

# HFE9

# MINIATURE HIGH POWER LATCHING RELAY



File No.:E133481



File No.:CQC02001001950



## Features

- 60A switching capability
- Latching relay
- 4kV dielectric strength (between coil and contacts)
- Heavy load up to 15000VA
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (38.0 x 30.0 x 16.0) mm

## CONTACT DATA

Contact arrangement	1A, 1B		
Contact resistance	2mΩ (at 1A 24VDC)		
Contact material	AgSnO <sub>2</sub> , AgCdO		
Contact rating (Res. load)	60A 250VAC 5000OPS	50A 250VAC 10000OPS	40A 250VAC 100000OPS
Max. switching voltage	250VAC		
Max. switching current	60A		
Max. switching power	15000VA		
Mechanical endurance	1 x 10 <sup>6</sup> OPS Meter: 1 x 10 <sup>5</sup> OPS		
Electrical endurance	1 x 10 <sup>5</sup> OPS (at 40A 250VAC)		

## CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1500VAC 1min
Creepage distance	8mm	
Operate time (at nomi. volt.)	20ms max.	
Release time (at nomi. volt.)	20ms max.	
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance	10Hz to 55Hz 1.5mm DA	
Humidity	98% RH, 40°C	
Ambient temperature	-40°C to 70°C	
Termination	QC	
Unit weight	Approx. 33g	
Construction	Plastic sealed, Dust protected	

Notes: The data shown above are initial values.

## COIL

Coil power 1 coil latching: 1.0W; 2 coils latching: 2.0W

## COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC	Pulse Duration ms	Coil Resistance x (1±10%) Ω	
5	3.5	50	1 coil latching	24
6	4.2	50		35
9	6.3	50		80
12	8.4	50		145
24	16.8	50		575
48	33.6	50	2270	
5	3.5	50	2 coils latching	12+12
6	4.2	50		17.5+17.5
9	6.3	50		40+40
12	8.4	50		72+72
24	16.8	50		285+285
48	33.6	50		1135+1135

Notes: When requiring other nominal voltage, special order allowed.

## SAFETY APPROVAL RATINGS

UL/CUL	40A 250VAC at 70°C
	50A 250VAC at 70°C
	60A 250VAC at 70°C

Notes: 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

2010 Rev. 1.00

## ORDERING INFORMATION

	<b>HFE 9</b>	<b>-3</b>	<b>12</b>	<b>-H</b>	<b>S</b>	<b>T</b>	<b>-R</b> (XXX)
<b>Type</b>							
<b>Version</b>	1: 1 type (1 coil latching) 2: 2 type (1 coil latching) 3: 3 type (2 coils latching)						
<b>Coil voltage</b>	5, 6, 9, 12, 24, 48VDC						
<b>Contact form</b> <sup>1)</sup>	<b>H:</b> 1 Form A		<b>D:</b> 1 Form B				
<b>Construction</b> <sup>2)</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> AgCdO				
<b>Polarity</b>	<b>R:</b> Negative polarity		<b>Nil:</b> Positive polarity				

**Customer special code (124):** Inrush load type we can make special design according to customer's requirement. Please see the typical design.

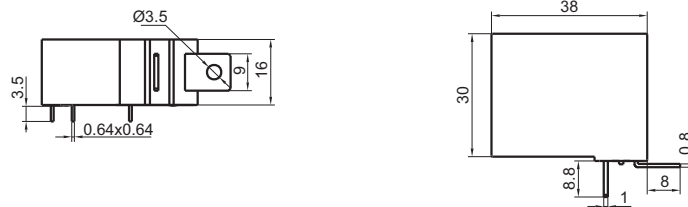
**Notes:** 1) H means that relay is on the "reset" status when delivery; D means that relay is on the "set" status when delivery.

- 2) 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.  
 If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

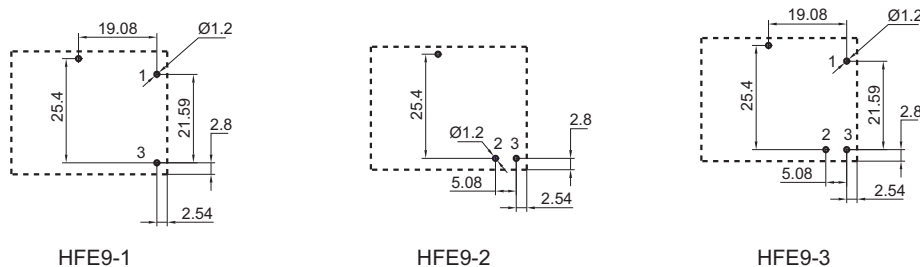
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

### Outline Dimensions



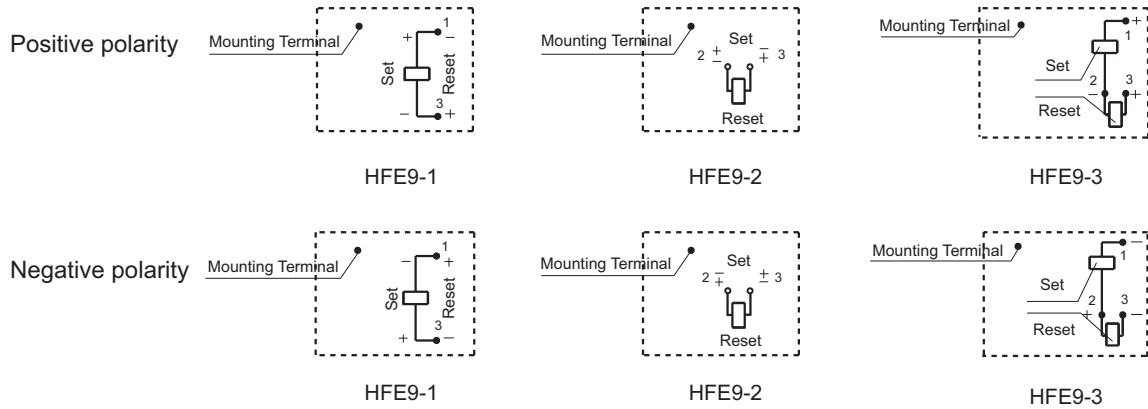
### PCB Layout (Bottom view)



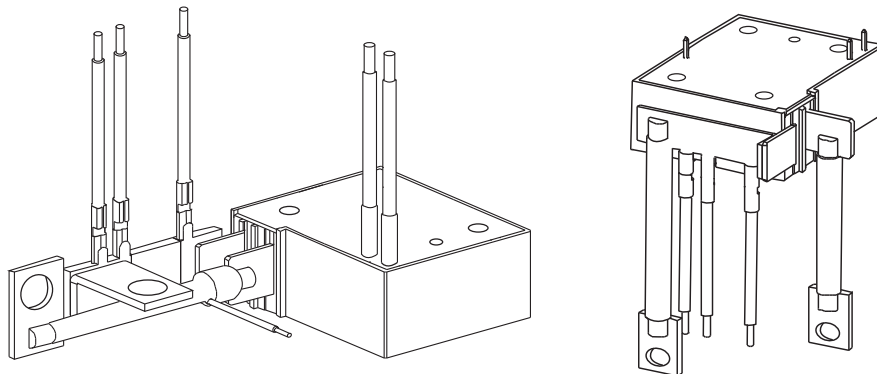
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1$ mm, tolerance should be  $\pm 0.2$ mm; outline dimension  $> 1$ mm and  $\leq 5$ mm, tolerance should be  $\pm 0.3$ mm; outline dimension  $> 5$ mm, tolerance should be  $\pm 0.4$ mm.

2) The tolerance without indicating for PCB layout is always  $\pm 0.1$ mm.

Wiring Diagram (Bottom view)



Typical Design



**Notes:** The drawing shown above are typical design, we can make special design according to customer's requirement. Please provide us with the drawing.

**Notice**

1. Relay is on the "reset" or "set" status when being released from stock, with the consideration of shock risen from transit and relay mounting, relay would be changed to "set" or "reset" status, therefore, when application (connecting the power supply), please reset the relay to "set" or "reset" status on request.
2. In order to maintain "set" or "reset" status, energized voltage to coil should reach the rated voltage, impulse width should be 5 times more than "set" or "reset" time. Do not energize voltage to "set" coil and "reset" coil simultaneously. And also long energized time (more than 1 min) should be avoided.
3. In order to avoid changing operate voltage, products should not be kept in strong magnetic field during transportation, storage and application.

**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.