

# HF14FW

# MINIATURE HIGH POWER RELAY



File No.:E134517



File No.:40023508



File No.:CQC09002030293



## Features

- 20A switching capability
- 4kV dielectric strength (between coil and contacts)
- Meeting VDE 0700, 0631 reinforce insulation
- 1 Form A, 1 Form B and 1 Form C configurations
- Sockets available
- Plastic sealed and dust protected types available
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (29.0 x 13.0 x 26.5) mm

## CONTACT DATA

|                        |   |
|------------------------|---|
| Contact arrangement    | 1A, 1B, 1C  |
| Contact resistance     | 50mΩ max.(at 1A 24VDC)  |
| Contact material       | AgSnO <sub>2</sub> , AgCdO  |
| Contact rating         | Resistive: 16A 240VAC/24VDC<br>1HP 240VAC<br>TV-8 125VAC (NO contact)   |
| Max. switching voltage | 277VAC / 30VDC  |
| Max. switching current | 20A   |
| Max. switching power   | 5540VA / 480W   |
| Mechanical endurance   | 1 x 10 <sup>7</sup> OPS   |
| Electrical endurance   | 1 x 10 <sup>5</sup> OPS (NO or NC, 16A 240VAC, Resistive load, Room temp., 1s on 9s off)<br>5 x 10 <sup>4</sup> OPS (NO or NC, 16A 24VDC, Resistive load, Room temp., 1s on 9s off) |

## CHARACTERISTICS

|                               |                                 |                     |
|-------------------------------|---------------------------------|---------------------|
| Insulation resistance         | 1000MΩ (at 500VDC)              |                     |
| Dielectric strength           | Between coil & contacts         | 4000VAC 1min        |
|                               | Between open contacts           | 1000VAC 1min        |
| Operate time (at nomi. volt.) | 15ms max.                       |                     |
| Release time (at nomi. volt.) | 5ms max.                        |                     |
| Ambient temperature           | -40°C to 85°C                   |                     |
| Humidity                      | 5% to 85% RH                    |                     |
| Shock resistance              | Functional                      | 98m/s <sup>2</sup>  |
|                               | Destructive                     | 980m/s <sup>2</sup> |
| Vibration resistance          | 10Hz to 55Hz 1.5mm DA           |                     |
| Termination                   | PCB                             |                     |
| Unit weight                   | Approx. 18.5g                   |                     |
| 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.

## COIL

|            |   |
|------------|---|
| Coil power | Standard: Approx.720mW<br>Sensitive: Approx.530mW |
|------------|---|

## COIL DATA

at 23°C

### Standard type

| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Voltage VDC* | Coil Resistance Ω |
|---------------------|--------------------------|---------------------------|-------------------|-------------------|
| 5                   | 3.6                      | 0.5                       | 5.5               | 36 x (1±10%)      |
| 6                   | 4.3                      | 0.6                       | 6.6               | 50 x (1±10%)      |
| 9                   | 6.5                      | 0.9                       | 9.9               | 115 x (1±10%)     |
| 12                  | 8.6                      | 1.2                       | 13.2              | 200 x (1±10%)     |
| 18                  | 13.0                     | 1.8                       | 19.8              | 460 x (1±10%)     |
| 24                  | 17.3                     | 2.4                       | 26.4              | 820 x (1±10%)     |
| 48                  | 34.6                     | 4.8                       | 52.8              | 3300 x (1±10%)    |
| 60                  | 43.2                     | 6.0                       | 66.0              | 5100 x (1±10%)    |

### Sensitive type

| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Voltage VDC* | Coil Resistance Ω |
|---------------------|--------------------------|---------------------------|-------------------|-------------------|
| 5                   | 3.60                     | 0.5                       | 7.0               | 47 x (1±10%)      |
| 6                   | 4.30                     | 0.6                       | 8.4               | 68 x (1±10%)      |
| 9                   | 6.50                     | 0.9                       | 12.6              | 160 x (1±10%)     |
| 12                  | 8.60                     | 1.2                       | 16.8              | 275 x (1±10%)     |
| 18                  | 13.0                     | 1.8                       | 25.2              | 620 x (1±10%)     |
| 24                  | 17.3                     | 2.4                       | 33.6              | 1100 x (1±10%)    |
| 48                  | 34.6                     | 4.8                       | 67.2              | 4170 x (1±10%)    |
| 60                  | 43.2                     | 6.0                       | 84.0              | 7000 x (1±10%)    |

- Notes:** 1) When requiring pick-up voltage < 72% of nominal voltage, special order allowed.  
2) Suggesting to use the sensitive type.  
3) \*Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.



HONGFA RELAY

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

2014 Rev. 1.01

## SAFETY APPROVAL RATINGS

|        |                              |                      |  |  |
|--------|------------------------------|----------------------|--|--|
| UL/CUL | AgSnO <sub>2</sub>           | 1 Form A             | 20A 277VAC Resistive<br>1HP (8FLA) 240VAC<br>TV-8 125VAC<br>16A 240VAC General Use<br>20A 24VDC<br>10FLA 60LRA 250VAC                            |  |
|        |                              | 1 Form C<br>1 Form B | 16A 277VAC Resistive<br>1HP (8FLA) 240VAC<br>16A 240VAC General Use<br>20A 24VDC<br>NO:20A 277VAC Resistive<br>TV-8 125VAC<br>10FLA 60LRA 250VAC |  |
|        | AgCdO                        | 1 Form A             | 20A 277VAC Resistive<br>1HP (8FLA) 240VAC<br>16A 240VAC General Use<br>20A 24VDC Resistive<br>20A 125VAC General Use                             |  |
|        |                              | 1 Form C<br>1 Form B | 1HP (8FLA) 240VAC<br>16A 240VAC General Use<br>20A 24VDC Resistive<br>20A 125VAC General Use<br>NO:20A 277VAC Resistive                          |  |
|        | VDE<br>(coil power is 530mW) | AgSnO <sub>2</sub>   | 1 Form A   | 20A 250VAC<br>16A 30VDC                  |
|        |                              |                      | 1 Form C   | 16A 250VAC<br>16A 30VDC<br>NO:20A 250VAC |

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

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

## ORDERING INFORMATION

|                              |                                    |     |                   |   |   |   |   |       |
|------------------------------|------------------------------------|-----|-------------------|---|---|---|---|-------|
| Type                         | HF14FW /                           | 012 | -H                | S | P | T | F | (XXX) |
| Coil voltage                 | 5, 6, 9, 12, 18, 24, 48, 60VDC     |     |                   |   |   |   |   |       |
| Contact arrangement          | H: 1Form A D: 1 Form B Z: 1 Form C |     |                   |   |   |   |   |       |
| Construction <sup>1)</sup>   | S: Plastic sealed                  |     | Nil: Flux proofed |   |   |   |   |       |
| Coil power                   | P: Standard                        |     | Nil: Sensitive    |   |   |   |   |       |
| Contact material             | T: AgSnO <sub>2</sub>              |     | Nil: AgCdO        |   |   |   |   |       |
| Insulation standard          | F: Class F                         |     | Nil: Class B      |   |   |   |   |       |
| <b>Customer special code</b> |                                    |     |                   |   |   |   |   |       |

**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 standard type is made of black cover. If smoke cover is required, please add a special suffix (611) when ordering. Please take note that smoke cover is only available for dust protected type.

