HF176F SOLAR RELAY

c UL us
File No.:E133481

File No.: R50411032

CQC
File No.: CQC20002238014

Features

- 80A swithing capitable.
- Applicable to solar photovoltaic inverter
- 4mm contact gap
- Low coil hoilding voltage contributes to saving energy of equipment.
- UL insulation system：class F.

RoHS compliant

CONTACT DATA

Contact gap[1)]	3mm（Standard）	4mm（A37）
Contact arrangement	1A	
Contact resistance[1)]	10mΩ max. (6VDC 20A)	
Contact material	AgNi,$AgSnO_2$	
Contact rating (Res. load)	Making 20A, Carrying 65A, Breaking 20A, 400VAC	Making 30A, Carrying 80A, Breaking 30A,1000VAC
Max. switching voltage	400VAC	1000VAC
Max. switching current	65A	80A
Max. switching power	18005VA	30000VA
Mechanical endurance	1 x 10^6 OPS	
Electrical endurance	3 x 10^4OPS(Making 20A, Carrying 65A, Breaking 20A,400VAC, Resistive load, at 85˚C,1s on 9s off)	3 x 10^4OPS(Making 30A, Carrying 80A, Breaking 30A,1000VAC, Resistive load, at 85˚C,1s on 9s off)

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

COIL

Coil power	Approx.1.92W
Holding voltage	40% to 100%U_N(at 25˚C) 50% to 60%U_N(at 85˚C)

Notes: 1)The coil holding voltage is the voltage applied to coil 100ms after the rated voltage.
2)To avoid overheating and burning, the coil can not be consistently applied to with voltage larger than maximum holding voltage.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	5000VAC 1min
	Between open contacts	2000VAC 1min
Surge voltage (between coil & contacts)		10kV(1.2 / 50μs
Operate time (at nomi. volt.)		30ms max.
Release time (at nomi. volt.)		10ms max.
Temperature rise (at nomi. volt.)		Standard type: 70K max.(Contact load current 65A,Applied voltage of coil 100% rated voltage for 100ms holding voltage of coil 50% to 60% rated voltage, at 85˚C) A37 type: 70K max.(Contact load current 80A, Applied voltage of coil 100% rated voltage for 100ms holding voltage of coil 50% to 60% rated voltage, at 85˚C)
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient temperature		-40˚C to 85˚C (Apply holding voltage to coil)
Termination		PCB
Unit weight		Approx.100g
Construction		Flux proofed

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

COIL DATA at 23˚C

Standard type

Nominal Voltage VDC[1)]	Pick-up Voltage VDC max.[1)]	Drop-out Voltage VDC min.[1)]	Max. Voltage VDC[2)]	Coil Resistance Ω
6	4.2	0.6	6.6	18.8 x (1±10%)
9	6.3	0.9	9.9	42.2 x (1±10%)
12	8.4	1.2	13.2	75 x (1±10%)
24	16.8	2.4	26.4	300 x (1±10%)

Notes: 1)The data shown above are initial values.
2)Maximun voltage refers to the maximun voltage which relay coil could endure in a short period of time.

COIL DATA at 23˚C

A37 type

Nominal Voltage VDC[1)]	Pick-up Voltage VDC max.[1)]	Drop-out Voltage VDC min.[1)]	Max. Voltage VDC[2)]	Coil Resistance Ω
6	4.5	0.6	6.6	18.8 x (1±10%)
9	6.75	0.9	9.9	42.2 x (1±10%)
12	9	1.2	13.2	75 x (1±10%)
24	18	2.4	26.4	300 x (1±10%)

Notes: 1)The data shown above are initial values.
2)Maximun voltage refers to the maximun voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

Standard type	AgNi	UL/CUL	Making 20A, Carrying 65A,Breaking 20A 400VAC,at 85˚C,Resistive 60A 277VAC,at 85˚C,General use
		TÜV	
		CQC	
	$AgSnO_2$	UL/CUL	Making 20A, Carrying 65A,Breaking 20A 400VAC,at 85˚C,Resistive 65A 277VAC,at 85˚C,Resistive 65A 30VDC,at 85˚C,Resistive 65A 60VDC,at 85˚C,Resistive
		TÜV	
		CQC	

A37 type	AgNi/ $AgSnO_2$	UL/CUL	Making 30A, Carrying 80A,Breaking 30A 1000VAC,at 85˚C,Resistive
		TÜV	
		CQC	

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

HF176F/ 12 -H T F (XXX)

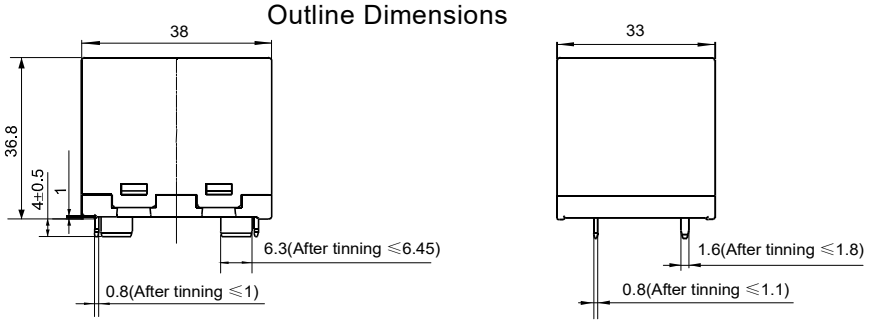
Type	
Coil voltage	6, 9, 12, 24VDC
Contact arrangement	**H:**1 Form A
Contact matcrial	**3:** AgNi **T:** $AgSnO_2$
Insulation standard	**F:** Class F
Special code	**XXX:** Customer special requirement **Nil:** Standard

Notes: 1) When there is surge current in the load, it is recommended to use $AgSnO_2$ contact material and confirm it in actual use.
2) The customer special requirement express as special code after evaluating by Hongfa.
3) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB.
4)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 harmfu substances and elements such as water vapor,H_2S,SO_2,NO_2,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.

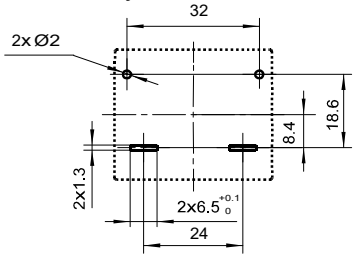
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

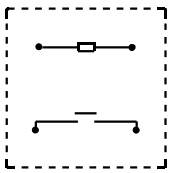
Outline Dimensions



PCB Layout (Bottom view)



Wiring Diagram (Bottom view)



Notes: 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.

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.