

# HF161F-W

# SOLAR RELAY



File No.:E134517



File No.:40031410



File No.:10002050943



## Features

- 31A switching capable
- Applicable to inverter used for photovoltaic power generation systems
- Ideal for UPS
- 1.5mm contact gap (compliant to European Photovoltaic Standard VDE0126)
- The clearance distance between contact and coil is bigger than 6.4mm, the creepage distance is bigger than 8mm.
- Low coil holding voltage contributes to saving energy of equipment.
- UL insulation system: Class F
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (30.4 x 15.9 x 23.3) mm

## CONTACT DATA

Contact arrangement	1A
Contact resistance	100mΩ max.(at 1A 6VDC)
Contact material	AgSnO <sub>2</sub>
Contact rating	Resistive: 26A 250VAC Inductive: 31A 250VAC (cosφ=0.8) 0.1s:10s
Max. switching voltage	277VAC
Max. switching current	31A
Max. switching power	7750VA
Mechanical endurance	1 x 10 <sup>6</sup> OPS
Electrical endurance	3 x 10 <sup>4</sup> OPS (See approval reports for more details)

## CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts 4500VAC 1min
	Between open contacts 2500VAC 1min
Surge voltage (between coil & contacts)	10kV (1.2/50μs)
Operate time (at nomi. volt.)	20ms max.
Release time (at nomi. volt.)	10ms max.
Temperature rise (at nomi. volt.)	95K max. (Contact load current 31A, rated voltage excitation, at 60°C)
	70K max. (Contact load current 31A, 80% of rated voltage excitation, at 85°C)
Shock resistance	Functional 196m/s <sup>2</sup>
	Destructive 980m/s <sup>2</sup>
Vibration resistance	10Hz to 55Hz 1.5mm DA
Ambient temperature	-40°C to 60°C (Apply rated voltage to coil)
	-40°C to 85°C (Apply holding voltage to coil, which is 45% to 80% that of rated voltage)
Humidity	5% to 85% RH
Termination	PCB
Unit weight	Approx. 21g
Construction	Flux proofed

Notes: The data shown above are initial values.

## COIL

Coil power	Approx. 1.4W
Holding voltage	35% to 120%U <sub>N</sub> (at 23°C)
	45% to 80%U <sub>N</sub> (at 85°C)

Notes: 1) The coil holding voltage is the voltage of coil after being applied rated voltage for 100ms.

2) By lower coil holding voltage, the purpose of saving power consumption could be achieved. The magnetic system is designed for this reduced holding power. When the holding voltage was lowered to 35% that of rated voltage, the power consumption could be decreased to approx. 170mW. Continuous operation without power reduction is not permitted for ambient temperatures of > 23°C!

## 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
9	6.3	0.9	10.8	58 x (1±10%)
12	8.4	1.2	14.4	103 x (1±10%)
18	12.6	1.8	21.6	230 x (1±10%)
24	16.8	2.4	28.8	410 x (1±10%)

Notes: The maximum voltage is the voltage value of coil over voltage, which is the instantaneous voltage relay could bear within very short function time period.

## SAFETY APPROVAL RATINGS

UL/CUL	AgSnO <sub>2</sub>	26A 277VAC at 75°C 22A 277VAC at 85°C
	AgSnO <sub>2</sub>	26A 277VAC at 75°C 22A 277VAC at 85°C 31A 250VAC COSφ=0.8 0.1s:10s

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

2013 Rev. 1.00

## ORDERING INFORMATION

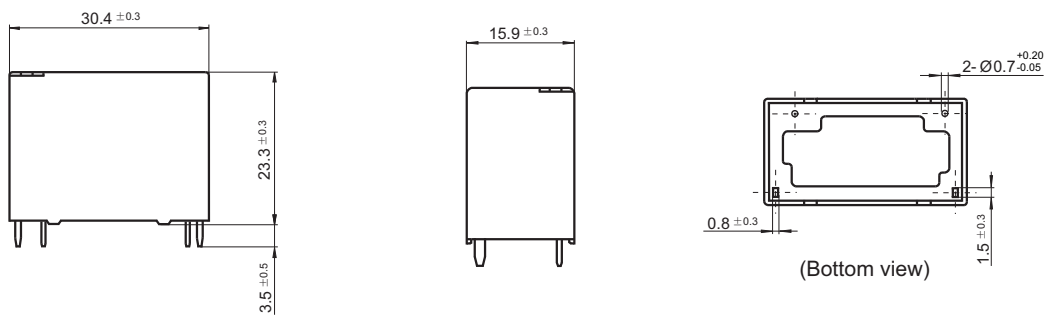
Type	HF161F-W / 12 -H T (XXX)
Coil voltage	9, 12, 18, 24VDC
Contact arrangement	H: 1 Form A
Contact material	T: AgSnO <sub>2</sub>
Customer special code	e.g. (414) stands for product with coil terminal of 1.4X0.4

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

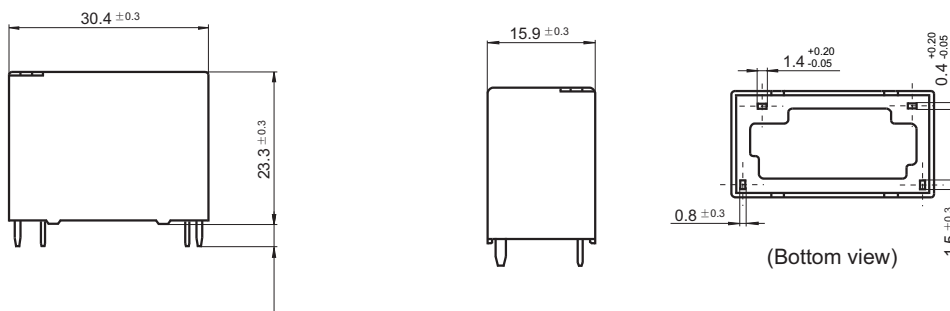
Unit: mm

### Outline Dimensions

Standard type

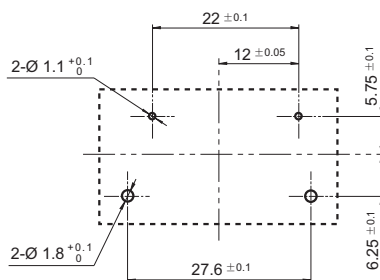


For (414) special code version



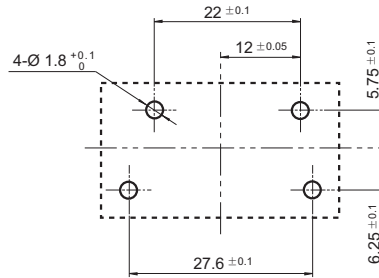
### PCB Layout (Bottom view)

Standard type

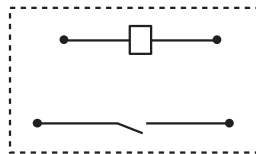


**PCB Layout(Bottom view)**

For (414) special code version



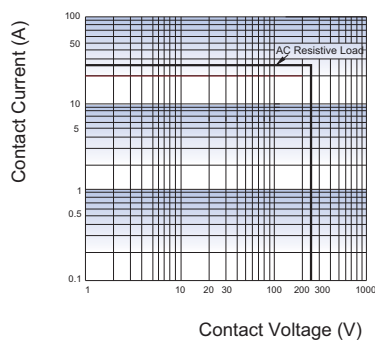
**Wiring Diagram**



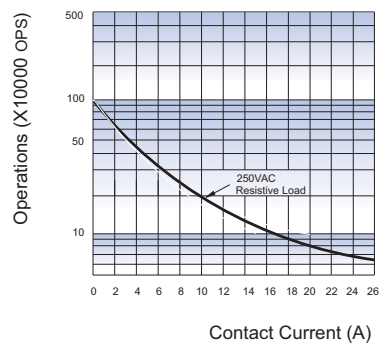
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.  
 2) The tolerance without indicating for PCB layout is always ±0.1mm.

**CHARACTERISTIC CURVES**

**MAXIMUM SWITCHING POWER**



**ENDURANCE CURVE**



**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.