

# HF14FW

# MINIATURE HIGH POWER RELAY



File No.:E134517



File No.:40023508



File No.:CQC09002030293



## Features

- 20A switching capability
- 4kV dielectric strength (between coil and contacts)
- Meeting VDE 0700, 0631 reinforce insulation
- 1 Form A, 1 Form B and 1 Form C configurations
- Sockets available
- Plastic sealed and dust protected types available
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (29.0 x 13.0 x 26.5) mm

## CONTACT DATA

Contact arrangement	1A, 1B, 1C
Contact resistance	50mΩ max.(at 1A 24VDC)
Contact material	AgSnO <sub>2</sub> , AgCdO
Contact rating	Resistive: 16A 277VAC/24VDC 1HP 240VAC TV-8 125VAC (NO contact)
Max. switching voltage	277VAC / 30VDC
Max. switching current	20A
Max. switching power	5540VA / 480W
Mechanical endurance	1 x 10 <sup>7</sup> OPS
Electrical endurance	1 x 10 <sup>6</sup> OPS (See approval reports for more details)

## CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1000VAC 1min
Operate time (at nomi. volt.)	15ms max.	
Release time (at nomi. volt.)	5ms max.	
Ambient temperature	-40°C to 85°C	
Humidity	5% to 85% RH	
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance	10Hz to 55Hz 1.5mm DA	
Termination	PCB	
Unit weight	Approx. 18.5g	
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, Class B.

## COIL

Coil power	Standard: Approx.720mW Sensitive: Approx.530mW
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## COIL DATA

at 23°C

### Standard type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC	Coil Resistance Ω
5	3.6	0.5	5.5	36 x (1±10%)
6	4.3	0.6	6.6	50 x (1±10%)
9	6.5	0.9	9.9	115 x (1±10%)
12	8.6	1.2	13.2	200 x (1±10%)
18	13.0	1.8	19.8	460 x (1±10%)
24	17.3	2.4	26.4	820 x (1±10%)
48	34.6	4.8	52.8	3300 x (1±10%)
60	43.2	6.0	66.0	5100 x (1±10%)

### Sensitive type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC	Coil Resistance Ω
5	3.60	0.5	7.0	47 x (1±10%)
6	4.30	0.6	8.4	68 x (1±10%)
9	6.50	0.9	12.6	160 x (1±10%)
12	8.60	1.2	16.8	275 x (1±10%)
18	13.0	1.8	25.2	620 x (1±10%)
24	17.3	2.4	33.6	1100 x (1±10%)
48	34.6	4.8	67.2	4170 x (1±10%)
60	43.2	6.0	84.0	7000 x (1±10%)

- Notes:** 1) When requiring pick-up voltage < 72% of nominal voltage, special order allowed.  
 2) Suggesting to use the sensitive type.



HONGFA RELAY

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

2012 Rev. 1.01

## SAFETY APPROVAL RATINGS

UL/CUL	AgSnO <sub>2</sub>	1 Form A	20A 277VAC Resistive 1HP (8FLA) 240VAC TV-8 125VAC 16A 240VAC General Use 20A 24VDC 10FLA 60LRA 250VAC
		1 Form C 1 Form B	16A 277VAC Resistive 1HP (8FLA) 240VAC 16A 240VAC General Use 20A 24VDC NO:20A 277VAC Resistive TV-8 125VAC 10FLA 60LRA 250VAC
	AgCdO	1 Form A	20A 277VAC Resistive 1HP (8FLA) 240VAC 16A 240VAC General Use 20A 24VDC Resistive 20A 125VAC General Use
		1 Form C 1 Form B	1HP (8FLA) 240VAC 16A 240VAC General Use 20A 24VDC Resistive 20A 125VAC General Use NO:20A 277VAC Resistive
VDE (coil power is 530mW)	AgSnO <sub>2</sub>	1 Form A	20A 250VAC 16A 30VDC
		1 Form C	16A 250VAC 16A 30VDC NO:20A 250VAC

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

## ORDERING INFORMATION

Type	HF14FW /	012	-H	S	P	T	F (XXX)
Coil voltage	5, 6, 9, 12, 18, 24, 48, 60VDC						
Contact arrangement	H: 1Form A D: 1 Form B Z: 1 Form C						
Construction <sup>1)</sup>	S: Plastic sealed		Nil: Dust protected				
Coil power	P: Standard		Nil: Sensitive				
Contact material	T: AgSnO <sub>2</sub>		Nil: AgCdO				
Insulation standard	F: Class F		Nil: Class B				
Customer special code							

**Notes:**1) We recommend dust protected types for a clean environment (free from contaminations like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.).

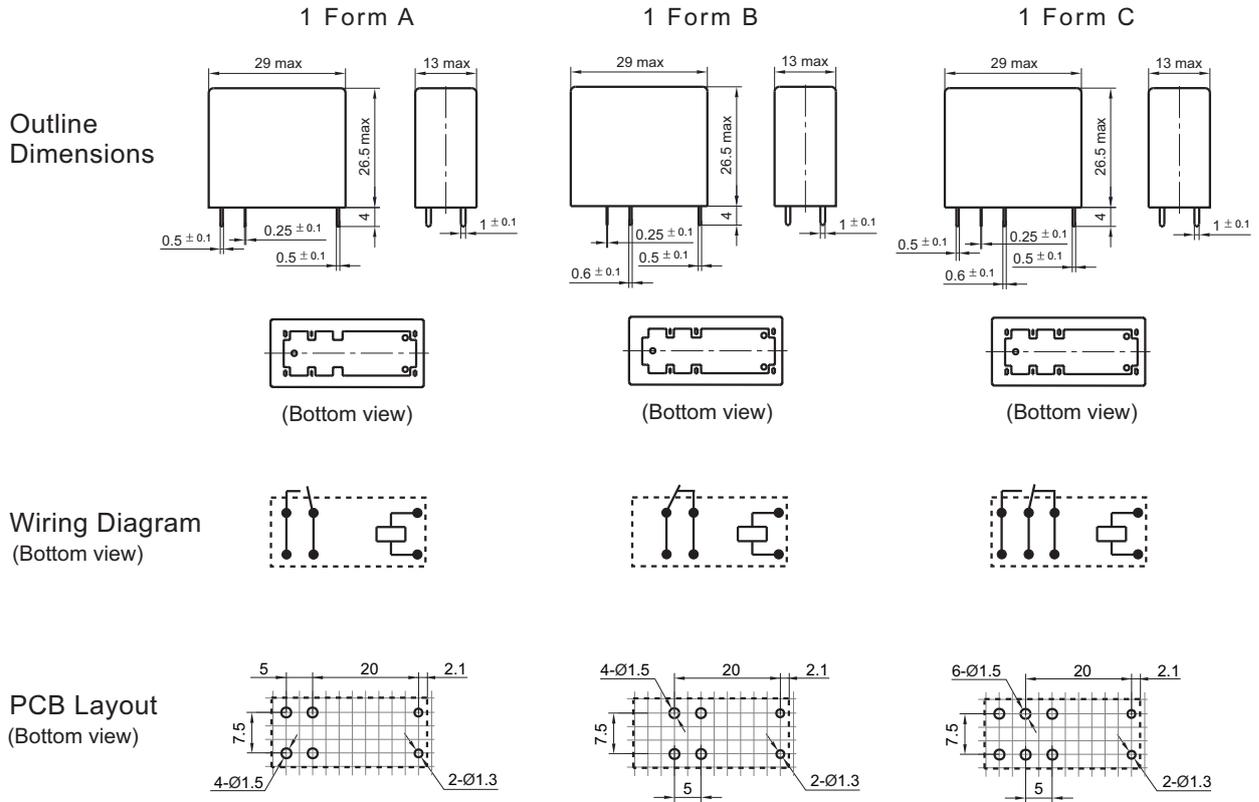
We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc).

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

2) The standard type is made of black cover. If smoke cover is required, please add a special suffix (611) when ordering. Please take note that smoke cover is only available for dust protected type.

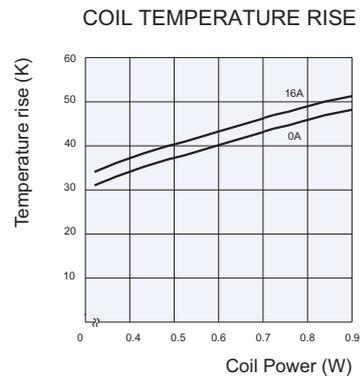
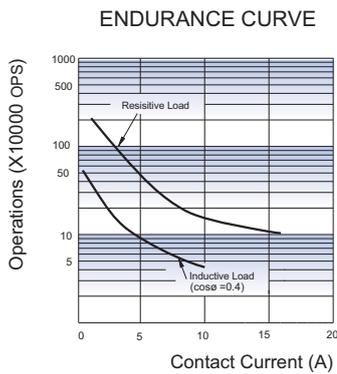
# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm



- 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  $\pm 0.1\text{mm}$ .  
 3) The width of the gridding is 2.5mm.

## CHARACTERISTIC CURVES



### 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.