

# HF230F-L

# MINIATURE HIGH POWER LATCHING RELAY



File No.: E133481



File No.: R 50659306



File No.: CQC24002454774



## Features

- Latching relay
- High capacity: 20A 277VAC
- High surge current capacity: 370A/1.25ms
- Short current capacity: 1500A(IEC 60947-5-1)
- TV capacity: TV-10 (250/240/120VAC)
- Dielectric strength: Between coil & contacts:  $\geq 5000\text{VAC}$
- Outline Dimensions: (29×12.7×15.7)mm

RoHS compliant

## CONTACT DATA

Contact arrangement	2A
Contact resistance(initial) <sup>1)</sup>	$\leq 100\text{m}\Omega(1\text{A } 6\text{VDC})$
Contact material	AgSnO <sub>2</sub>
Contact rating(Res. load)	20A 277VAC
Max. switching voltage	277VAC
Max. switching current	20A
Max. switching power	5540VA
Mechanical endurance	1×10 <sup>6</sup> ops
Electrical endurance	2×10 <sup>4</sup> ops (20A 277VAC Resistive load, 85°C, 1s on 9s off)

Notes: 1) The data shown above are initial values.

## CHARACTERISTICS

Insulation resistance		1000 MΩ(500 VDC)
Dielectric strength	Between open contacts	1000VAC 1 min
	Between coil & contacts	5000VAC 1 min
	Between contact sets	2500VAC 1 min
Surge voltage (Between coil & contacts)		8kV(1.2/50 μs)
Set time(at rated. volt.)		≤15ms
Reset time(at rated. volt.)		≤15ms
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance		10Hz ~ 55Hz 2mm DA
Humidity		5% ~ 85%RH
Ambient temperature		-40℃ ~ 85℃
Termination		PCB
Unit weight		Approx. 12.5g
Construction		Plastic sealed, Flux proofed

Notes: 1) The data shown above are initial values.

## COIL

Coil power	1 coil latching: Approx. 0.6W 2 coils latching: Approx. 0.8W
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## COIL DATA

23°C

### 1 coil latching

Nominal Voltage VDC	Pick-up Voltage <sup>1)</sup> VDC max.	Drop-out Voltage <sup>1)</sup> VDC max.	Max. Voltage <sup>2)</sup> VDC	Pulse Duration ms		Coil Resistance $\Omega$
				Typ	Min	
3	2.4	2.4	6	50	30	15×(1±10%)
5	4.0	4.0	10	50	30	41.7×(1±10%)
6	4.8	4.8	12	50	30	60×(1±10%)
9	7.2	7.2	18	50	30	135×(1±10%)
12	9.6	9.6	24	50	30	240×(1±10%)
15	12	12	30	50	30	375×(1±10%)
18	14.4	14.4	36	50	30	540×(1±10%)
24	19.2	19.2	48	50	30	960×(1±10%)
48	38.4	38.4	96	50	30	3840×(1±10%)

### 2 coils latching

Nominal Voltage VDC	Pick-up Voltage <sup>1)</sup> VDC max.	Drop-out Voltage <sup>1)</sup> VDC max.	Max. Voltage <sup>2)</sup> VDC	Pulse Duration ms		Coil Resistance $\Omega$
				Typ	Min	
3	2.4	2.4	6	50	30	11.2×(1±10%)
5	4.0	4.0	10	50	30	31.2×(1±10%)
6	4.8	4.8	12	50	30	45×(1±10%)
9	7.2	7.2	18	50	30	101×(1±10%)
12	9.6	9.6	24	50	30	180×(1±10%)
15	12	12	30	50	30	281×(1±10%)
18	14.4	14.4	36	50	30	405×(1±10%)
24	19.2	19.2	48	50	30	720×(1±10%)
48	38.4	38.4	96	50	30	2880×(1±10%)

Notes: 1) The data shown above are initial values.

2) Max. voltage refers to the maximum voltage which relay coil could endure in a short period of time( $\leq 50\text{ms}$ ).



HONGFA RELAY

ISO9001, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2025 Rev. 1.00

## SAFETY APPROVAL RATINGS

<b>UL/CUL</b>	20/16/10A 277/250/220/125/120VAC Resistive load 85°C TV-10 250/240/120VAC 85°C 2500W 250VAC Tungsten 85°C 2400W 240VAC Tungsten 85°C 1200W 120VAC Tungsten 85°C 8A 277/120VAC electronic ballast 85°C 1HP motor 277/250VAC 85°C 0.5HP motor 125/120VAC 85°C
<b>TÜV</b>	20/16/10A 277/250/220/125/120VAC Resistive load 85°C
<b>CQC</b>	20/16/10A 277/250/220/125/120VAC Resistive load 85°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.

## ORDERING INFORMATION

<b>Type</b>	HF230F-L/	12	-2H	S	L1	T	F	(XXX)
<b>Coil voltage</b>	3, 5, 6, 9, 12, 15, 18, 24, 48VDC							
<b>Contact arrangement</b>	2H: 2 Form A							
<b>Construction<sup>1) 2)</sup></b>	S: Plastic sealed Nil: Flux proofed							
<b>Sort</b>	L1: 1 coil latching L2: 2 coils latching							
<b>Contact material</b>	T: AgSnO <sub>2</sub>							
<b>Insulation class</b>	F: Class F							
<b>Special code<sup>3)</sup></b>	XXX: Customer special requirement Nil: Standard							

Notes: 1) We recommend flux proofed 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.).

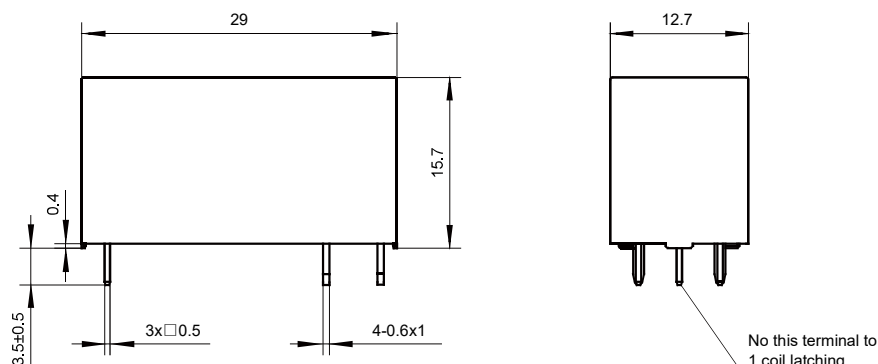
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

3) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

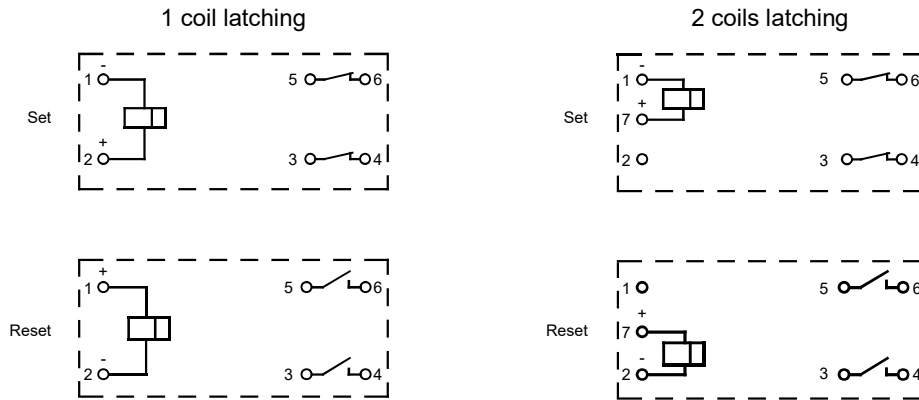
### Outline Dimensions



## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

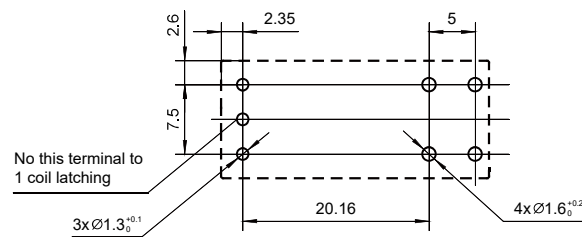
Unit: mm

Wiring Diagram  
(Bottom view)



**Notes:** The contact state in the illustration is the state of the relay after the coil excitation action according to the wiring diagram.

PCB layout  
(Bottom view)



Dimensional tolerance is not marked for product boundary dimensions		Dimensional tolerance is not marked for PCB board
Boundary dimensions	Dimensional tolerance	$\pm 0.1$
$\leq 1$	$\pm 0.2$	
$> 1 \sim 5$	$\pm 0.3$	
$> 5$	$\pm 0.4$	

- Remark: 1) The pin dimension of the product outline drawing is the size before tinning (it will become larger after tinning), and the mounting hole size is the recommended design size of the PCB board hole. The specific PCB board hole design size can be mapped and adjusted according to the actual product.
- 2) 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.
- 3) The tolerance without indicating for PCB layout is always  $\pm 0.1$  mm.

- Notice: 1) Relay is on the "reset" 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. Do not energize voltage to "set" coil and "reset" coil simultaneously. And also long energized time (more than 1 min) should be avoided.
- 3) Keep the product away from strong magnetic field during transportation, storage and application, to avoid change of set/reset voltage.

### 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.

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