

HF161F-W

SOLAR RELAY



File No.:E134517



File No.:40031410



File No.:CQC10002050943
CQC18002203499



Features

- 31A switching capacity
- Applicable to inverter used for photovoltaic power generation systems
- Ideal for UPS
- 1.5mm contact gap (compliant to European Photovoltaic Standard VDE0126)
- 1.8mm contact gap (compliant to IEC 62109-2-2011)
- The clearance distance between contact and coil is bigger than 6.4mm, the creepage distance is bigger than 8mm. (special code 477:7.5mm)
- Low coil holding voltage contributes to saving energy of equipment.
- UL insulation system: Class F

RoHS compliant

CONTACT DATA

Contact gap	1.5mm	1.8mm	2.0mm	2.3mm	2.3mm
Contact arrangement	1A				
Contact resistance ¹⁾	100mΩ max.(1A 6VDC)				
Contact material	AgSnO ₂				
Contact rating	Resistive: 26A 250VAC Inductive: 31A 250VAC (cosφ=0.8) 0.1s:10s	Resistive: 26A 250VAC Inductive: 33A 250VAC (cosφ=0.8) 0.1s:10s	Resistive: 26A 250VAC Inductive: 31A 250VAC (cosφ=0.8) 0.1s:10s	Resistive: 26A 250VAC	Resistive: 35A 277VAC
Max. switching voltage	277VAC				400VAC
Max. switching current	31A	33A	31A	26A	35A
Max. switching power	7750VA	8250VA	7750VA	7202VA	14000VA
Mechanical endurance	1 x 10 ⁶ OPS	1 x 10 ⁵ OPS	1 x 10 ⁵ OPS	1 x 10 ⁵ OPS	1 x 10 ⁵ OPS
Electrical endurance	HT type: 3 x 10 ⁶ OPS (26A 250VAC Resistive 75°C 1.5s on 1.5s off)	HT type: 3 x 10 ⁶ OPS (26A 250VAC Resistive 75°C 1.5s on 1.5s off)	HT type: 3 x 10 ⁶ OPS (26A 250VAC Resistive 75°C 1.5s on 1.5s off)	HT type: 3 x 10 ⁶ OPS (26A 250VAC Resistive Room temp. 1.5s on 1.5s off)	HT type: 3 x 10 ⁶ OPS (35A 277VAC Resistive 85°C 1s on 9s off)

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

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 rated. volt.)		20ms max.
Release time (at rated. volt.)		10ms max.
Temperature rise (at rated. 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 ²
	Destructive	980m/s ²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Ambient temperature		-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%Un (at 23°C) 45% to 80%Un (at 85°C)

Notes: 1)The coil holding voltage is the voltage of coil after being applied rated voltage for 100ms
2)The relay coil does not allow applied more than maximum of holding voltage values for a long time (Eg: 120% Un at 23°C; 80% Un at 85°C), prevent overheating burned.

COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC max. ¹⁾	Drop-out Voltage VDC min. ¹⁾	Max. Voltage VDC *2)	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: 1)The data shown above are initial values.

2)*Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.



HONGFA RELAY

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

2024 Rev. 1.00

SAFETY APPROVAL RATINGS

UL/CUL	AgSnO ₂	26A 277VAC at 75°C 22A 277VAC at 85°C 35A 400VAC at 85°C(A27)
VDE	AgSnO ₂	26A 277VAC at 75°C 22A 277VAC at 85°C 31A 250VAC COSØ=0.8 0.1s:10s 33A 250VAC COSØ=0.8 0.1s:10s (477)
TÜV	AgSnO ₂	35A 400VAC at 85°C(A27)

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

Type	HF161F-W / 12 -H T (XXX)
Coil voltage	9, 12, 18, 24VDC
Contact arrangement	H: 1 Form A
Contact material	T: AgSnO ₂
Special code ³⁾	XXX: Customer special requirement Nil: Standard

Notes: 1) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB.

2) Please avoid using the relay in an environment containing organic silicon, otherwise the entry of organic silicon into the relay may acceleration contact failure. If there are harmful substances and elements such as water vapor, H₂S, SO₂, NO₂, Cl, P, etc. In the use of environmental gases, it may lead to increased contact resistance and poor contact during the use of relays. In the above situations, please control the materials or use plastic sealed type and arrange relevant tests to confirm.

3) The customer special requirement express as special code after evaluating by Hongfa. e.g. (414) stands for product with coil terminal of 1.4X0.4; e.g. (477) stands for Contact gap: 1.8mm. (456) stands for Contact gap: 2.0mm. (704) stands for Contact gap: 2.3mm. (A27) stands for Contact gap: 2.3mm, Contact rating 35A.

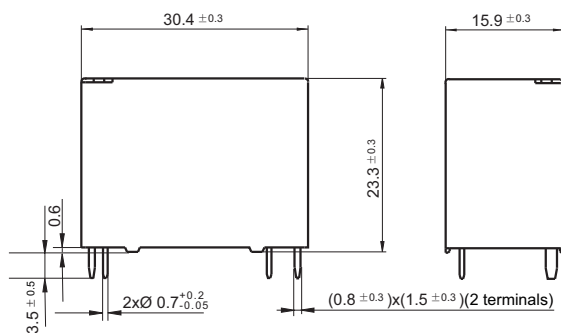
4) The product has two packaging options: suction tray packaging and tube packaging. Among them, the standard size of tube packaging is 592 mm. If you need special customization, please contact us.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

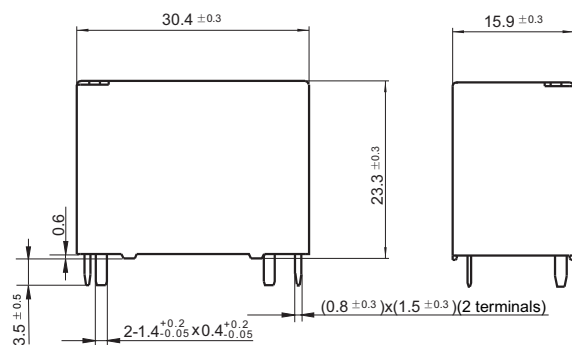
Unit: mm

Outline Dimensions

Standard type



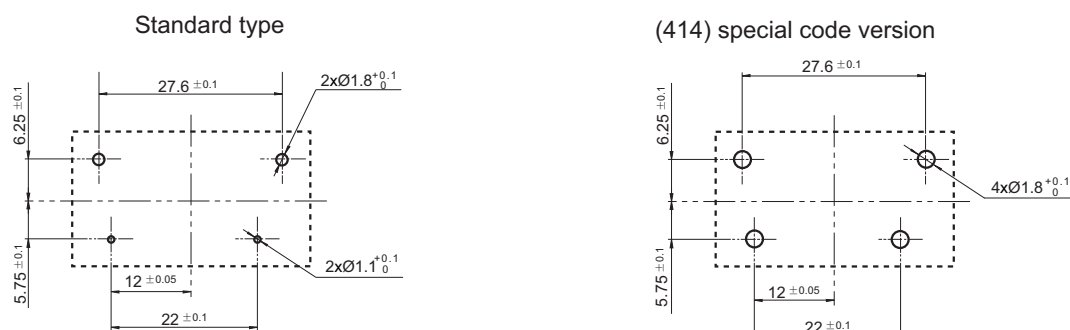
(414) special code version



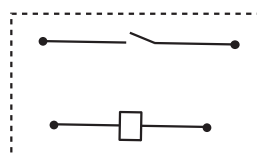
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout (Bottom view)



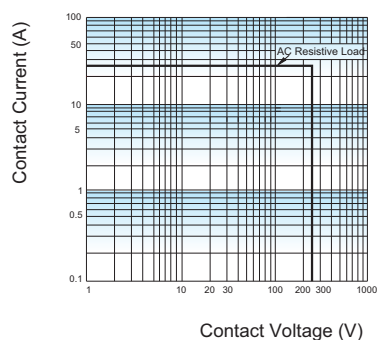
Wiring Diagram



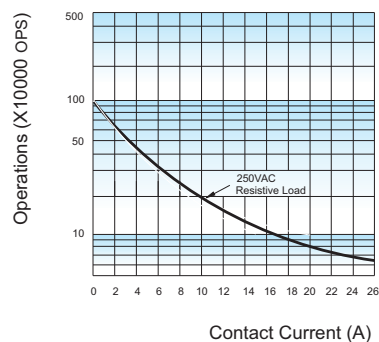
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.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

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



ENDURANCE CURVE



Test conditions:
at 75°C, 1.5s on 1.5s off.

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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