

# HF152FD

# SUBMINIATURE HIGH POWER RELAY



File No.: E134517



File No.: 40031203



## 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	5 x 10 <sup>4</sup> OPS

## 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. Allowable 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%)

## SAFETY APPROVAL RATINGS

UL/ CUL	NO, Standard Type	AgNi	20A 125VAC Resistive at 40°C
			17A 125VAC Resistive at 85°C 16A 277VAC Resistive at 85°C 10A 277VAC Resistive at 105°C
UL/ CUL	NO, Q Type	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
			17A 277VAC Resistive at 105°C 10A 277VAC Resistive at 105°C
UL/ CUL	NC	AgNi	20A 125VAC Resistive at 40°C 10A 277VAC Resistive at 85°C
			7A 277VAC Resistive at 105°C
VDE	1 Form A, Standard Type	AgNi	16A 250VAC Resistive at 85°C 7A 400VAC Resistive at 105°C
			AgSnO <sub>2</sub>
VDE	1 Form A, Q Type	AgNi	17A 250VAC at 23°C 2h/ at 105°C 2h 10A 250VAC at 23°C 2h/ at 105°C 2h
			AgNi

- Notes:** 1) Only some typical ratings are listed above. If more details are required, please contact us.



HONGFA RELAY

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

2013 Rev. 1.00

## ORDERING INFORMATION

<b>Type</b>		HF152FD / 12 -1Z P S T G F Q (XXX)	
<b>Coil voltage</b>	3, 5, 6, 9, 12, 18, 24, 48VDC		
<b>Contact arrangement</b>	1H: 1 Form A	1Z: 1 Form C	
<b>Pin version</b>	P: Double pins	Nil: Single pin	
<b>Construction <sup>1)</sup></b>	S: Plastic sealed	Nil: Flux proofed	
<b>Contact material</b>	T: AgSnO <sub>2</sub>	Nil: AgNi	
<b>Contact plating</b>	G: Gold plated	Nil: No gold plated	
<b>Insulation standard</b>	F: Class F	Nil: Class B	
<b>Contact endurance</b>	Q: Long endurance type (Only for AgNi type)	Nil: Standard type	

### Customer special code

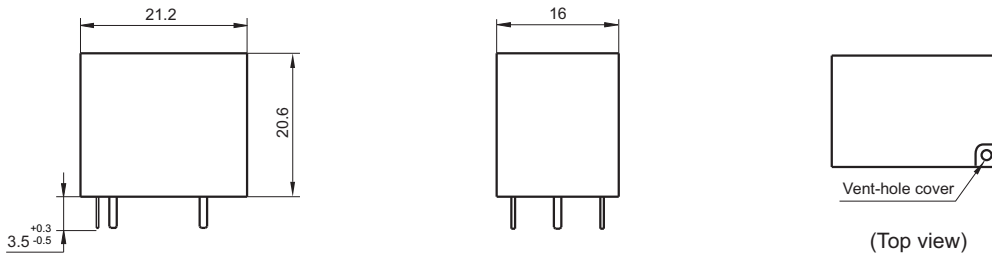
**Notes:** 1) Under the ambience with dangerous gas like H<sub>2</sub>S, SO<sub>2</sub> or NO<sub>2</sub>, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, flux proofed type is preferentially recommended.  
 If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.  
 2) If plastic sealed type is selected for cleaning purpose, the vent-hole cover should be excised after cleaning.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

### Single pin version

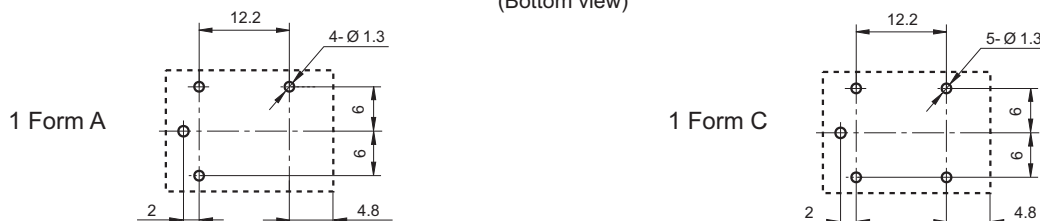
#### Outline Dimensions



#### Wiring Diagram (Bottom view)



#### PCB Layout (Bottom view)

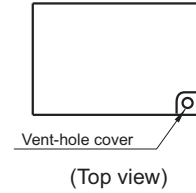
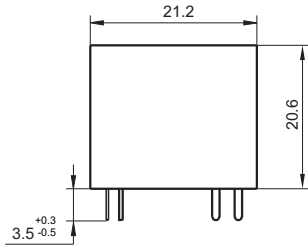


# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

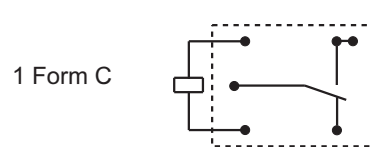
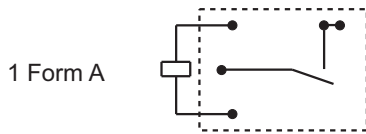
Unit: mm

## Double pin version

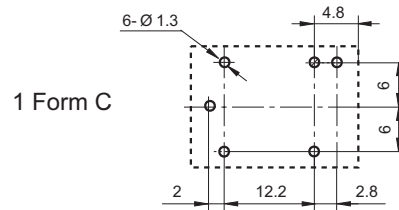
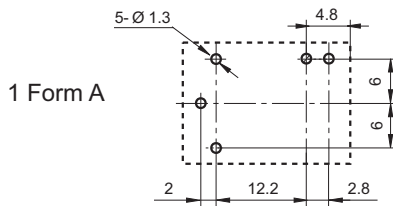
### Outline Dimensions



### Wiring Diagram (Bottom view)



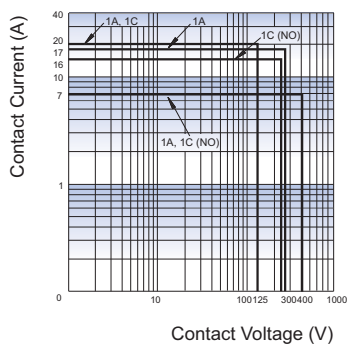
### PCB Layout (Bottom view)



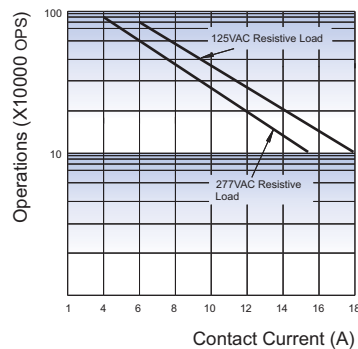
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should be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

## CHARACTERISTIC CURVES

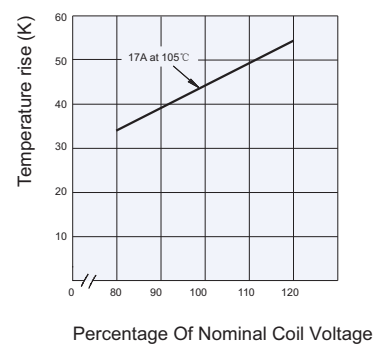
### MAX. SWITCHING POWER



### ENDURANCE CURVE



### COIL TEMPERATURE RISE



### Disclaimer

This datasheet is for the customers' reference. All the specifications are 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.

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