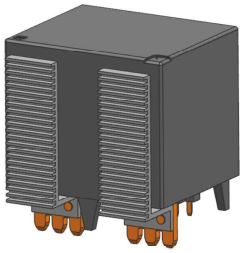
HF239F HIGH POWER RELAY

c UL us
File No.：E133481

File No.：R 50673308



Features

- 1 Form A main contact
- 1 Form A auxiliary contacts are optional
- Max.continuous current(main contact): 450A (at 85℃)
- Max. switching voltage(main contact):1150VAC
- Main contact gap≥5.5mm(Standard), ≥6mm(Available)
- Insulation system: Class F

RoHS compliant

CONTACT DATA

Contact arrangement	1A,1Aa
Contact resistance (initial)[1]	Main contact: 0.2mΩ max.(6VDC 20A) Auxiliary contact:100mΩ max.(6VDC 100mA)
Rated current	450A(at 85℃)
Contact rating (resistance)	Main contact: Making 50A, carrying 450A, breaking 30A 1000VAC,Resistive load Auxiliary contact:1A 12VDC,Resistive load
Max. switching voltage	Main contact: 1150VAC
Max. switching current	Main contact: 450A, Auxiliary contact: 1A
Min. switching load[2] (Auxiliary contact)	Gold-plated contact: 12VDC 10mA
Mechanical endurance	1×10^5 OPS
Electrical endurance	Main contact: ≥4×10^4 OPS (85℃,1s on 9s off, Making 50A,carrying 450A,breaking 30A,1000VAC, Resistive load) Auxiliary contact: ≥3×10^4 OPS (85℃,1s on 9s off, 1A 12VDC, Resistive load)

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 frequenties,environmental conditions and expected life cycles.

COIL DATA at 23℃

Nominal Voltage VDC	Pick-up Voltage[1] VDC max.	Drop-out Voltage[1] VDC min.	Max. Voltage[2] VDC	Coil Resistance Ω
6	4.5	0.3	6.6	3.6×(1±10%)
9	6.75	0.45	9.9	8.1×(1±10%)
12	9	0.6	13.2	14.4×(1±10%)
24	18	1.2	26.4	57.6×(1±10%)

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

CHARACTERISTICS

Insulation resistance		1000 MΩ(500 VDC)
Dielectric strength	Between open main contacts	2000VAC 1min
	Between coil & main contact	5000VAC 1min
	Between auxiliary contact & main contact	5000VAC 1min
	Between coil & auxiliary contact	1000VAC 1min
Operate time (at rated. volt.)		60ms max.
Release time (at rated. volt.)		10ms max.
Temperature rise		70K max. (Rated voltage is reduced to holding voltage, at 85℃)
Shock resistance	Functional	Main contact: 98m/s²
	Destructive	Main contact: 980m/s²,
Vibration resistance		Main contact: 10Hz to 55Hz 1.0mm DC
Humidity		5% to 85%RH
Ambient temperature		-40℃ to 85℃ (Apply holding voltage to coil)
Termination		PCB
Unit weight		Approx. 650g
Construction		Flux proofed,Plastic sealed

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

COIL

Coil power	Approx.10W
Holding voltage	40% to 60%U_N

Notes: 1) The coil holding voltage is the voltage applied to coil after applying the rated voltage for 200ms.
2) To avoid overheating and burning, the coil can not be consistently applied to with voltage larger than maximum holding voltage.

SAFETY APPROVAL RATINGS

TÜV UL/CUL	Main contact: 55A,1000VAC, at 85℃ Main contact: Making 80A,carrying 450A, breaking 55A,1000VAC,at 85℃ Main contact: Making 50A, carrying 450A, breaking 30A 1000VAC,at 85℃ Main contact: Making 55A, carrying 450A, breaking 30A 1150VAC,at 85℃ Auxiliary contact:1A 12VDC,at 85℃

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

	HF239F/	12	-H	A	S	T	F	L	（XXX）
Type									
Coil voltage	6, 9,12, 24VDC								
Main contact arrangement	**H:** 1 Form A								
Auxiliary contact arrangement	**A**：1 Form A **Nil**：Without auxiliary contact								
Construction	**S**：Plastic sealed **Nil**：Flux proofed								
Main contact material	**T:** $AgSnO_2$								
Insulation class	**F:** Class F								
Special Requirement	**L:** With heat sink **Nil:** Standard type								
Special code[3)]	**XXX:** Customer special requirement **Nil:** Standard								

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.

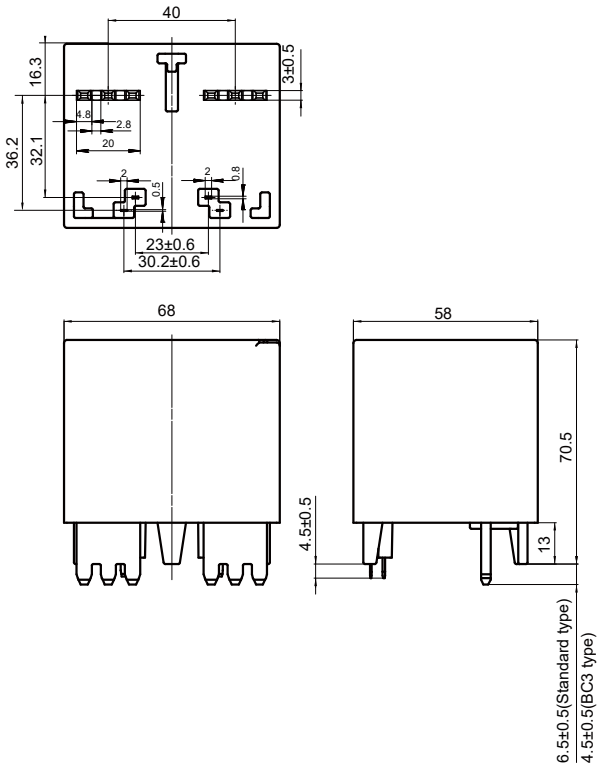
3) The customer special requirement express as special code after evaluating by Hongfa.e.g.(AZ9)stands for main contact gap≥6mm；(BC3)stands for the length of pins : 4.5mm.

OUTLINE DIMENSIONS,WIRING DIAGRAM AND PC BOARD LAYOUT

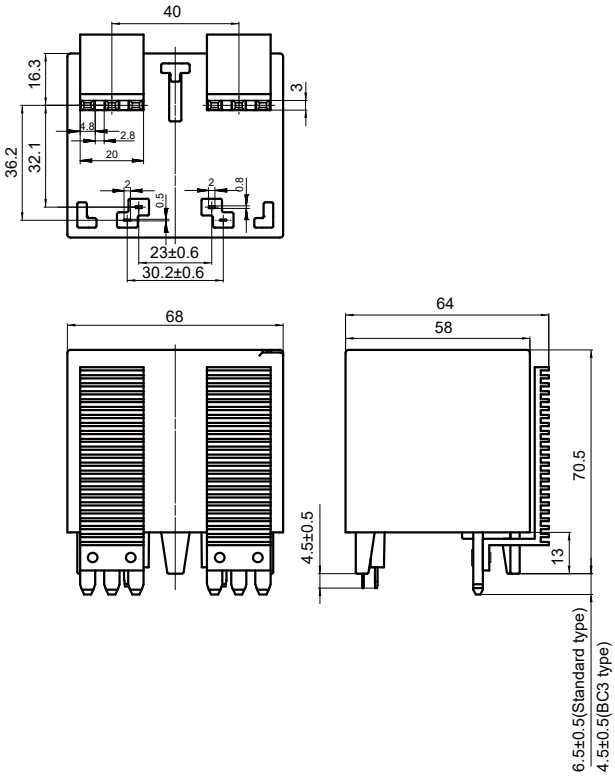
Unit：mm

Outline Dimensions

With auxiliary contacts, without heatsink



With auxiliary contacts, with heatsink

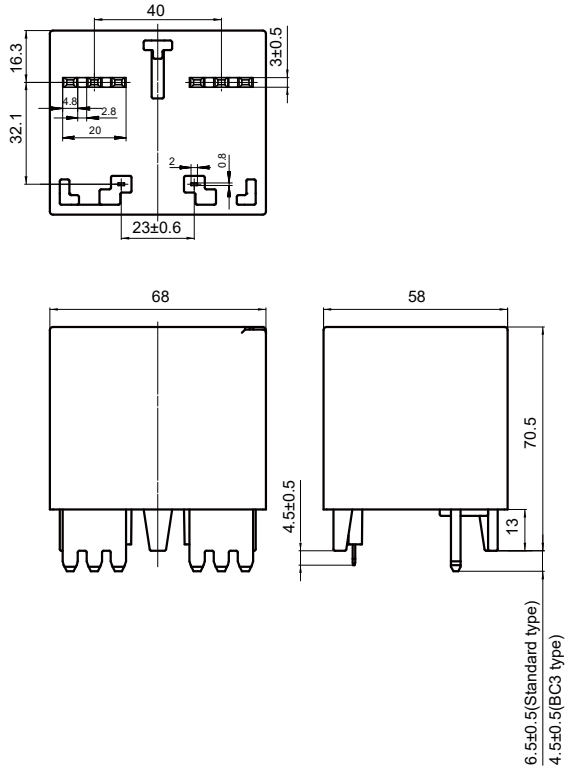


OUTLINE DIMENSIONS,WIRING DIAGRAM AND PC BOARD LAYOUT

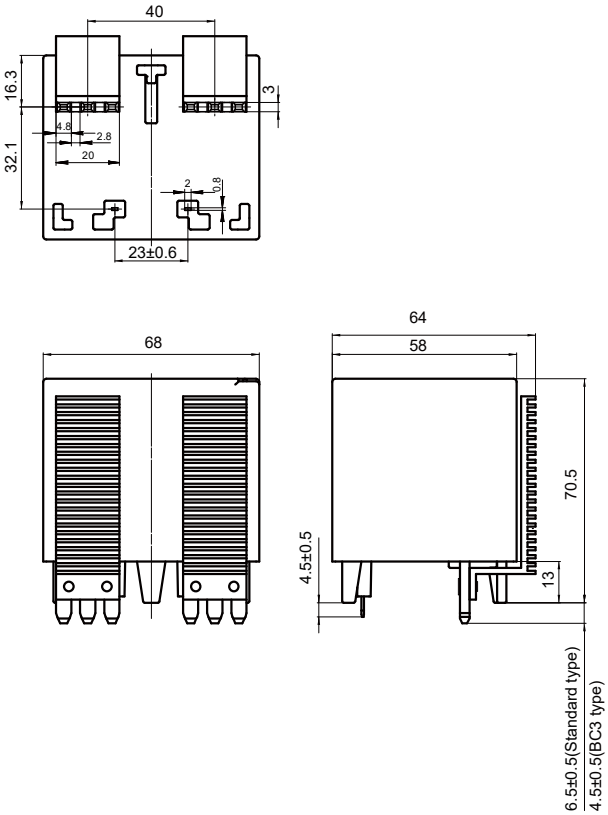
Unit：mm

Outline Dimensions

Without auxiliary contacts, without heatsink



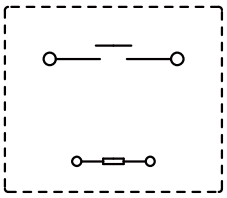
Without auxiliary contacts, with heatsink



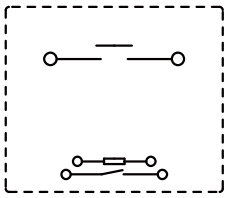
Wiring Diagram

(Bottom view)

Without auxiliary contact



With auxiliary contact

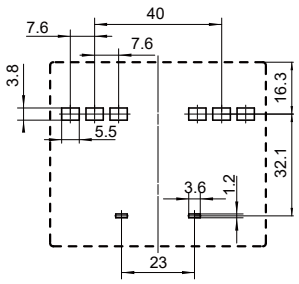


OUTLINE DIMENSIONS,WIRING DIAGRAM AND PC BOARD LAYOUT

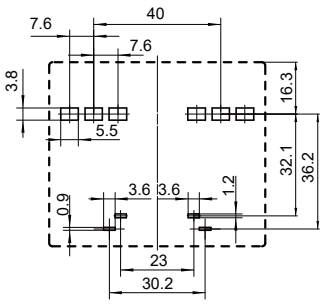
Unit：mm

PCB layout
(Bottom view)

Without auxiliary contact



With auxiliary contact



Remark: 1) The pin dimension of the product outline drawing is the size before tinning (it will become larger after tinning), and the mounting hole size is the recommended design size of the PCB board hole. The specific PCB board hole design size can be mapped and adjusted according to the actual product.

2) 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 ＞30mm, tolerance should be ±0.6mm.

3) The tolerance without indicating for PCB layout is always ±0.1mm.