

# HF7FF

## SUBMINIATURE INTERMEDIATE POWER RELAY

cULus

File No.:E134517



File No.:CQC09002028260



### Features

- 10A switching capability
- 1 Form A and 1 Form C configurations
- Plastic sealed and flux proofed types available
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (22.5 x 16.5 x 16.5) mm

### CONTACT DATA

|                               |                                                                                                                                                                                                   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contact arrangement           | 1A, 1C                                                                                                                                                                                            |
| Contact resistance            | 100mΩ max.(at 1A 6VDC)                                                                                                                                                                            |
| Contact material              | AgSnO <sub>2</sub> , AgCe                                                                                                                                                                         |
| Contact rating<br>(Res. load) | 5A 250VAC/30VDC<br>10A 250VAC/28VDC                                                                                                                                                               |
| Max. switching voltage        | 250VAC / 30VDC                                                                                                                                                                                    |
| Max. switching current        | 10A                                                                                                                                                                                               |
| Max. switching power          | 2400VA / 280W                                                                                                                                                                                     |
| Mechanical endurance          | 1 x 10 <sup>7</sup> OPS                                                                                                                                                                           |
| Electrical endurance          | 1HT, 1ZT type: 1 x 10 <sup>4</sup> OPS (10A 250VAC,<br>Resistive load, Room temp., 1s on 9s off)<br>1H, 1Z type: 1 x 10 <sup>4</sup> OPS (5A 250VAC,<br>Resistive load, Room temp., 1s on 9s off) |

### 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. 9.5g                    |
| 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 F, Class B, Class A.

### COIL

|            |                                                      |
|------------|------------------------------------------------------|
| Coil power | 5VDC to 24VDC: Approx. 360mW<br>48VDC: Approx. 510mW |
|------------|------------------------------------------------------|

### COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Voltage VDC * | Coil Resistance Ω |
|---------------------|--------------------------|---------------------------|--------------------|-------------------|
| 3                   | 2.40                     | 0.3                       | 3.6                | 25 x (1±10%)      |
| 5                   | 4.00                     | 0.5                       | 6.0                | 70 x (1±10%)      |
| 6                   | 4.80                     | 0.6                       | 7.2                | 100 x (1±10%)     |
| 9                   | 7.20                     | 0.9                       | 10.8               | 225 x (1±10%)     |
| 12                  | 9.60                     | 1.2                       | 14.4               | 400 x (1±10%)     |
| 18                  | 14.4                     | 1.8                       | 21.6               | 900 x (1±10%)     |
| 24                  | 19.2                     | 2.4                       | 28.8               | 1600 x (1±10%)    |
| 48                  | 38.4                     | 4.8                       | 57.6               | 4500 x (1±10%)    |

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

### SAFETY APPROVAL RATINGS

|                              |          |                                                                            |
|------------------------------|----------|----------------------------------------------------------------------------|
| UL/CUL (AgCe)                | 1 Form C | NO: 10A 277VAC<br>NO/NC: 5A 277VAC<br>NO: 5A 30VDC<br>NC: 2FLA 4LRA 120VAC |
|                              | 1 Form A | 10A 277VAC<br>6A 30VDC                                                     |
| UL/CUL (AgSnO <sub>2</sub> ) | 1 Form C | 12A 277VAC<br>12A 28VDC                                                    |
|                              | 1 Form A | 12A 277VAC<br>12A 28VDC                                                    |

- 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. 1.00

## ORDERING INFORMATION

|                            |                                   |  |                   |     |              |   |   |       |
|----------------------------|-----------------------------------|--|-------------------|-----|--------------|---|---|-------|
|                            | HF7FF /                           |  | 012               | -1H | T            | S | F | (XXX) |
| Type                       |                                   |  |                   |     |              |   |   |       |
| Coil voltage               | 3, 5, 6, 9, 12, 18, 24, 48VDC     |  |                   |     |              |   |   |       |
| Contact arrangement        | 1H: 1 Form A                      |  | 1Z: 1 Form C      |     |              |   |   |       |
| Contact material           | T: AgSnO <sub>2</sub> (10A)       |  | Nil: AgCe (5A)    |     |              |   |   |       |
| Construction <sup>1)</sup> | S: Plastic sealed                 |  | Nil: Flux proofed |     |              |   |   |       |
| Insulation standard        | F: Class F                        |  | B: Class B        |     | Nil: Class A |   |   |       |
| Special code <sup>4)</sup> | XXX: Customer special requirement |  | Nil: Standard     |     |              |   |   |       |

**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.

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

3) If the application belongs to inductive load, AgSnO<sub>2</sub>In<sub>2</sub>O<sub>3</sub> contact material is recommended. Please add a special suffix (325) to stand for this special contact material in the ordering information.

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

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

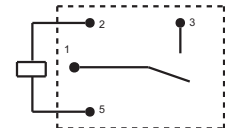
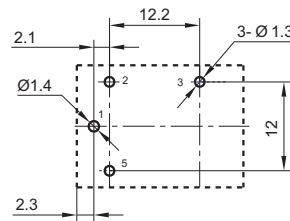
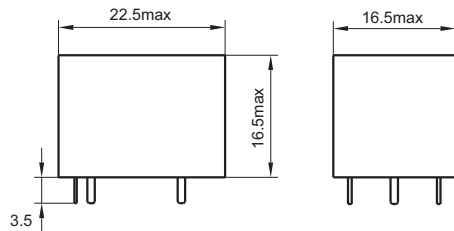
Unit: mm

Outline Dimensions

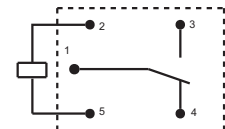
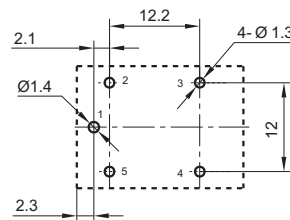
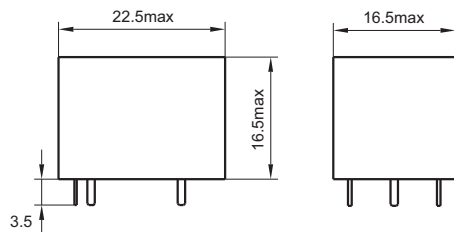
PCB Layout  
(Bottom view)

Wiring Diagram  
(Bottom view)

1 Form A



1 Form C

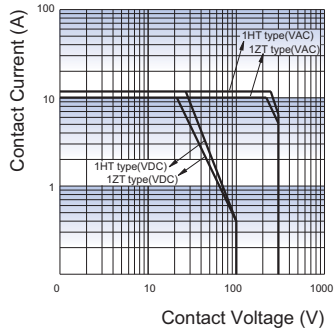


Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

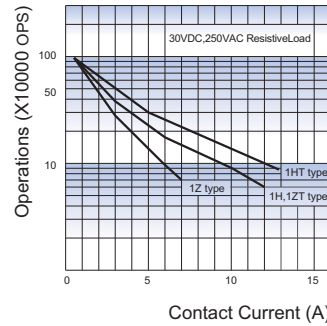
2) The tolerance without indicating for PCB layout is always ±0.1mm.

## CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



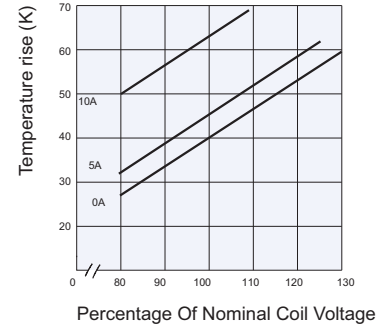
ENDURANCE CURVE



**Test conditions:**

NO, Resistive load, Flux proofed,  
Room temp., 1s on 9s off.

COIL TEMPERATURE RISE



### 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.