

# HFA2

# SAFETY RELAY (RELAY WITH FORCIBLY GUIDED CONTACTS)



File No.:E134517



File No.:B120753286005



## Features

- Multi contact arrangements: 2 Form C (2Z type), 1NO+1NC (HD1 type), 1NO+1NC (HD2 type)
- Forcibly guided contacts according to EN50205
- 8A switching capability
- High insulation capability (1.2 / 50μs):10kV surge voltage between coil & contacts and 6kV between contact sets
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (29 x12.6 x25.5) mm

## CONTACT DATA

Contact arrangement	2 Form C (2Z type) 1NO+1NC (HD1 type) 1NO+1NC (HD2 type)
Forcibly guided contacts Type (according to EN50205)	HD1, HD2 type: Type A 2Z type: Type B
Contact resistance	100mΩ max. (at 1A 6VDC)
Contact material	AgSnO <sub>2</sub>
Contact rating (Res. load)	6A 250VAC / 30VDC
Max. switching voltage	400VAC / 30VDC
Max. switching current	8A
Max. switching power	1500VA / 180W
Mechanical endurance	1 x 10 <sup>7</sup> OPS
Electrical endurance <sup>1)</sup>	1 x 10 <sup>5</sup> OPS (1NO: 6A 250VAC/30VDC, Resistive load, at 70°C, 1s on 9s off) 5 x 10 <sup>4</sup> OPS (1NC: 6A 250VAC/30VDC, Resistive load, at 70°C, 1s on 9s off)

Notes: 1) Only 1 NO or NC is loaded in the test.

## COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC Max.	Drop-out Voltage VDC Min.	Max. Voltage VDC <sup>1)</sup>	Coil resistance Ω
5	3.80	0.5	7.5	35.7 x (1±10%)
6	4.50	0.6	9.0	51 x (1±10%)
9	6.80	0.9	13.5	116 x (1±10%)
12	9.00	1.2	18	206 x (1±10%)
15	11.3	1.5	22.5	321 x (1±10%)
18	13.5	1.8	27	483 x (1±10%)
21	15.8	2.1	31.5	630 x (1±10%)
24	18.0	2.4	36	823 x (1±10%)
36	27.0	3.6	54	1851 x (1±10%)
40	30.0	4.0	60	2286 x (1±10%)
48 <sup>2)</sup>	36.0	4.8	72	3291 x (1±15%)
60 <sup>2)</sup>	45.0	6.0	90	5142 x (1±15%)
80 <sup>2)</sup>	64.0	8.0	120	9143 x (1±15%)
110 <sup>2)</sup>	82.5	11.0	165	17285 x (1±15%)

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

2) For products with rated voltage ≥ 48V, measures should be taken to prevent coil overvoltage in order to protect coil in test and application (eg. Connect diodes in parallel).

## CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	4000VAC 1 min
	Between open contacts	1500VAC 1 min
	Between contact sets	3000VAC 1 min
Surge voltage	Between coil & contacts	10kV (1.2 / 50μs)
	Between open contacts	2.5kV (1.2 / 50μs)
	Between contact sets	6.0kV (1.2 / 50μs)
Operate time (at rated voltage)	15ms max.	
Release time (at rated voltage)	10ms max.	
Vibration resistance	NO:10Hz to 55Hz 1.6mm DA 55Hz to 200Hz, 98m/s <sup>2</sup>	
	NC:10Hz to 55Hz 0.4mm DA	
Shock resistance	Functional	NO:98m/s <sup>2</sup> NC: 49m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Creepage distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Clearance distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 70°C	
Termination	PCB	
Unit weight	Approx. 20g	
Construction	Plastic sealed	

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

2) UL insulation system: Class F, Class B.

## COIL

Coil power	Approx. 700mW
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## SAFETY APPROVAL RATINGS

UL/CUL	6A 250VAC / 277VAC / 30VDC at 70°C NO: Pilot duty A300, at 70°C NC: Pilot duty B300, at 70°C
	NO: 8A 250VAC at 85°C NC: 6A 250VAC at 85°C
TÜV	NO: 3A 240VAC(AC-15) at 55°C NC: 1.5A 240VAC(AC-15) at 55°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.



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2015 Rev. 1.00

## ORDERING INFORMATION

Type	HFA2 /		12	-2Z	S	T	F	G	(XXX)
Coil voltage	5, 6, 9, 12, 15, 18, 21, 24, 36, 40, 48, 60, 80, 110VDC								
Contact arrangement	2Z: 2 Form C HD1: 1NO+1NC (Type 1) HD2: 1NO+1NC (Type 2)								
Construction <sup>1)</sup>	S: Plastic sealed								
Contact material	T: AgSnO <sub>2</sub>								
Insulation class	F: Class F			Nil: Class B					
Contact plating	G: Gold plated			Nil: No gold plated					
Special code <sup>3)</sup>	XXX: Customer special requirement			Nil: Standard					

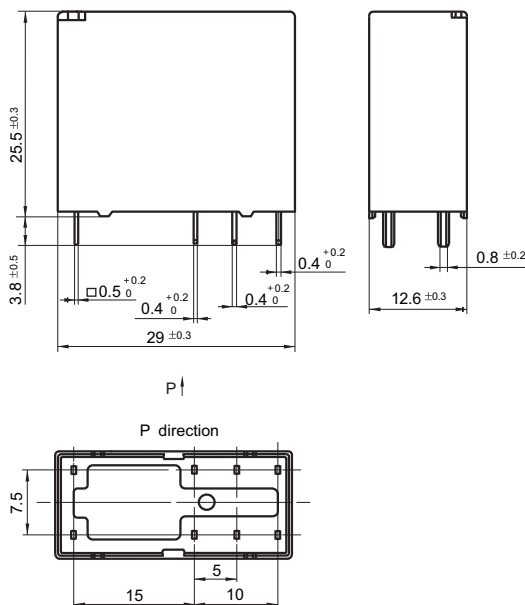
- Notes:** 1) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.  
 2) For gold plated type, the min. switching current and min. switching voltage is 10mA 5VDC. if customers have special requirement of load, please contact us for suggestion about suitable parts.  
 3) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

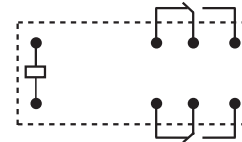
Unit: mm

HFA2/ □□ - 2Z □T□ (□□□)

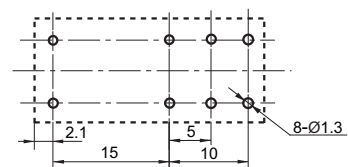
Outline Dimensions



Wiring Diagram



PCB Layout  
(Bottom view)

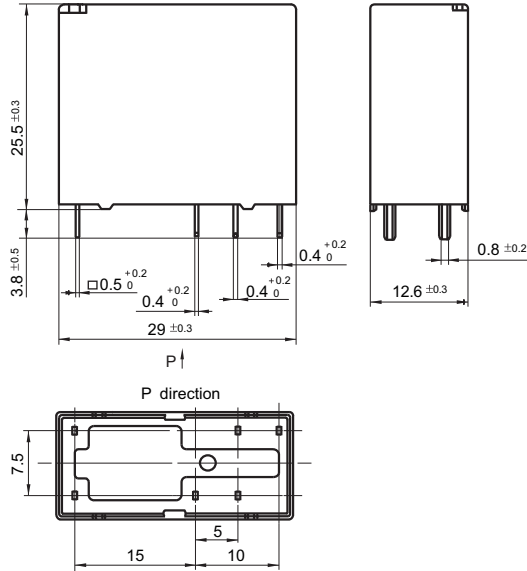


# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

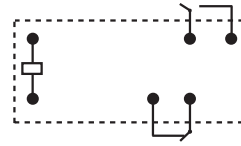
Unit: mm

HFA2/ □□ - HD1 □T □ (□□□)

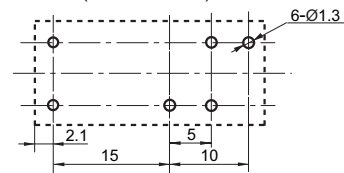
Outline Dimensions



Wiring Diagram

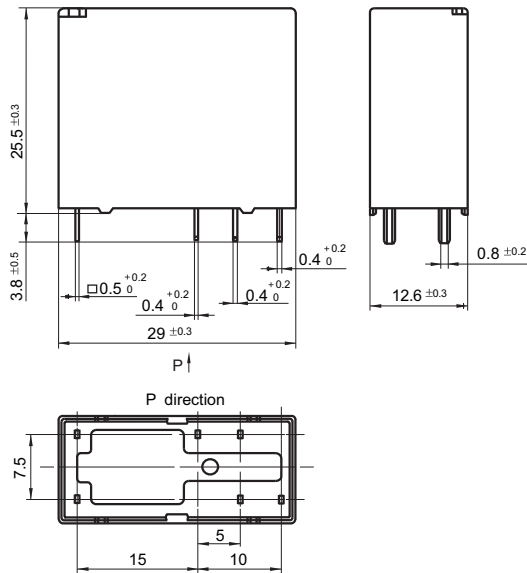


PCB Layout  
(Bottom view)

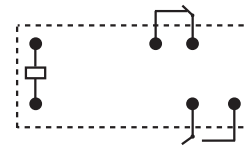


HFA2/ □□ - HD2 □T □ (□□□)

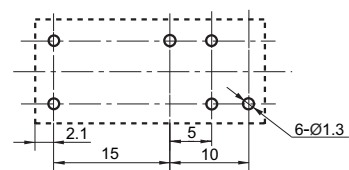
Outline Dimensions



Wiring Diagram



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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