



File No.: E133481



File No.: R 50656348



### Features

- 300A current carrying capacity
- Applicable to inverter used for photovoltaic power generation systems
- Contact gap(Main contact): 4mm
- A set of auxiliary contacts is optional: Detection of main contact welding makes it possible to construct a safety circuit
- Low coil holding voltage contributes to saving energy of equipment
- Insulation system: Class F
- Available with heat sink specifications for better heat dissipation

RoHS compliant

### CONTACT DATA

Contact Gap(initial) <sup>1)</sup>	≥4mm
Contact arrangement	H: 1A(Main contact) HB: 1A(Main contact)+1B(Auxiliary contact)
Contact resistance (initial) <sup>1)</sup>	Main contact: 0.5mΩ max.(6VDC 20A) Auxiliary contact:100mΩ max.(6VDC 100mA)
Contact materail	Main contact: AgSnO <sub>2</sub> , Auxiliary contact: AgNi
Contact rating (resistance)	Main contact: Making 50A, carrying 300A, breaking 50A 1000VAC Auxiliary contact: 1A 12VDC
Max. switching voltage	Main contact: 1000VAC Auxiliary contact:12VDC
Max. switching current	Main contact: 300A, Auxiliary contact: 1A
Max. switching power	Main contact: 50000VA Auxiliary contact: 12W
Min. switching load <sup>2)</sup> (Auxiliary contact)	NC: 12VDC 100mA NC(Gold plated): 12VDC 10mA
Mechanical endurance <sup>3)</sup>	3×10 <sup>5</sup> OPS
Electrical endurance	Main contact: ≥3×10 <sup>4</sup> OPS (85°C,1s on 9s off, Making 50A, carrying 300A,breaking 50A,1000VAC, Resistive load) (Tested with open vent hole)
	Main contact: ≥3×10 <sup>4</sup> OPS (85°C,1s on 9s off, Making 50A,carrying 300A,breaking 30A,1000VAC, Resistive load)
	Main contact: ≥1×10 <sup>4</sup> OPS (85°C,1s on 9s off, Making 50A, carrying 300A, breaking 50A, 1000VAC, Resistive load)

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°C.

3) No loading test, no mechanical damage after the test.

### CHARACTERISTICS

Insulation resistance		1000 MΩ(500 VDC)
Dielectric strength	Between open contacts	2500VAC 1 min
	Between coil & main contact	5000VAC 1 min
	Between auxiliary contact & main contact	5000VAC 1 min
	Between coil & auxiliary contact	1000VAC 1min
Surge voltage (Between coil & contacts)		10kV(1.2/50μs)
Set time(at rated. volt.)		30ms max.
Reset time(at rated. volt.)		10ms max.
Temperature rise		70K max. (Contact load current 300A, Rated voltage is reduced to holding voltage after 100ms of excitation, at 85°C)
Shock resistance	Functional	Main contact: 98m/s <sup>2</sup>
	Destructive	Main contact: 980m/s <sup>2</sup>
Vibration resistance		Main contact: 10Hz to 55Hz 1.0mm DC
Humidity		5% to 85%RH
Ambient temperature		-40°C to 85°C (Apply holding voltage to coil)
Termination		PCB
Unit weight		Approx. 300g
Construction		Flux proofed,Plastic sealed

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

### COIL

Coil power	Approx. 4W
Holding voltage	40% to 100%U <sub>N</sub> ( at 23°C) 50% to 60%U <sub>N</sub> ( at 85°C)

### SAFETY APPROVAL RATINGS

UL/TÜV	Main contact: Making 50A,carrying 300A, breaking 50A,1000VAC,Resistive,at 85°C Making 50A,carrying 300A, breaking 30A,1000VAC,Resistive, at 85°C
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Notes: 1) All values unspecified are at room temperature.

2) Only typical loads are listed above. Other load specifications can be available upon request.



HONGFA RELAY

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

2025 Rev. 1.00

## COIL DATA

23°C

Nominal Voltage VDC	Pick-up Voltage <sup>1)</sup> VDC max.	Drop-out Voltage <sup>1)</sup> VDC max.	Max. Voltage <sup>2)</sup> VDC	Coil Resistance Ω
6	4.5	0.3	7.2	9×(1±10%)
9	6.75	0.45	10.8	20.25×(1±10%)
12	9	0.6	14.4	36×(1±10%)
24	18	1.2	28.8	144×(1±10%)

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

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

## ORDERING INFORMATION

Type	HF235F/	12	-H	B	S	T	F	L	(XXX)
Coil voltage	6, 9, 12, 24VDC								
Main contact arrangement	1H: 1 Form A								
Auxiliary contact arrangement	B: 1 Form B Nil: Without auxiliary contact								
Construction	S: Plastic sealed Nil: Flux proofed								
Main contact material	T: AgSnO <sub>2</sub>								
Insulation class	F: Class F								
Special Requirement	L: With heat sink Nil: Standard type								
Special code	XXX: Customer special requirement Nil: Standard 991: Auxiliary contact 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<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, 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.

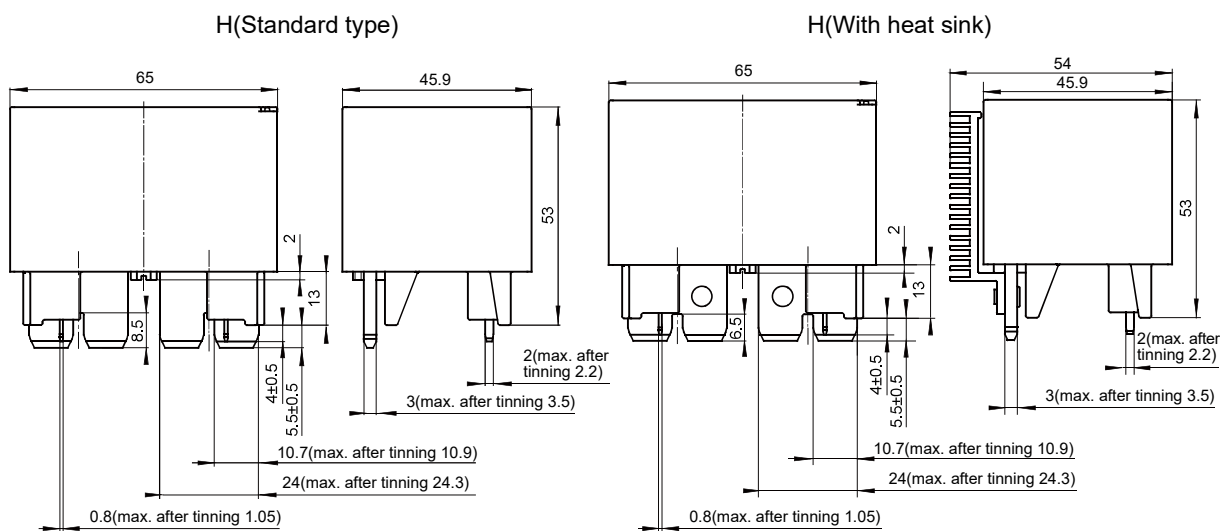
2) Water clearing or surface process is not suggested after the flux-proofed relays are assembled on PCB.

3) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

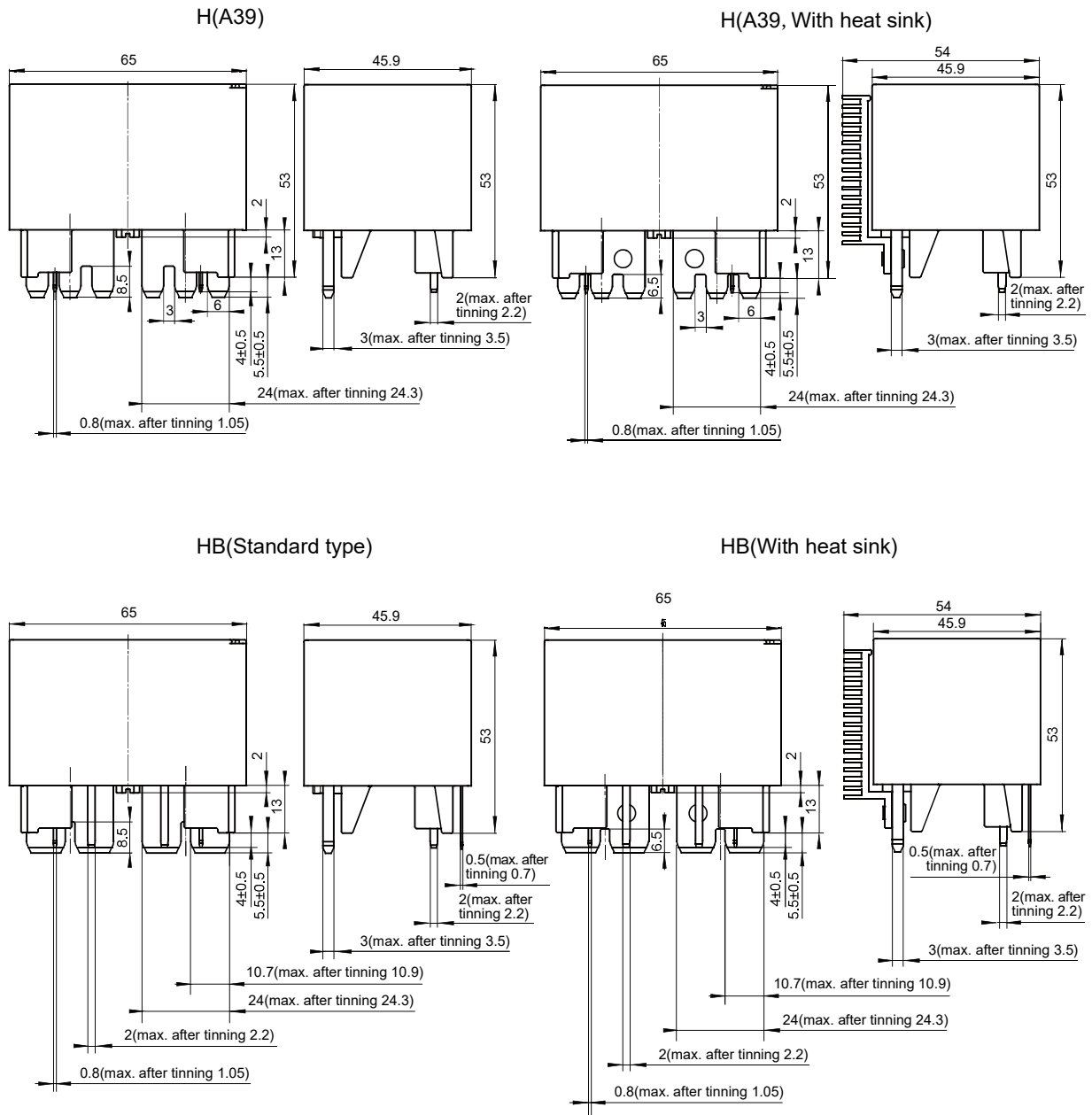
### Outline Dimensions



# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

## Outline Dimensions



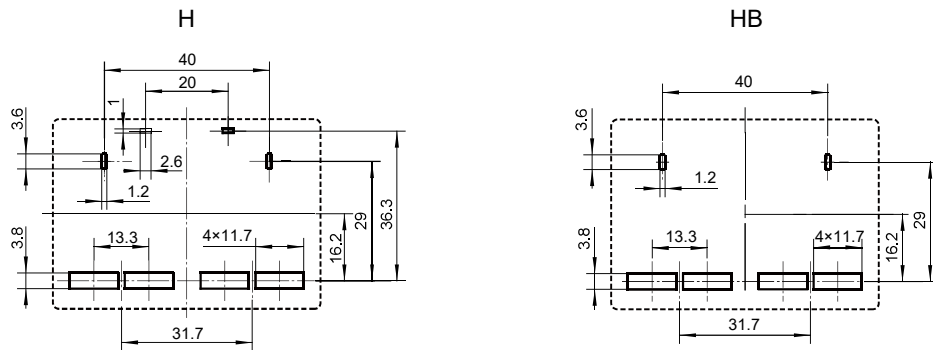
## Wiring Diagram (Bottom view)



## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB layout  
(Bottom view)



- 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  $\pm 0.1\text{mm}$ .

### 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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