

# HF152F

# SUBMINIATURE HIGH POWER RELAY



File No.: E134517



File No.: 40017837



File No.: CQC09002034520



## Features

- 20A switching capability
- TV-8 125VAC
- Surge voltage up to 6kV (between coil and contacts)
- Thermal class F: standard type (at 85°C)
- Ambient temperature meets 105°C
- Product in accordance to IEC 60335-1 available
- 1 Form C and 1 Form A configurations available
- Plastic sealed and dust protected types available
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: 21.0mm x 16.0mm x 20.6mm

## CONTACT DATA

Contact arrangement	1A	1C
Contact resistance <sup>1)</sup>	100mΩ max.(at 1A 24VDC)	
Contact material	AgSnO <sub>2</sub> , AgNi	
Contact rating (Res. load)	20A 125VAC 17A 277VAC 7A 400VAC	16A 250VAC 7A 400VAC (NO)
Max. switching voltage	400VAC	400VAC (NO)
Max. switching current	20A	16A
Max. switching power	4700VA	4000VA
Mechanical endurance	1 x 10 <sup>7</sup> OPS	
Electrical endurance	1 x 10 <sup>5</sup> OPS (16A 250VAC, Resistive load, at 85°C, 1s on 9s off) 5 x 10 <sup>4</sup> OPS (NO, 16A 250VAC, Resistive load, Room temp., 1s on 9s off) 5 x 10 <sup>4</sup> OPS (NC, 10A 250VAC, Resistive load, Room temp., 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.

## 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.

## CHARACTERISTICS

Insulation resistance	100MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	2500VAC 1min
	Between open contacts	1000VAC 1min
Surge voltage(between coil & contacts)	6kV (1.2 / 50μs)	
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	HF152F: -40°C to 85°C HF152F-T: -40°C to 105°C	
Termination	PCB	
Unit weight	Approx. 14g	
Construction	Plastic sealed, Dust protected	

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

## COIL

Coil power Approx. 360mW

## SAFETY APPROVAL RATINGS

UL/CUL	AgNi	20A 125VAC NO/NC: 17A/15A 277VAC	
	AgSnO <sub>2</sub>	20A 125VAC TV-8 125VAC NO: 16A 250VAC at 105°C NO: 1HP 250VAC	
VDE	AgSnO <sub>2</sub>	1 Form A	16A 250VAC 7A 400VAC
		1 Form C	NO: 16A 250VAC NC: 7A 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.



HONGFA RELAY

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

2018 Rev. 1.00

## ORDERING INFORMATION

	<b>HF152F / 012 -1Z P S T Q (XXX)</b>
<b>Type</b>	HF152F: 85°C, HF152F-T: 105°C
<b>Coil voltage</b>	3, 5, 6, 9, 12, 18, 24, 48VDC
<b>Contact arrangement</b>	<b>1H:</b> 1 Form A <b>1Z:</b> 1 Form C
<b>Pin version</b>	<b>P:</b> Double pins <b>Nil:</b> Single pin
<b>Construction</b> <sup>1)</sup>	<b>S:</b> Plastic sealed <b>Nil:</b> Dust protected
<b>Contact material</b>	<b>T:</b> AgSnO <sub>2</sub> <b>Nil:</b> AgNi
<b>Contact capacity</b>	<b>Q:</b> High capacity type 16A 250VAC, at 105°C (Only for HF152F-T) <b>Nil:</b> Standard type
<b>Special code</b> <sup>4)</sup>	<b>XXX:</b> Customer special requirement <b>Nil:</b> Standard

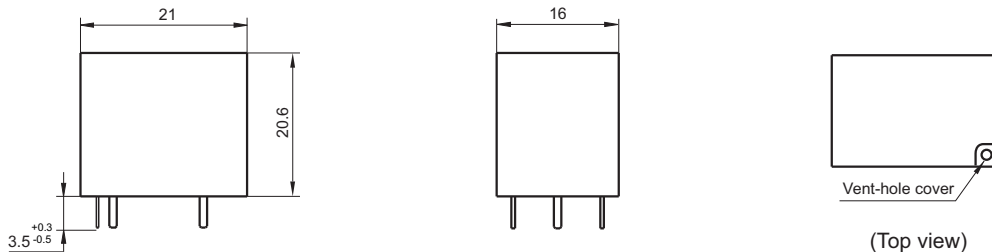
- Notes:** 1) Under the ambience with dangerous gas like H<sub>2</sub>S, SO<sub>2</sub> or NO<sub>2</sub>, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, dust protected type is preferentially recommended.  
 2) Contact is recommended for suitable 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.  
 5) HF152F-T is only available for AgSnO<sub>2</sub> contact.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

### Single pin version

#### Outline Dimensions



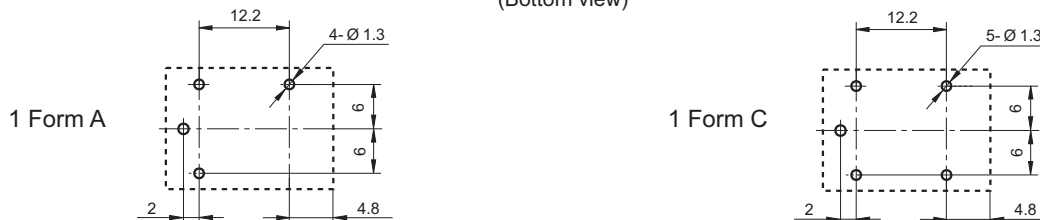
#### Wiring Diagram

(Bottom view)



#### PCB Layout

(Bottom view)

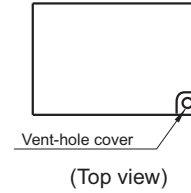
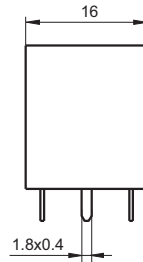
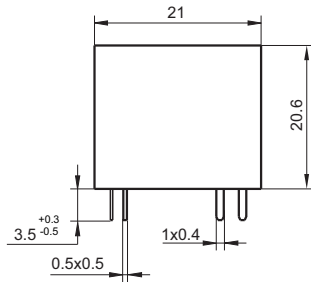


# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

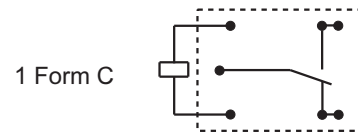
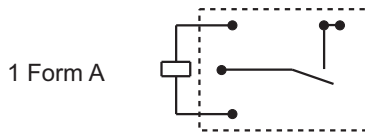
Unit: mm

## Double pin version

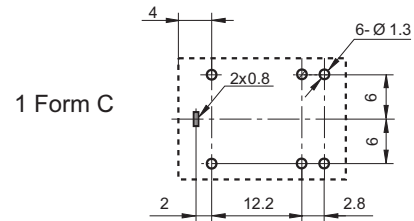
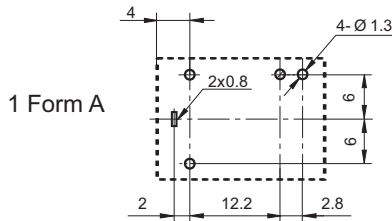
### Outline Dimensions



### Wiring Diagram (Bottom view)

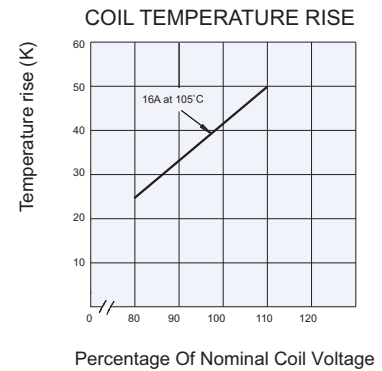
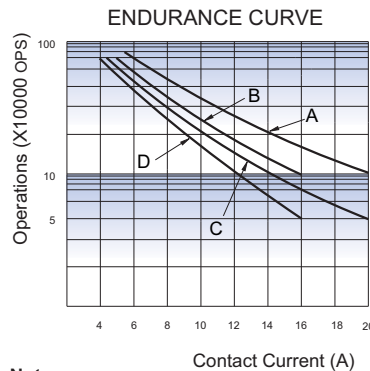
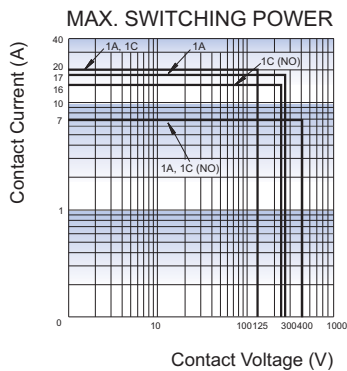


### PCB Layout (Bottom view)



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



### 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.