

# HF12FF

# SUBMINIATURE HIGH POWER RELAY



File No.:E134517



File No.:CQC09002036155



## Features

- 12A switching capability
- 1 Form A configuration
- Subminiature, standard PCB layout
- Plastic sealed and flux proofed types available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (18.4 x 15.2 x 10.2) mm

## CONTACT DATA

|                            |                                |
|----------------------------|--------------------------------|
| Contact arrangement        | 1A                             |
| Contact resistance         | 100mΩ max.(at 1A 24VDC)        |
| Contact material           | AgSnO <sub>2</sub>             |
| Contact rating (Res. load) | 10A 277VAC/30VDC<br>12A 125VAC |
| Max. switching voltage     | 277VAC                         |
| Max. switching current     | 12A                            |
| Max. switching power       | 2770VA / 300W                  |
| Mechanical endurance       | 1 x 10 <sup>7</sup> OPS        |
| Electrical endurance       | 1 x 10 <sup>5</sup> OPS        |

## COIL

|            |               |
|------------|---------------|
| Coil power | Approx. 450mW |
|------------|---------------|

## COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Allowable Voltage VDC | Coil Resistance Ω |
|---------------------|--------------------------|---------------------------|----------------------------|-------------------|
| 3                   | 2.25                     | 0.15                      | 3.90                       | 20 x (1±10%)      |
| 5                   | 3.75                     | 0.25                      | 6.50                       | 55 x (1±10%)      |
| 6                   | 4.50                     | 0.30                      | 7.80                       | 80 x (1±10%)      |
| 9                   | 6.75                     | 0.45                      | 11.7                       | 180 x (1±10%)     |
| 12                  | 9.00                     | 0.60                      | 15.6                       | 320 x (1±10%)     |
| 18                  | 13.5                     | 0.90                      | 23.4                       | 720 x (1±10%)     |
| 24                  | 18.0                     | 1.20                      | 31.2                       | 1280 x (1±10%)    |

## CHARACTERISTICS

|                               |                                 |                     |
|-------------------------------|---------------------------------|---------------------|
| Insulation resistance         | 1000MΩ (at 500VDC)              |                     |
| Dielectric strength           | Between coil & contacts         | 2500VAC 1min        |
|                               | Between open contacts           | 1000VAC 1min        |
| Operate time (at nomi. volt.) | 8ms 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 85°C                   |                     |
| Termination                   | PCB                             |                     |
| Unit weight                   | Approx. 6g                      |                     |
| Construction                  | Plastic sealed,<br>Flux proofed |                     |

- Notes:** 1) The data shown above are initial values.  
 2) Please find coil temperature curve in the characteristic curves below.  
 3) UL insulation system: Class A

## SAFETY APPROVAL RATINGS

|        |                       |
|--------|-----------------------|
| UL/CUL | 12A 125VAC            |
|        | 10A 277VAC            |
| UL/CUL | 13.5A 125VAC          |
|        | 10A 30VDC             |
|        | TV-5                  |
|        | 1/4HP 125VAC / 250VAC |

**Notes:** Only some typical ratings are listed above. If more details are required, please contact us.



HONGFA RELAY

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

2012 Rev. 1.01

## ORDERING INFORMATION

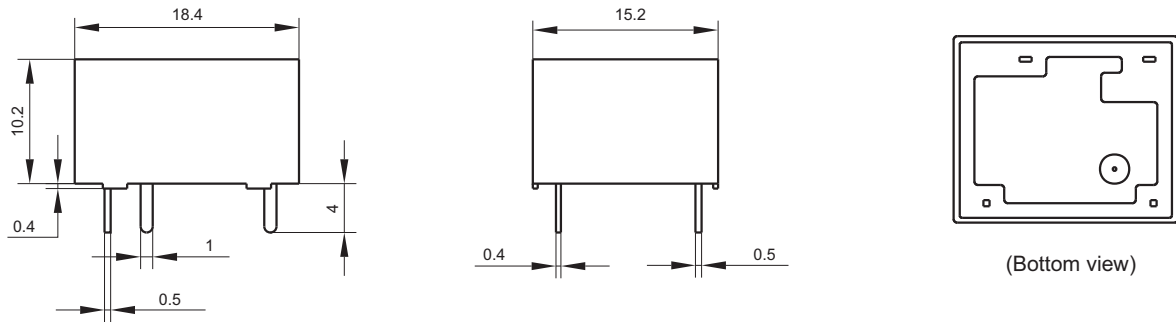
|                            |                           |     |                   |   |       |
|----------------------------|---------------------------|-----|-------------------|---|-------|
| Type                       | HF12FF /                  | 012 | -H                | S | (XXX) |
| Coil voltage               | 3, 5, 6, 9, 12, 18, 24VDC |     |                   |   |       |
| Contact arrangement        | H: 1 Form A               |     |                   |   |       |
| Construction <sup>1)</sup> | S: Plastic sealed         |     | Nil: Flux proofed |   |       |
| Customer special code      |                           |     |                   |   |       |

**Notes:** 1) Under the ambience with dangerous gas like H<sub>2</sub>S, SO<sub>2</sub> or NO<sub>2</sub>, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, flux proofed type is preferentially recommended.  
If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

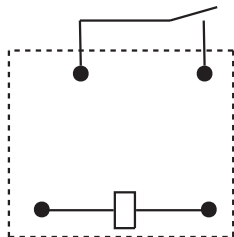
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

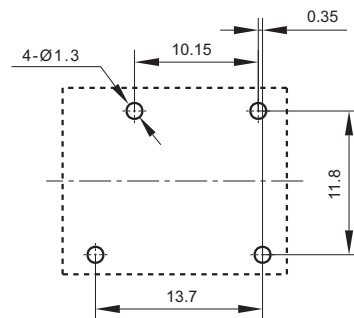
### Outline Dimensions



### Wiring Diagram (Bottom view)



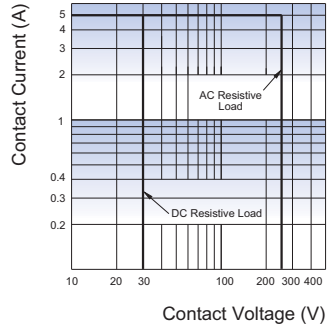
### PCB Layout (Bottom view)



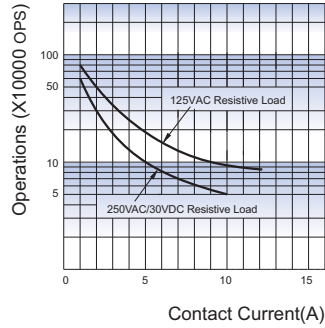
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1$ mm, tolerance should be  $\pm 0.2$ mm; outline dimension  $> 1$ mm and  $\leq 5$ mm, tolerance should be  $\pm 0.3$ mm; outline dimension  $> 5$ mm, tolerance should be  $\pm 0.4$ mm.  
2) The tolerance without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

# CHARACTERISTIC CURVES

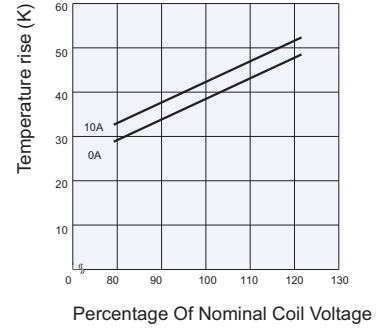
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



## Disclaimer

This datasheet is for the customers' reference. All the specifications are 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.