



**EN:** This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at [www.hestore.hu](http://www.hestore.hu).

# HF152FD

# SUBMINIATURE HIGH POWER RELAY



File No.: E134517



File No.: 40031203



File No.: CQC16002150629



## Features

- 20A switching capability
- Ambient temperature meets 105°C
- High temperature load: 17A 277VAC at 105°C (Long endurance type)
- 1 Form C and 1 Form A configurations available
- Double pins and Single pin terminal available, effectively reduce terminal temperature rise
- Product in accordance to EN 60335-1 available

## CONTACT DATA

|                                  |                                                                                                                                                                                                                |                                        |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Contact arrangement              | 1A                                                                                                                                                                                                             | 1C                                     |
| Contact resistance <sup>1)</sup> | 100mΩ max.<br>(at 1A 24VDC)                                                                                                                                                                                    |                                        |
| Contact material                 | AgSnO <sub>2</sub> , AgNi                                                                                                                                                                                      |                                        |
| Contact rating<br>(Res. load)    | 20A 125VAC<br>17A 277VAC(Q type)<br>7A 400VAC                                                                                                                                                                  | NO:17A 277VAC(Q type)<br>NC:10A 277VAC |
| Max. switching voltage           | 400VAC                                                                                                                                                                                                         | 400VAC (NO)                            |
| Max. switching current           | 20A                                                                                                                                                                                                            | 17A                                    |
| Max. switching power             | 4700VA                                                                                                                                                                                                         | 4700VA                                 |
| Mechanical endurance             | 1 x 10 <sup>7</sup> OPS                                                                                                                                                                                        |                                        |
| Electrical endurance             | 1H type: 5 x 10 <sup>4</sup> OPS (16A 277VAC,<br>Resistive load, AgNi, at 85°C, 1s on 9s off)<br>1HT type: 1 x 10 <sup>6</sup> OPS (12A 277VAC,<br>Resistive load, AgSO <sub>2</sub> , at 105°C, 1s on 9s off) |                                        |

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

2) For plastic sealed type, the venting-hole should be opened in electrical endurance test.

## CHARACTERISTICS

|                                |                                 |                     |
|--------------------------------|---------------------------------|---------------------|
| Insulation resistance          | 1000MΩ (at 500VDC)              |                     |
| Dielectric strength            | Between coil & contacts         | 2500VAC 1min        |
|                                | Between open contacts           | 1000VAC 1min        |
| Operate time (at rated. volt.) | 10ms max.                       |                     |
| Release time (at rated. 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 105°C                  |                     |
| Termination                    | PCB                             |                     |
| Unit weight                    | Approx. 14g                     |                     |
| 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 | Approx. 360mW |
|------------|---------------|

## COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. <sup>1)</sup> | Drop-out Voltage VDC min. <sup>1)</sup> | Max. Voltage VDC* <sup>2)</sup> | Coil Resistance Ω |
|---------------------|----------------------------------------|-----------------------------------------|---------------------------------|-------------------|
| 3                   | 2.25                                   | 0.3                                     | 3.9                             | 25 x (1±10%)      |
| 5                   | 3.75                                   | 0.5                                     | 6.5                             | 70 x (1±10%)      |
| 6                   | 4.50                                   | 0.6                                     | 7.8                             | 100 x (1±10%)     |
| 9                   | 6.75                                   | 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                            | 6400 x (1±10%)    |

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

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

## SAFETY APPROVAL RATINGS

|         |                         |                    |                                                                                                      |
|---------|-------------------------|--------------------|------------------------------------------------------------------------------------------------------|
| UL/ CUL | NO, Standard Type       | AgNi               | 20A 125VAC Resistive at 40°C                                                                         |
|         |                         | AgSnO <sub>2</sub> | 17A 125VAC Resistive at 85°C<br>16A 277VAC Resistive at 85°C<br>10A 277VAC Resistive at 105°C        |
|         |                         | AgNi               | 12A 277VAC General Use at 105°C<br>1/2HP 125VAC at 40°C<br>1HP 250VAC at 40°C<br>TV-8 125VAC at 40°C |
|         | NO, Q Type              | AgNi               | 17A 277VAC Resistive at 105°C<br>10A 277VAC Resistive at 105°C                                       |
|         |                         | AgSnO <sub>2</sub> | 20A 125VAC Resistive at 40°C<br>10A 277VAC Resistive at 85°C                                         |
|         | NC                      | AgNi               | 7A 277VAC Resistive at 105°C                                                                         |
| VDE     | 1 Form A, Standard Type | AgNi               | 16A 250VAC Resistive at 85°C<br>7A 400VAC Resistive at 105°C                                         |
|         |                         | AgSnO <sub>2</sub> | 8A 250VAC COSφ=0.4 at 85°C<br>10(4)A 250VAC Resistive at 105°C (EN60730-1)                           |
|         | 1 Form A, Q Type        | AgNi               | 17A 250VAC at 23°C 2h/ at 105°C 2h<br>10A 250VAC at 23°C 2h/ at 105°C 2h                             |
|         | 1 Form C                | AgNi               | NO/NC:10A/7A 250VAC at 105°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, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2020 Rev. 1.00

## ORDERING INFORMATION

|                            |                                             |     |                   |   |               |                    |   |       |
|----------------------------|---------------------------------------------|-----|-------------------|---|---------------|--------------------|---|-------|
| HF152FD / 12               |                                             | -1Z | P                 | S | T             | F                  | Q | (XXX) |
| Type                       |                                             |     |                   |   |               |                    |   |       |
| Coil voltage               | 3, 5, 6, 9, 12, 18, 24, 48VDC               |     |                   |   |               |                    |   |       |
| Contact arrangement        | 1H: 1 Form A                                |     | 1Z: 1 Form C      |   |               |                    |   |       |
| Pin version                | P: Double pins                              |     | Nil: Single pin   |   |               |                    |   |       |
| Construction <sup>1)</sup> | S: Plastic sealed                           |     | Nil: Flux proofed |   |               |                    |   |       |
| Contact material           | T: AgSnO <sub>2</sub>                       |     | Nil: AgNi         |   |               |                    |   |       |
| Insulation standard        | F: Class F                                  |     |                   |   |               |                    |   |       |
| Contact endurance          | Q: Long endurance type (Only for AgNi type) |     |                   |   |               | Nil: Standard type |   |       |
| Special code <sup>4)</sup> | XXX: Customer special requirement           |     |                   |   | Nil: Standard |                    |   |       |

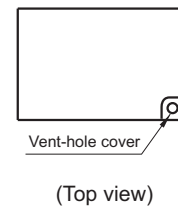
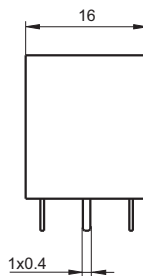
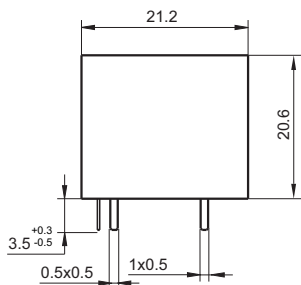
**Notes:** 1) Under the ambience with dangerous gas like H<sub>2</sub>S, SO<sub>2</sub> or NO<sub>2</sub>, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, flux proofed type is preferentially recommended.  
 2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.  
 3) If plastic sealed type is selected for cleaning purpose, the vent-hole cover should be excised after cleaning.  
 4) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

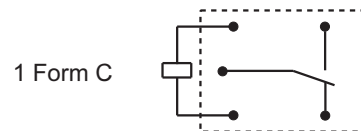
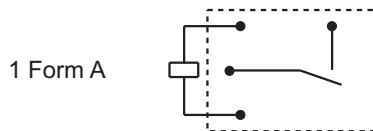
Unit: mm

### Single pin version

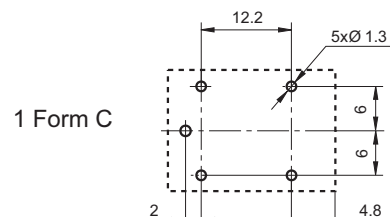
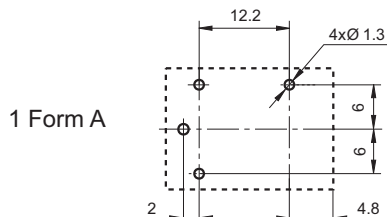
#### Outline Dimensions



#### Wiring Diagram (Bottom view)



#### PCB Layout (Bottom view)

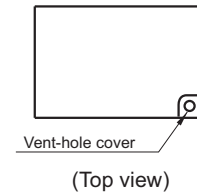
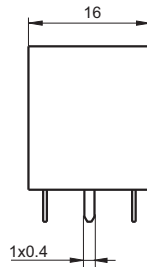
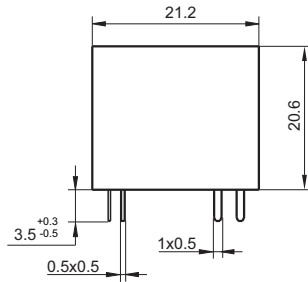


## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

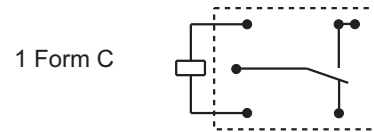
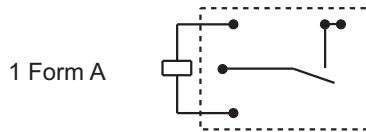
Unit: mm

### Double pin version

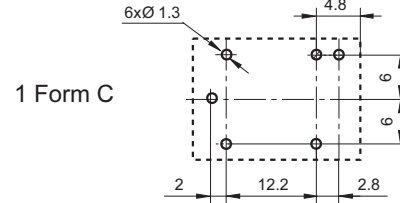
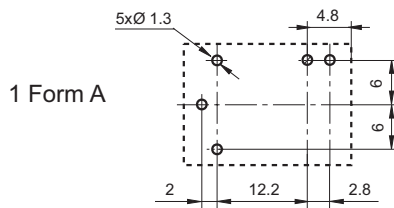
#### Outline Dimensions



#### Wiring Diagram (Bottom view)



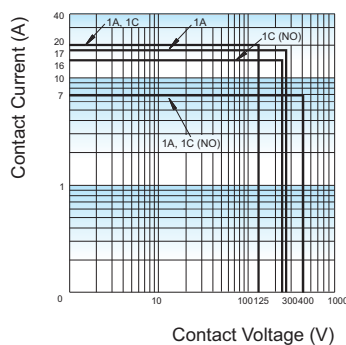
#### PCB Layout (Bottom view)



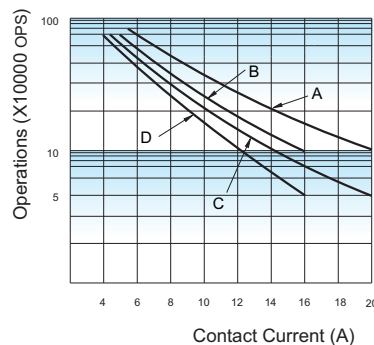
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should be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

## CHARACTERISTIC CURVES

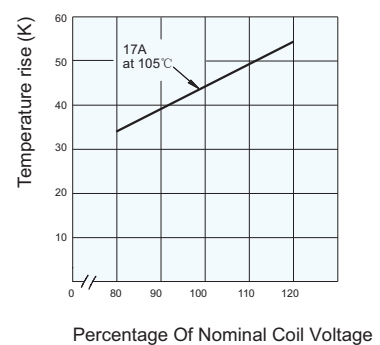
### MAX. SWITCHING POWER



### ENDURANCE CURVE



### COIL TEMPERATURE RISE



#### Notes:

- Curve A: 1H type, Curve B: 1H type, Curve C: 1Z type, Curve D: 1Z type
- Test conditions:  
Curve A: 20A 125VAC, Resistive load, Room temp., 1s on 9s off  
Curve B: 16A 250VAC, Resistive load, at 85°C, 1s on 9s off  
Curve C: NO, 20A 125VAC, Resistive load, Room temp., 1s on 9s off  
Curve D: NO, 16A 250VAC, Resistive load, at 85°C, 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.

© Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.