HF167F-270 SOLAR RELAY

File No.: E133481

File No.: R50374273



Features

- 270A switching capability
- Applicable to solar photovoltaic inverter
- 4.0 mm main contact gap
- One set of auxiliary contact optional: enables safety detection when main contacts are welded
- Low coil holding voltage contributes to saving energy of equipment
- UL insulation system: Class F
- Available with heat sink specifications for better heat dissipation
- Plastic sealed and flux proofed types available.

RoHS compliant

CONTACT DATA

Contact arrangement	H (1 Form A main contacts) HB(1 Form A main contacts with 1 Form B auxiliary contacts)
Contact resistance[1)]	Main contacts:1mΩ max.(at 6VDC 20A) Auxiliary contacts:100mΩ max.(at 6VDC 100mA)
Contact material	Main contacts: $AgSnO_2$, Auxiliary contacts: AgNi
Contact rating (Res. load)	Main contacts: Making 50A, carrying 270A, breaking 50A,1000VAC Auxiliary contacts: 1A 12VDC
Max. switching voltage	Main contacts: 1000VAC, Auxiliary contacts: 12VDC
Max. switching current	Main contacts: 270A, Auxiliary contacts: 1A
Max. switching power	Main contacts: 270000VA, Auxiliary contacts: 12W
Min. load(auxiliary contact)	No gold plated:12VDC 100mA Gold plated:12VDC 10mA
Mechanical endurance	3×10^5OPS
Electrical endurance	**Main contacts:** Flux proofed: ⩾3×10^4OPS (85℃, 1s on 9s off, Making 50A, carrying 270A, breaking 50A, 1000VAC, Resistive load) Plastic sealed: ⩾1×10^4OPS (85℃, 1s on 9s off, Making 50A, carrying 270A, breaking 50A, 1000VAC, Resistive load) **Auxiliary contacts:** ⩾3×10^4OPS (1A,12VDC, Resistive load, 85℃,1s on 9s off)

Notes: 1) The data shown above are initial values.
2) Min. contact load is just a reference value in normal temperature, normal humidity, normal pressure environment and with relay pin up, which will vary depending on the power-on and off frequency, environmental conditions, expected lifespan, and installation direction. Thus, please have confirmation tests with actual load before use. And it is recommended to avoid using the relay when the temperature is below 0℃.
3) No loading test, no mechanical damage after the test.

CHARACTERISTICS

Insulation resistance		1000 MΩ (500VDC)
Dielectric strength	Between open contacts	2000VAC 1min
	Between coil & main contacts	5000VAC 1min
	Between auxiliary contacts & main contacts	5000VAC 1min
	Between coil & auxiliary contacts	1000VAC 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 270A, Rated voltage is reduced to holding voltage after 100ms of excitation, at 85℃)
Shock resistance	Functional	Main contacts: $98m/s^2$
	Destructive	Auxiliary contacts:$980m/s^2$
Vibration resistance		Main contacts:10Hz to 55Hz 1.0mm 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.265g
Construction		Flux proofed,plastic sealed

Notes: The data shown above are initial values.

SAFETY APPROVAL RATINGS

UL/CUL	Main contacts	Making 50A, carrying 270A, breaking 50A,1000VAC, 85℃, Resistive load 270A 1000VAC, 85℃, Resistive load
	Auxiliary contacts	1A, 12VDC, 85℃, Resistive load
TÜV	Main contacts	Making 50A, carrying 270A, breaking 50A,1000VAC, 85℃, Resistive load 270A 1000VAC, 85℃, Resistive load
	Auxiliary contacts	1A, 12VDC, 85℃, Resistive load

COIL

Coil power	High power consumption type: Approx.5W
Holding voltage	40% to 100%UN(at 23℃) 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℃

High power consumption type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC[1)]	Coil Resistance Ω
6	4.5	0.3	7.2	7.2×(1±10%)
9	6.75	0.45	10.8	16.2×(1±10%)
12	9	0.6	14.4	28.8×(1±10%)
24	18	1.2	28.8	115.2×(1±10%)

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

ORDERING INFORMATION

HF167F-270/ 12 -H B S P T F L (XXX)

Type	
Coil voltage	6,9,12,24VDC
Contact arrangement	**H:** 1 Form A
Auxiliary contact arrangement	**B:** 1 Form B **Nil:** Auxiliary contact
Construction	**S:** Plastic sealed **Nil:** Flux proofed
Coil type	**P:** Coil power consumption 5W
Main contact material	**T:** $AgSnO_2$
Insulation standard	**F:** Class F
Special Requirement	**Nil:** Standard type **L:** With heat sink
Special code[3)]	**XXX:** Customer special requirement **Nil:** Standard type **991:** Auxiliary contacts gold-plated

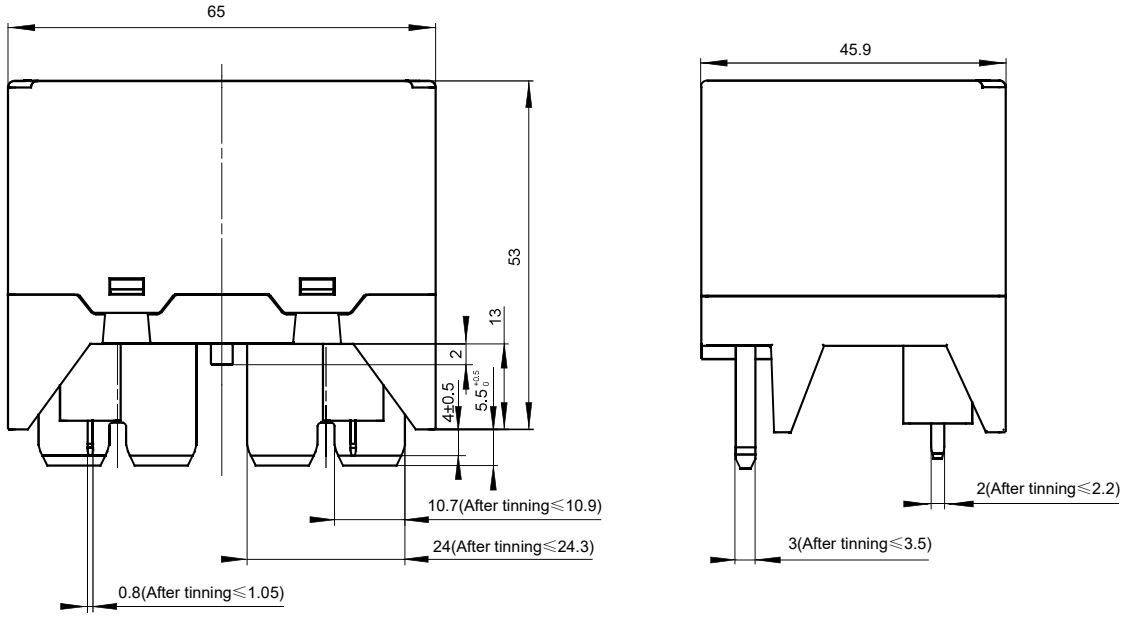
Notes: 1) Please avoid using the relay in an environment containing organic silicon,otherwise the entry of organic silicon into the relay may acceleration contact failure.If there are harmful substances and elements such as water vapor,H_2S,SO_2,NO_2,Cl,P,dust,etc.， as well as unknown harmful substances and elements,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 that produce harmful substances and elements or use plastic sealed type， and arrange relevant tests to confirm that it meet the requirements for actual use.
2) Water clearing or surface process is not suggested after the flux-proofed relays are assembled on PCB.
3) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

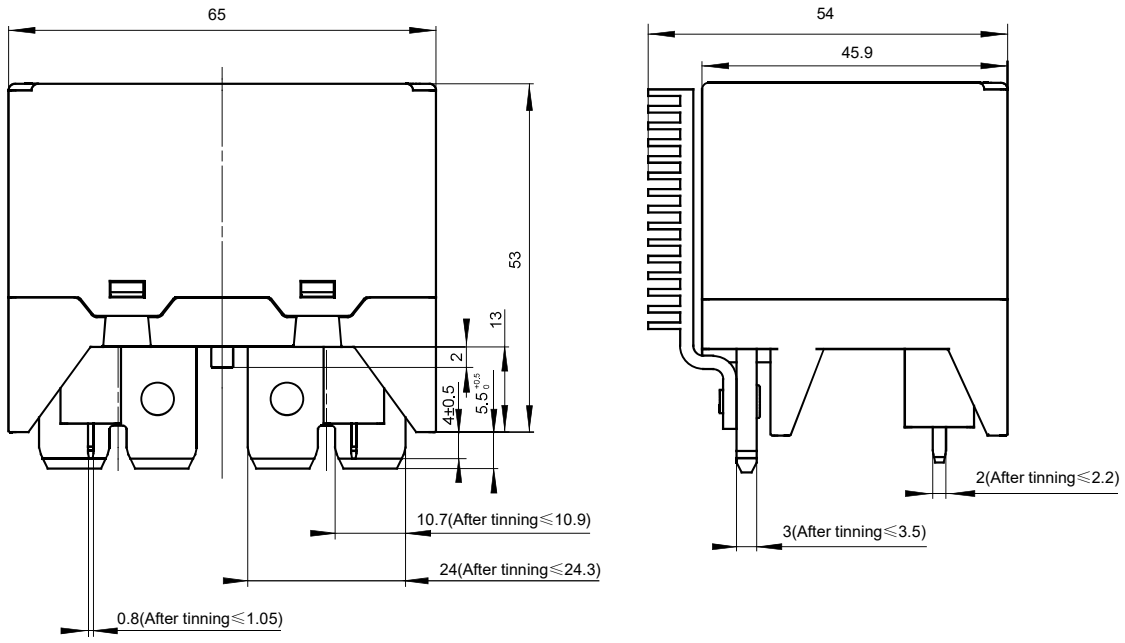
Unit: mm

Outline Dimensions

H(Without heat sink type)：



H(With heat sink type)：

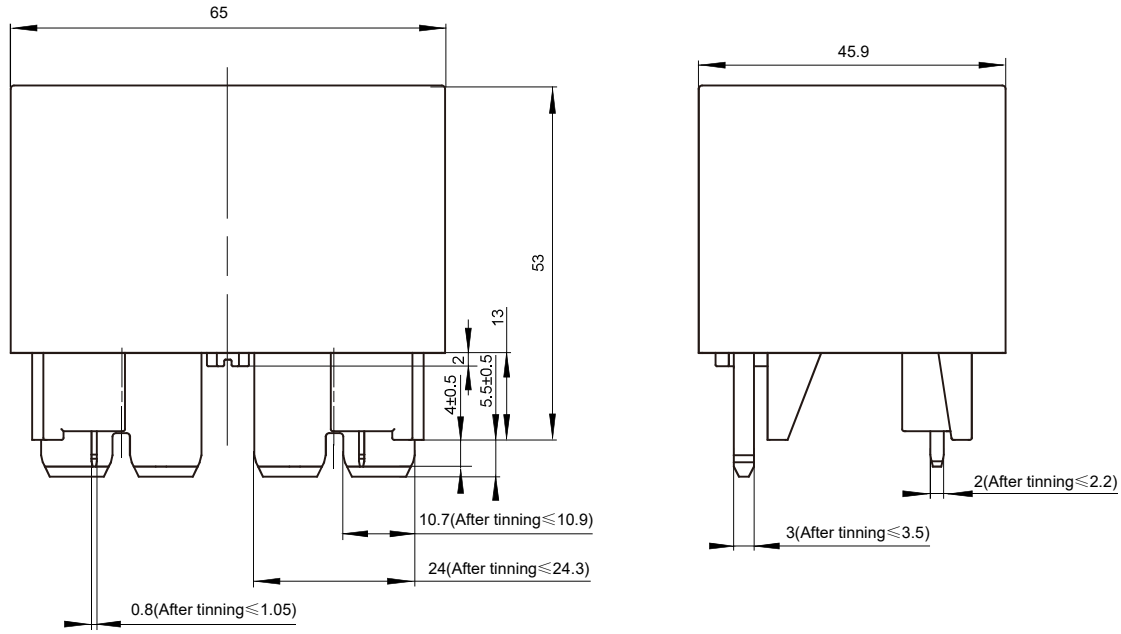


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

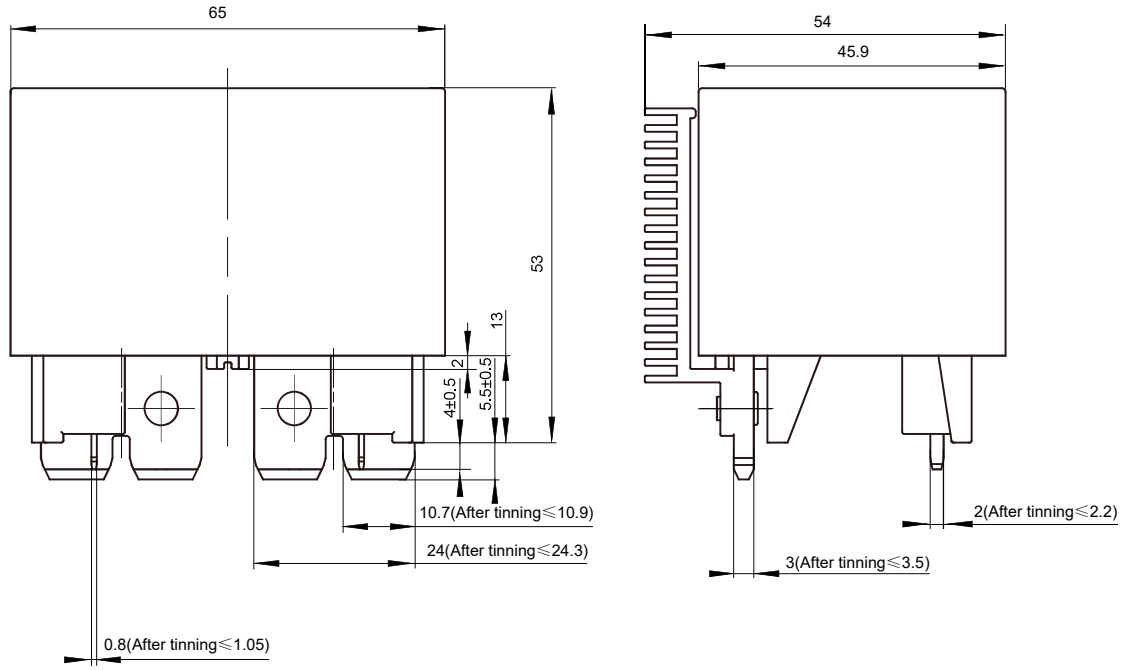
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Outline Dimensions

H(Plastic sealed):



H(Plastic sealed&With heat sink type):

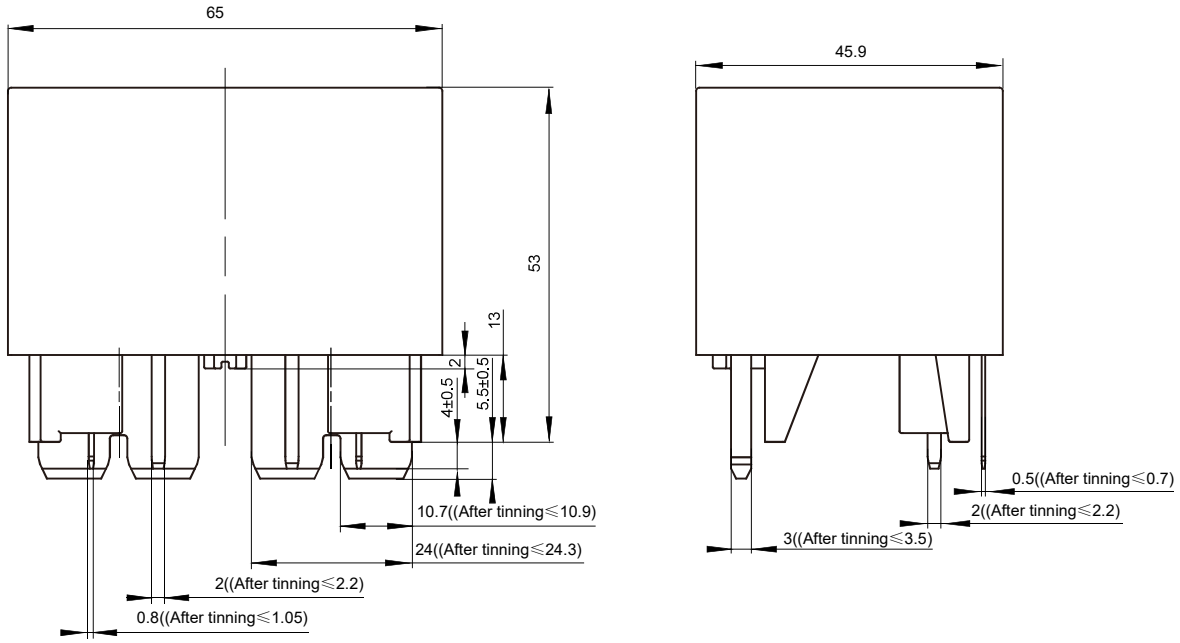


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

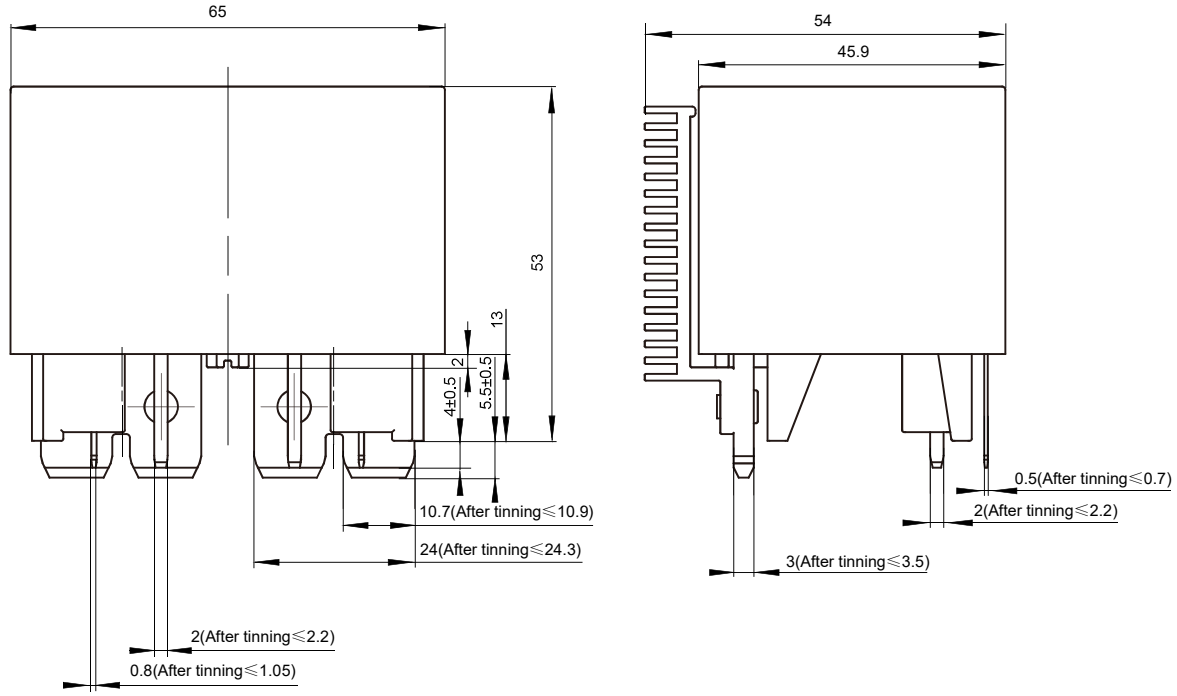
Unit: mm

Outline Dimensions

HB(Plastic sealed):



HB(Plastic sealed&With heat sink type):



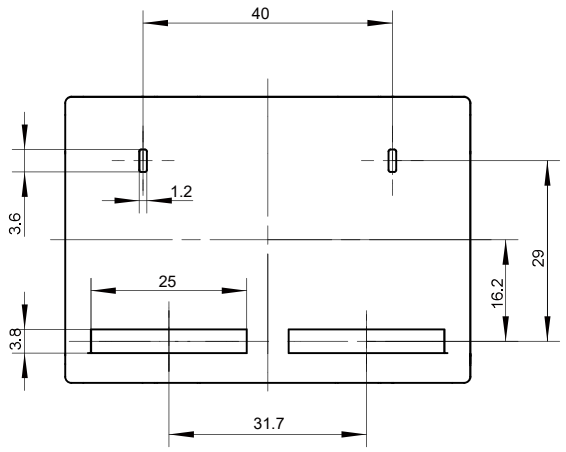
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

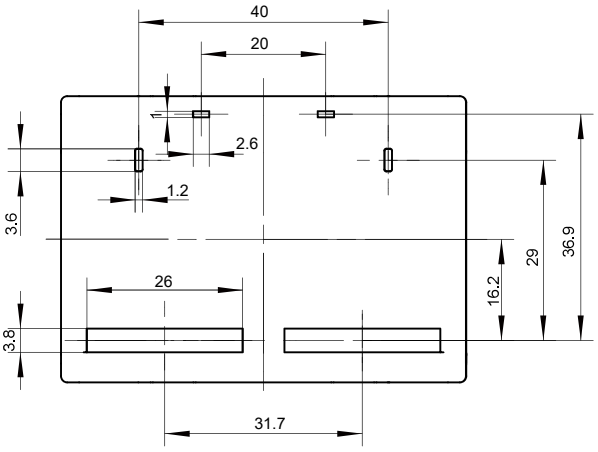
PCB Layout

(Bottom view)

H



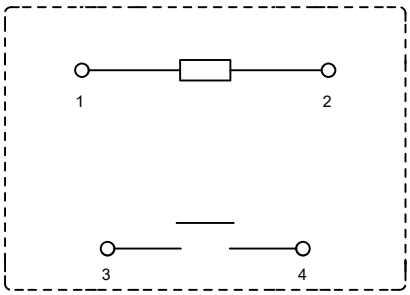
HB



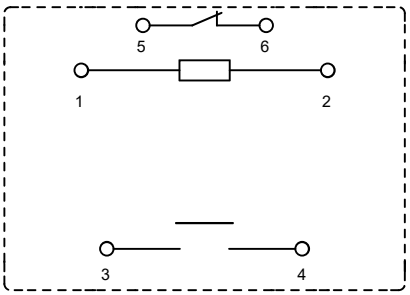
Wiring Diagram

(Bottom view)

H



HB



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.

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