HF167F SOLAR RELAY

File No.: E133481

File No.: R50374273

Features

- 90A switching capability
  100A loading current capability
- Applicable to solar photovoltaic inverter
- Contact gap:3.0 mm,4.0mm(764 Type)
- Explosion-proof products available
- Low coil holding voltage contributes to saving energy of equipment
- UL insulation system: Class F

RoHS compliant

CONTACT DATA

Contact gap	3mm	4mm
Contact arrangement	1A	
Contact resistance(initial)	max.10mΩ (6VDC 20A)	
Contact material	$AgSnO_2$, AgNi	
Contact rating(Res. load)	Making 30A carrying 100A breaking 30A 1000VAC	
Max. switching voltage	1000VAC	
Max. switching current	90A	
Max. switching power	30000VA	
Mechanical endurance	1 x 10^6OPS	
Electrical endurance	**Flux proofed:** a.3 x 10^4OPS (Making 30A, carrying 100A, breaking 30A, 400VAC, Resistive load, at 85℃, 1s on 9s off) b.1 x 10^3OPS (90A, 320VAC,Resistive load, at 85℃, 1s on 9s off) c.3 x 10^4OPS (Making 30A, carrying 100A, breaking 30A, 1000VAC, Resistive load, at 85℃, 1s on 9s off) **Plastic sealed:** 3 x 10^4OPS (Making 30A, carrying 100A, breaking 30A, 400VAC, Resistive load, at 85℃, 1s on 9s off)	**Flux proofed:** 3 x 10^4OPS (Making 30A, carrying 100A, breaking 30A, 1000VAC, Resistive load, at 85℃, 1s on 9s off)

COIL

Coil power	High power consumption type: Approx.1.92W
Holding voltage	40% to 100%UN(at 25℃) 50% to 60%UN(at 85℃)

Notes: 1)The coil holding voltage is the voltage applied to coil 200ms 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.

COIL DATA 23℃

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

Notes: Maximun voltage refers to the maximun voltage which relay coil could endure in a short period of time.

CHARACTERISTICS

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

Notes: The data shown above are initial values.

SAFETY APPROVAL RATINGS

UL/CUL	AgNi	HF167F...HF	90A 320VAC 85℃ General use 60A 320VAC 85℃ General use 40A 277VAC 85℃ General use Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HF(764)	Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HSF	70A 24VDC, 85℃, Resistive 40A 277VAC, 85℃, General use(Open the vent.) Making 30A, carrying 100A, breaking 30A, 24VDC, 85℃, Resistive Making 30A, carrying 100A, breaking 30A, 415/400 VAC, 85℃, Resistive
	$AgSnO_2$	HF167F...HTF	90A 320VAC 85℃ General use 40A 277VAC 85℃ Resistive TV-15 120VAC 85℃ Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HTF(764)	Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HSTF	Making 30A, carrying 100A,breaking 30A,415VAC,85℃ Resistive
TÜV	AgNi	HF167F...HF	90A 320VAC 85℃ Resistive 40A 277VAC 85℃ General use Making 30A, carrying 100A, breaking 30A, 400VAC, 85℃ Resistive Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HF(764)	Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HSF	70A 24VDC, 85℃, Resistive 40A 277VAC, 85℃, General use(Open the vent.) Making 30A, carrying 100A, breaking 30A, 24VDC, 85℃, Resistive Making 30A, carrying 100A, breaking 30A, 400VAC, 85℃, Resistive
	$AgSnO_2$	HF167F...HTF	Making 30A, carrying 100A, breaking 30A, 400VAC,85℃ Resistive Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HTF(764)	Making 30A, carrying 100A, breaking 30A, 400VAC,85℃ Resistive Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HSTF	Making 30A, carrying 100A,breaking 30A,400VAC,85℃ Resistive
CQC	AgNi	HF167F...HF	90A 320VAC 85℃ Resistive 60A 320VAC 85℃ Resistive 40A 277VAC 85℃ Resistive Making 30A, carrying 100A,breaking 30A,400VAC,85℃ Resistive Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HF(764)	Making 30A, carrying 100A,breaking 30A,400VAC,85℃ Resistive Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HSF	70A 24VDC, 85℃, Resistive 40A 277VAC, 85℃, General use(Open the vent.) Making 30A, carrying 100A, breaking 30A, 24VDC, 85℃, Resistive 接通30A, carrying 100A, breaking 30A, 400VAC, 85℃, Resistive
	$AgSnO_2$	HF167F...HTF	90A 320VAC 85℃ Resistive 60A 320VAC 85℃ Resistive 40A 277VAC 85℃ Resistive 接通30A, carrying 100A,breaking 30A,400VAC,85℃ Resistive 接通30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive

SAFETY APPROVAL RATINGS

CQC	$AgSnO_2$	HF167F...HTF(764)	Making 30A, carrying 100A,breaking 30A,400VAC,85℃ Resistive Making 30A, carrying 100A,breaking 30A,1000VAC,85℃ Resistive
		HF167F...HSTF	70A 24VDC, 85℃, Resistive 40A 277VAC, 85℃, General use(Open the vent.) Making 30A, carrying 100A, breaking 30A, 24VDC, 85℃, Resistive Making 30A, carrying 100A, breaking 30A, 400VAC, 85℃, Resistive

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

HF167F/	12	-H	S	T	F	（XXX）

Type	
Coil voltage	6,9,12,24VDC
Contact arrangement	**H:** 1 Form A
Construction	**S:** Plastic sealed **Nil:** Flux proofed
Contact material	**T:** $AgSnO_2$ **Nil:** AgNi
Insulation standard	**F:** Class F
Special code	**XXX:** Customer special requirement **Nil:** Standard type

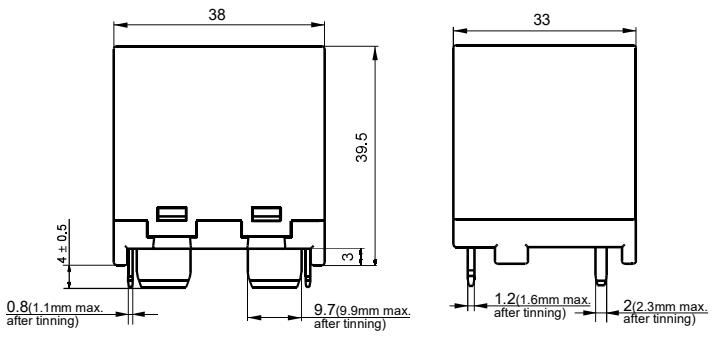
Notes: 1) When there is surge current in the load, it is recommended to use $AgSnO_2$ contact material and confirm it in actual use.
2) The customer special requirement express as special code after evaluating by Hongfa.
3) Water clearing or surface process is not suggested after the flux-proofed relays 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 harmful 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

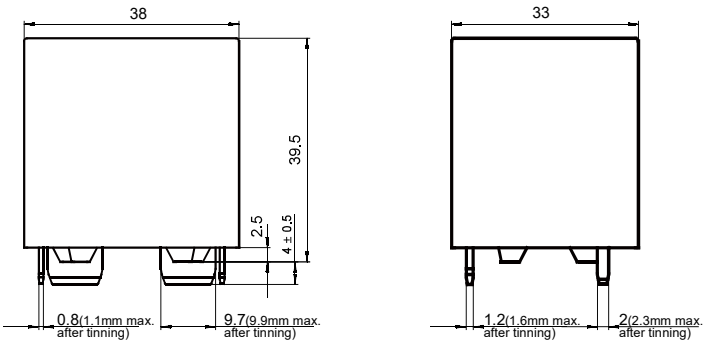
Flux sproofed:



OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

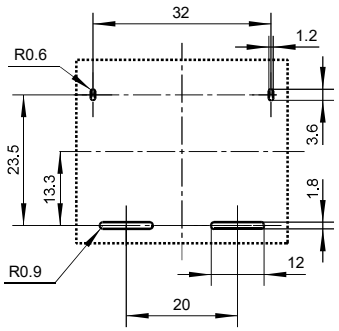
Unit: mm

Plastic sealed



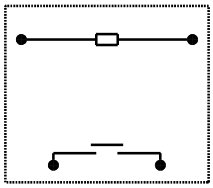
PCB Layout

(Bottom view)



Wiring Diagram

(Bottom view)



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.

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.