HF177F/HB MINIATURE HIGH POWER RELAY

File No.：E133481

File No.：R 50440159

File No.：CQC19002230667

Features

- Contact gap：1.5 mm
- 1 Main contact + 1 Auxiliary contact
- Fulfill 5kA short circuit current test according to UL 2231-2
- Low coil holding voltage contributes to saving energy of equipment.
- Class F insulation system
- Contact category :CC2
- Outline dimensions：(50×25×33)mm

RoHS compliant

CONTACT DATA

Contact arrangement		H, HB
Contact resistance (initial)	Main contact	3mΩ max(6VDC 20A)
	Auxiliary contact	100 mΩ max(6VDC 1A)
Contact material		Main contact：$AgSnO_2$ Auxiliary contact：AgNi
Contact rating (resistance)	Main contact	Makng 40A carrying100A breaking 40A
	Auxiliary contact	1A 277VAC, 1A 30VDC
Max. Switching voltage	Main contact	277VAC
	Auxiliary contact	277VAC, 30VDC
Max.Switching current		Main contact:100A Auxiliary contact:1A
Max. Switching power		Main contact:27700VA Auxiliary contact:277VA/30W
Min. switching load (Auxiliary contact)2)		NC 100mA 12VDC NC(Gold plated) 10mA 12VDC
Mechanical endurance		1×10^5ops
Electrical endurance		NO: Making 40 A Carrying 100A Breaking 40 A,277VAC, Resistive load, 85℃, 5×10^4ops NC: 1A 277VAC/30VDC, Resistive load, 85℃, 1s on 9s off,5×10^4ops

Notes: 1) The data shown above are initial values.
2) Min. contact load is reference value. Please perform the confirmation test with the actual load before usage since reference value may change according to switching requencies,environmental conditions and expected life cycles.

COIL DATA at 23℃

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC1)	Coil Resistance Ω
6	4.2	0.3	6.6	9×(1±10%)
9	6.3	0.45	9.9	20.3×(1±10%)
12	8.4	0.6	13.2	36×(1±10%)
24	16.8	1.2	26.4	144×(1±10%)
48	33.6	2.4	52.8	576×(1±10%)

Notes: 1) Maximun voltage refers to the maximum voltage which relay coil could endure in a short period of time.

CHARACTERISTICS

Insulation resistance		1000MΩ(500VDC)
Dielectric strength	Between open Main contacts	2000VAC 1min
	Between coil & Auxiliary contacts	2000VAC 1min
	Between open Auxiliary contacts	1000VAC 1min
	Between Main contact and Auxiliary contact	5000VAC 1min
	Between coil & Main contacts	5000VAC 1min
Operate time (at nomi. volt.)		20ms max.
Release time (at nomi. volt.)		10ms max.
Coil temperature rise		70K max.(Contact load current 100A，Applied voltage of coil 100% rated voltage for 100 ms holding voltage of coil 50% rated voltage, at 85℃)
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.0mm DA
Humidity		5% to 85%RH
Ambient temperature		-40℃ to 85℃
Termination		PCB
Unit weight		Approx. 85g
Construction		Plastic sealed, Flux proofed

COIL

Coil power	Approx. 4W
Holding voltage	40% to 70%U_N(at 23℃) 45% to 55%U_N(at 85℃)

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.

SAFETY APPROVAL RATINGS(Pending)

UL/CUL	NO: Making 40A Carrying 100A Breaking 40A,277VAC 85˚C 80A 277VAC Resistive 85˚C NC: 1A 277VAC/30VDC Resistive 85˚C
TÜV	NO: Making 40A Carrying 100A Breaking 40A,277VAC 85˚C 80A 277VAC Resistive 85˚C NC: 1A 277VAC/30VDC Resistive 85˚C
CQC	NO: Making 40A Carrying 100A Breaking 40A,277VAC 85˚C 80A 277VAC Resistive 85˚C NC: 1A 277VAC/30VDC Resistive 85˚C

Notes: 1)All values unspecified are at room temperature.
2)Only some typical rating are listed above.If more details are required,please contact us.

ORDERING INFORMATION

	HF177F/	12	-H	B	S	T	F	(XXX)
Type								
Coil voltage	6,9,12,24,48VDC							
Main contact arrangement			**H:** 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:** $AgSnO_2$		
Insulation standard							**F:** Class F	
Special code								**(991)** Auxiliary contact gold plated

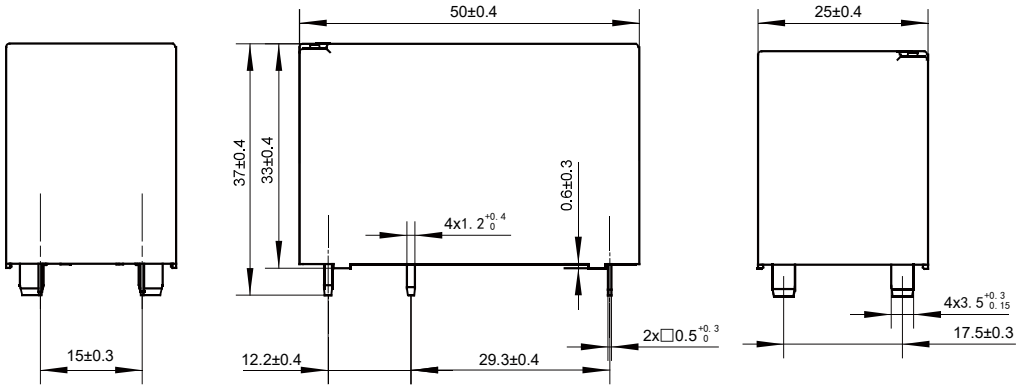
Notes: 1) Please avoid using the relay in an environment containing organic silicon,otherwise the entry of organic silicon into the relay may acceleration contact failure.If there are harmful substances and elements such as water vapor,H_2S,SO_2,NO_2,Cl,P,dust,etc.， as well as unknown harmful substances 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) Washing or surface cleaning 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.
4) HF177F-H can fulfill the short-circuit current 5000 A test according to UL 2231-2.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

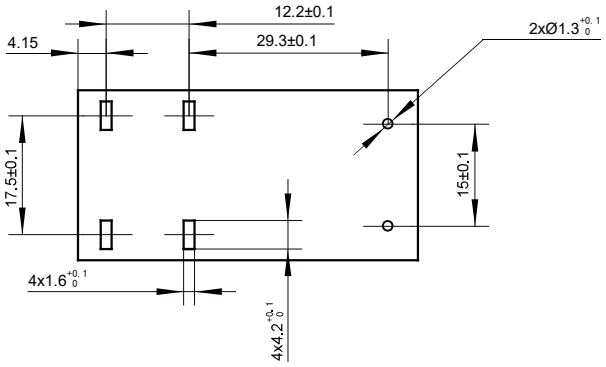
H

Outline Dimensions



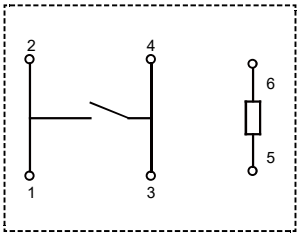
PCB Layout

(Bottom view)



Wiring Diagram

(Bottom view)

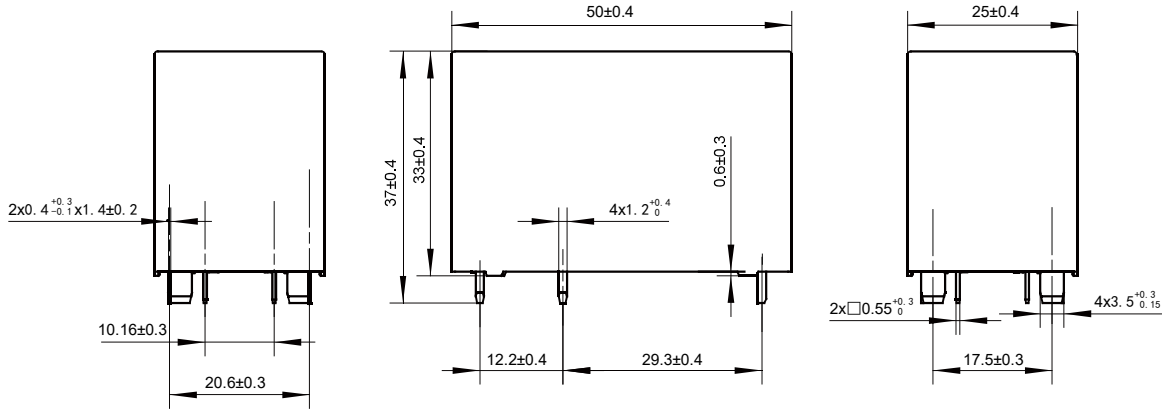


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

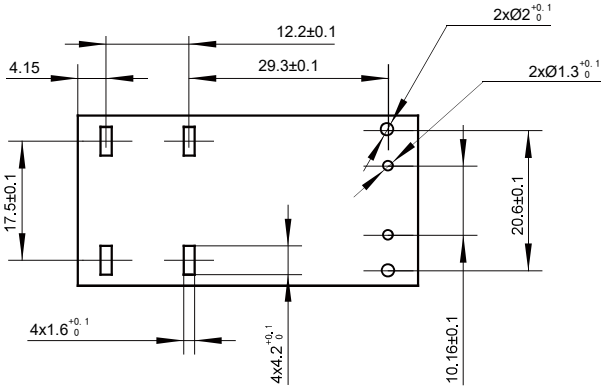
HB

Outline Dimensions



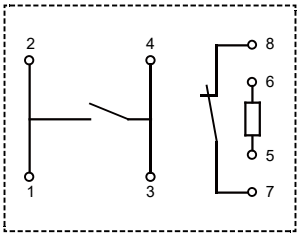
PCB Layout

(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 and ≤30mm, tolerance should be ±0.4mm;
outline dimension＞30 mm, tolerance should be ±0.6mm.
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.