

# HF152FD

# SUBMINIATURE HIGH POWER RELAY



File No.: E134517



File No.: 40031203



File No.: CQC12002083404



## Features

- 20A switching capability
- Ambient temperature meets 105°C
- High temperature load: 17A 277VAC at 105°C
- 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
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (21.2 x 16.0 x 20.6) mm

## CONTACT DATA

Contact arrangement	1A	1C
Contact resistance	100mΩ max. (at 1A 24VDC)	
Contact material	AgSnO <sub>2</sub> , AgNi	
Contact rating (Res. load)	20A 125VAC 17A 277VAC 7A 400VAC	NO:17A 277VAC 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	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)	

## CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	2500VAC 1min
	Between open contacts	1000VAC 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 105°C	
Termination	PCB	
Unit weight	Approx. 14g	
Construction	Plastic sealed, 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
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## 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	2.25	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:** \*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 AgSnO <sub>2</sub>	20A 125VAC Resistive at 40°C
		AgNi	17A 125VAC Resistive at 85°C 16A 277VAC Resistive at 85°C 10A 277VAC Resistive at 105°C
NO, Q Type	AgNi AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	12A 277VAC General Use at 105°C 1/2HP 125VAC at 40°C 1HP 250VAC at 40°C TV-8 125VAC at 40°C
		AgNi	17A 277VAC Resistive at 105°C 10A 277VAC Resistive at 105°C
NC	AgNi AgSnO <sub>2</sub>	AgNi	20A 125VAC Resistive at 40°C 10A 277VAC Resistive at 85°C
		AgNi	7A 277VAC Resistive at 105°C
1 Form A, Standard Type	AgNi AgSnO <sub>2</sub>	AgNi	16A 250VAC Resistive at 85°C 7A 400VAC Resistive at 105°C
		AgSnO <sub>2</sub>	8A 250VAC COSφ=0.4 at 85°C 10(4)A 250VAC Resistive at 105°C (EN60730-1)
1 Form A, Q Type	AgNi	AgNi	17A 250VAC at 23°C 2h/ at 105°C 2h 10A 250VAC at 23°C 2h/ at 105°C 2h
		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, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2015 Rev. 1.00

## ORDERING INFORMATION

Type		HF152FD / 12 -1Z P S T G F Q (XXX)	
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	
Contact plating	G: Gold plated	Nil: No gold plated	
Insulation standard	F: Class F	Nil: Class B	
Contact endurance	Q: Long endurance type (Only for AgNi type)	Nil: Standard type	
Special code <sup>4)</sup>	XXX: Customer special requirement	Nil: Standard	

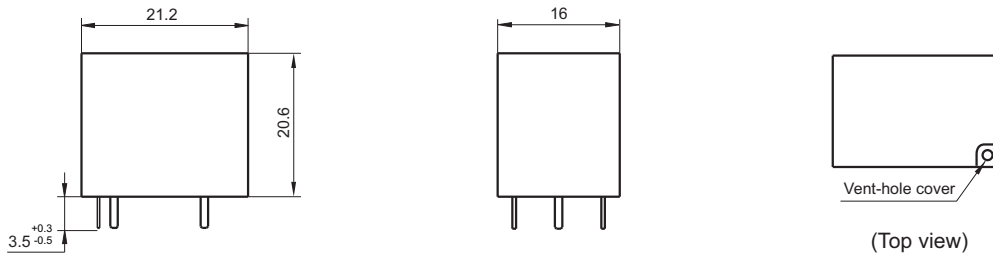
- Notes:** 1) Under the ambience with dangerous gas like H<sub>2</sub>S, SO<sub>2</sub> or NO<sub>2</sub>, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, flux proofed type is preferentially recommended.  
 2) Contact is recommended for suitable 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



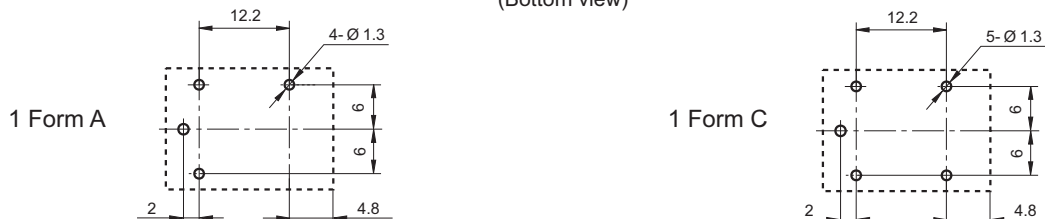
#### Wiring Diagram

(Bottom view)



#### PCB Layout

(Bottom view)

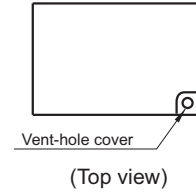
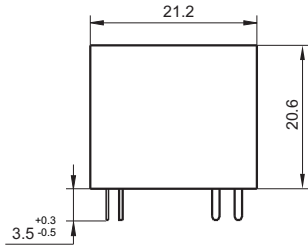


# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

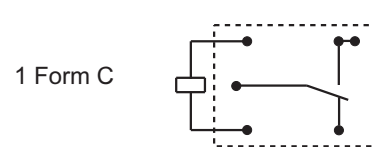
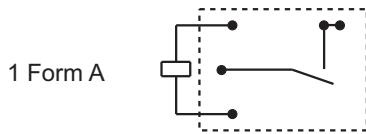
Unit: mm

## Double pin version

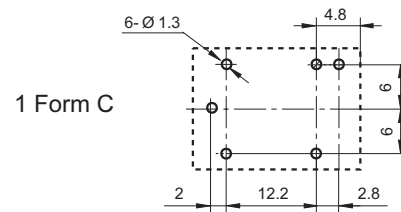
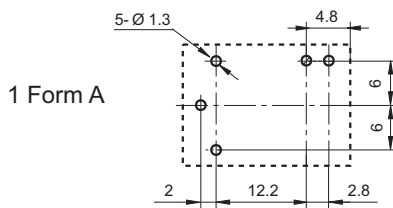
### Outline Dimensions



### Wiring Diagram (Bottom view)

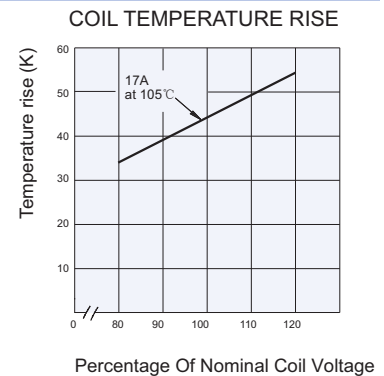
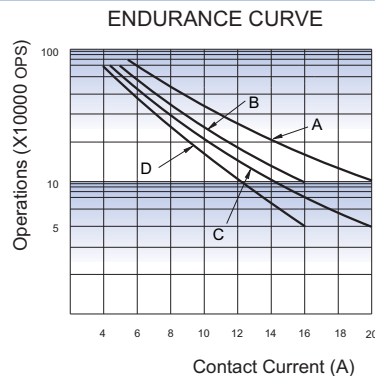
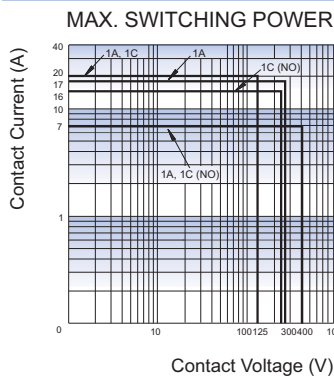


### PCB Layout (Bottom view)



Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1$ 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



#### 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.