

# HF178F

# MINIATURE HIGH POWER RELAY

c  us

File No.:E133481



File No.: R50440273



File No.:CQC19002230674



## Features

- 32A switching capability
- 4kV dielectric strength(between coil and contacts,for type 1 PCB layout)
- Creepage distance: $>4.5\text{mm}$
- Clearance distance: $>5\text{mm}$ (for type 1PCB layout)
- Flux proofed type

RoHS compliant

## CONTACT DATA

Contact arrangement	1A, 1C
Contact resistance <sup>1)</sup>	10mΩ max( 6VDC 20A)
Contact material	AgSnO <sub>2</sub>
Contact rating(Res. load)	32A 277VAC
Max. switching voltage	277VAC
Max. switching current	32A
Max. switching power	8864VA
Max.continuous current	32A 85°C 25A 105°C
Mechanical endurance	3 x 10 <sup>5</sup> OPS
Electrical endurance	1 x 10 <sup>4</sup> OPS (32A 250VAC, Resistive load, at 85°C, 1s on 9s off)

Notes: The data shown above are initial values.

## CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between open contacts	1000VAC 1min
	Between coil & contacts	4000VAC 1min(type1) 2500VAC 1min(type2)
Operate time (at nomi. volt.)		15ms max.
Release time (at nomi. volt.)		10ms max.
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient temperature		-40°C to 105°C
Termination		PCB
Unit weight		Approx.16g
Construction		Flux proofed

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

## COIL

Coil power	Approx.1.67W
Holding voltage	30%~80%U <sub>N</sub> (at 23°C) 40%~50%U <sub>N</sub> (at 85°C/105°C)

Notes: 1)The coil holding voltage is the voltage value after the rated voltage is applied to the coil for 200ms.  
2)To apply higher holding voltage than specified during long time is forbidden to prevent overheating.  
3)Apply 100% - 120% of the rated coil voltage for 200ms in order for the relay to operate correctly.

## COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC max. 1)	Drop-out Voltage VDC min. 1)	Max. Voltage VDC 2)	Coil Resistance Ω
12	9.6	0.6	13.2	86x (1±10%)
24	19.2	1.2	26.4	345 x (1±10%)
48	38.4	2.4	52.8	1380 x (1±10%)

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

## SAFETY APPROVAL RATINGS

UL/CUL <sup>3)</sup>	NO:32A 277VAC 85°C NO:35A 277VAC 70°C NO:25A 277VAC 105°C NC:Making8A,Carrying 32A, Breaking 8A,277VAC 85°C
	NO:32A 277VAC 85°C NO:35A 277VAC 70°C NO:25A 277VAC 105°C NC:Making8A,Carrying 32A, Breaking 8A,277VAC 85°C
TÜV	NO:32A 277VAC 85°C NO:35A 277VAC 70°C NO:25A 277VAC 105°C NC:Making8A,Carrying 32A, Breaking 8A,277VAC 85°C

Notes: 1) All values unspecified are at room temperature.  
2) Only typical loads are listed above. Other load specifications can be available upon request.  
3) Suitable for overvoltage category III, and shall provide protection for a rated impulse withstand voltage peak of 4 kv.



HONGFA RELAY

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

2025 Rev. 1.00

## ORDERING INFORMATION

Type	HF178F/	12	-H	1	T	F	(XXX)
Coil voltage	12, 24, 48VDC						
Contact arrangement	H:1 Form A Z:1 Form C						
Construction	1:Type 1 PCB layout 2:Type 2 PCB layout						
Contact material	T: AgSnO <sub>2</sub>						
Insulation standard	F: Class F						
Special code <sup>(1)</sup>	XXX: Customer special requirement Nil: Standard						

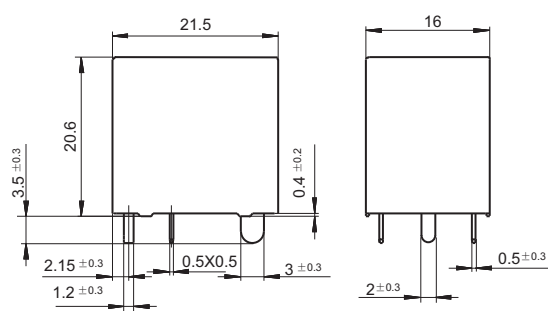
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

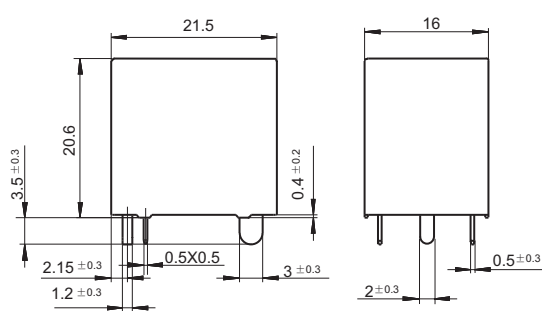
Unit: mm

### Outline Dimensions

Type 1 PCB layout

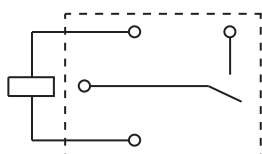


Type 2 PCB layout

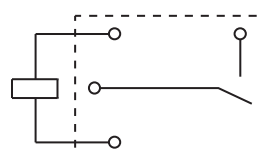


### Wiring Diagram (Bottom view)

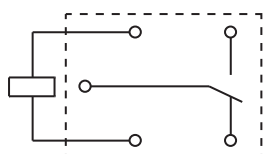
Type 1 PCB layout-1 Form A



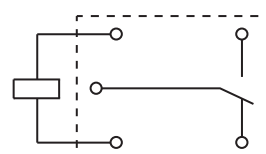
Type 2 PCB layout-1 Form A



Type 1 PCB layout-1 Form C

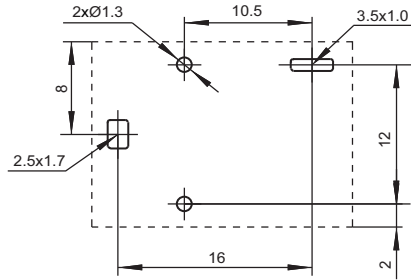


Type 2 PCB layout-1 Form C

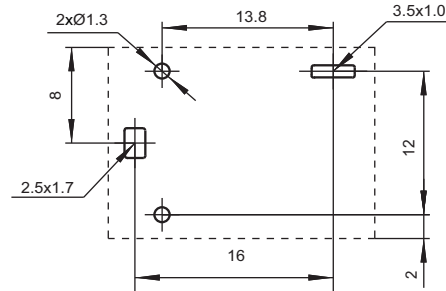


## PCB Layout (Bottom view)

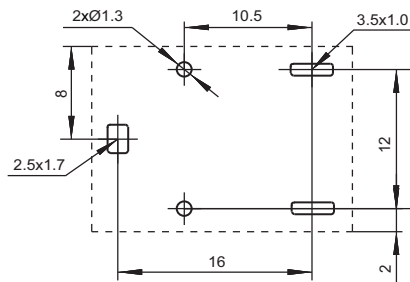
Type 1 PCB layout-1 Form A



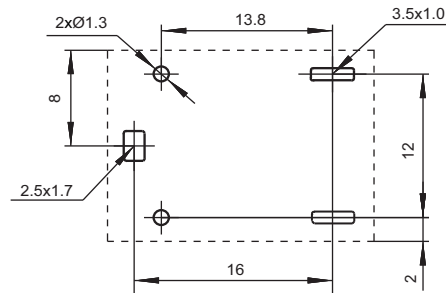
Type 2 PCB layout-1 Form A



Type 1 PCB layout-1 Form C



Type 2 PCB layout-1 Form C



- Notes:** 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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