.	
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance	10Hz to 55Hz 1.5mm DA	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 70°C	
Termination	PCB	
Unit weight	Approx. 10g	
Construction	Plastic sealed, Flux proofed	

Notes: 1) The data shown above are initial values.

## COIL

Coil power	5VDC to 24VDC: Approx. 360mW; 48VDC: Approx. 510mW
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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	3.80	0.5	6.5	70 x (1±10%)
6	4.50	0.6	7.8	100 x (1±10%)
9	6.80	0.9	11.7	225 x (1±10%)
12	9.00	1.2	15.6	400 x (1±10%)
18	13.5	1.8	23.4	900 x (1±10%)
24	18.0	2.4	31.2	1600 x (1±10%)
48	36.0	4.8	62.4	4500 x (1±10%)
48 <sup>1)</sup>	36.0	4.8	62.4	6400 x (1±10%)

Notes: 1) There are 2 types for 48V--510mW and 360mW. The coil resistance for 510mW type is 4500ohm while for that for 360mW type is 6400ohm. If 360mW type is required, please add a special suffix (068) in the ordering information.

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

## SAFETY APPROVAL RATINGS

UL/CUL	1 Form A	10A 277VAC 10A 28VDC 15A 125VAC at 70°C 1/2HP 125VAC (AgSnO <sub>2</sub> ) TV-5 120VAC at 70°C (AgSnO <sub>2</sub> )
	1 Form C	NO:10A 277VAC NO:10A 28VDC NO:10A 120VAC at 70°C NC:10A 120VAC at 70°C
VDE (only AgSnO <sub>2</sub> )	1 Form A	10A 250VAC at 70°C 12A 125VAC
	1 Form C	NO/NC:5A/5A 250VAC at 70°C NO:10A 250VAC at 70°C NO:12A 125VAC

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

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

3) For sealed type, the vent-hole cover should be excised.



HONGFA RELAY

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

2015 Rev. 1.00

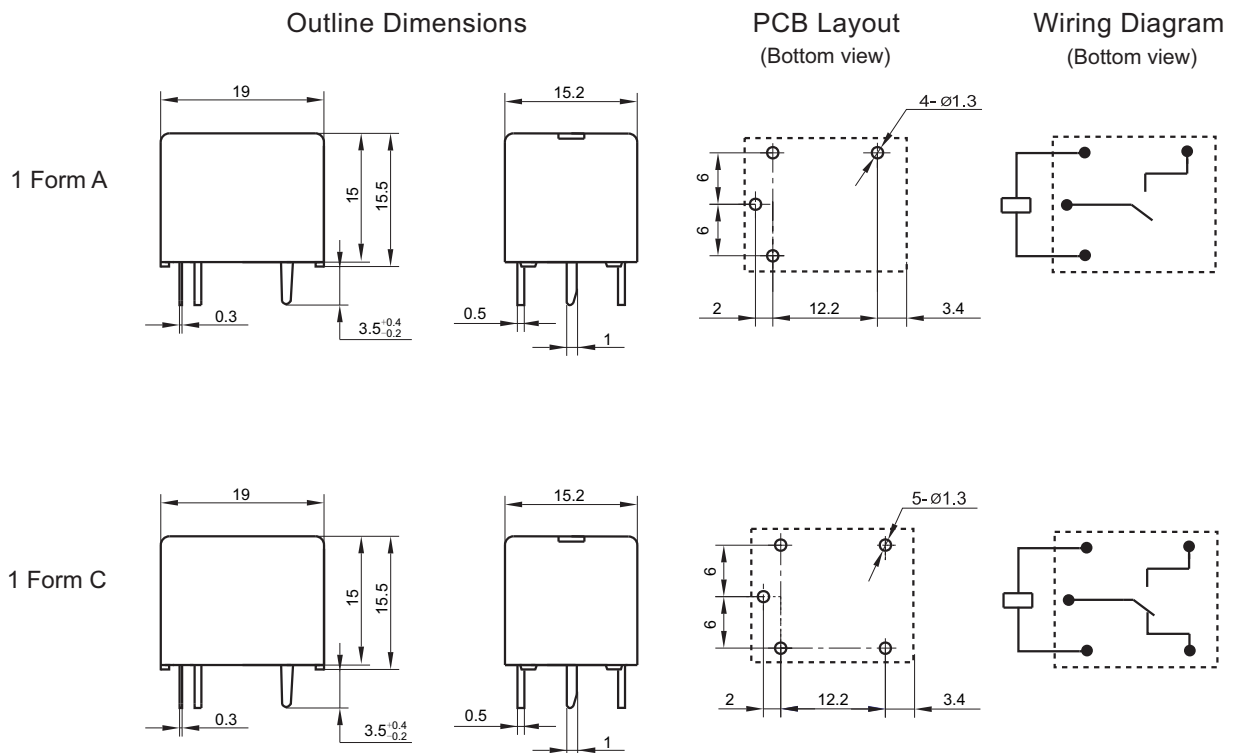
## ORDERING INFORMATION

HF3FF / 012 -1H S T (XXX)	
Type	
Coil voltage	5, 6, 9, 12, 18, 24, 48VDC
Contact arrangement	1H:1 Form A      1Z:1 Form C
Construction <sup>1) 2)</sup>	S: Plastic sealed      Nil: Flux proofed
Contact material	T: AgSnO <sub>2</sub> Nil: AgCdO
Special code <sup>3)</sup>	XXX: Customer special requirement      Nil: Standard

- 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.
- 3) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

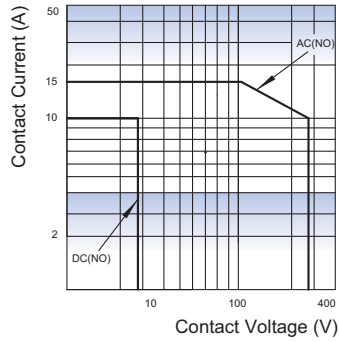
Unit: mm



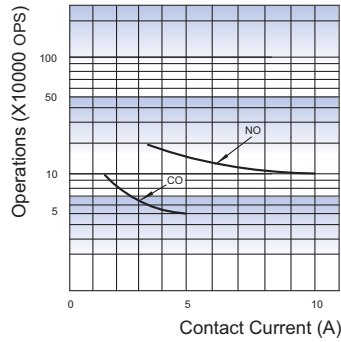
- Remark:** 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should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

## CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



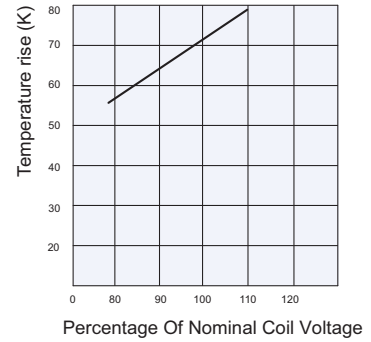
ENDURANCE CURVE



**Test conditions:**

NO, Resistive load, 277VAC/28VDC,  
Flux proofed, Room temp., 1s on 9s off  
CO, Resistive load, 250VAC,  
Flux proofed, Room temp., 5s on 5s off.

COIL TEMPERATURE RISE



**Testing conditions:**

10A at 70°C.  
Mounting distance: 10mm

**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.