




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
- 6A 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	6A
Max. switching power	1500VA / 180W
Typical application load	AC-15 (according to IEC60947-5-1) NO: 3A 250VAC (inrush current 30A) NC: 1.5A 250VAC (inrush current 15A)
Mechanical endurance	1 x 10 <sup>7</sup> OPS
Electrical endurance <sup>1)</sup>	NO:1 x 10 <sup>5</sup> OPS NC:1 x 10 <sup>4</sup> OPS

Notes: 1) Applicable for rated load only on 1NO or 1NC.

COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC Max.	Drop-out Voltage VDC Min.	Max. Allowable Voltage VDC	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	36.0	4.8	72	3291 x (1±15%)
60	45.0	6.0	90	5142 x (1±15%)
80	64.0	8.0	120	9143 x (1±15%)
110	82.5	11.0	165	17285 x (1±15%)

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) 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
TÜV	NO: 8A 250VAC at 85°C NC: 6A 250VAC at 85°C NO: 3A 240VAC(AC-15) at 55°C NC: 1.5A 240VAC(AC-15) at 55°C

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: Glod plated		Nil: No gold plated					
Customer special code								

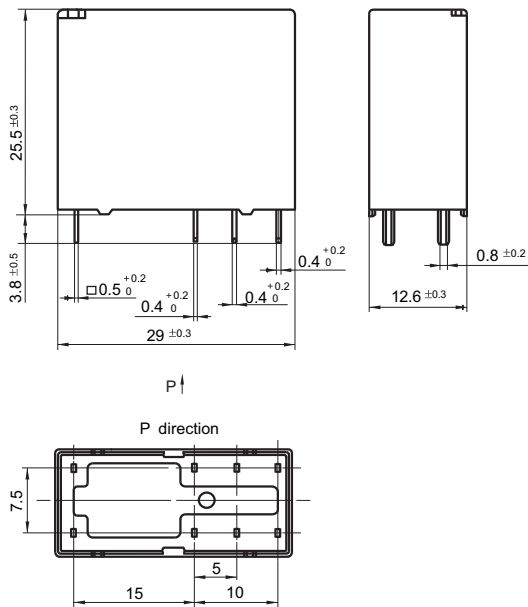
Notes: 1) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

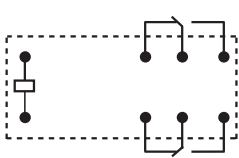
Unit: mm

HFA2/ □□ - 2Z □T □ (□□□)

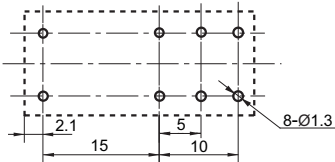
Outline Dimensions



Wiring Diagram



PCB Layout  
(Bottom view)

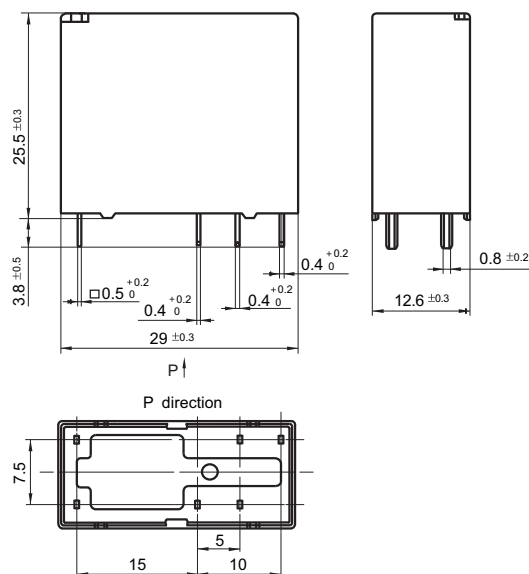


## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

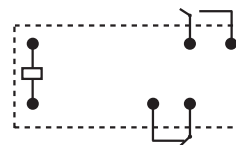
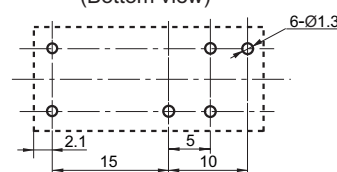
Unit: mm

HFA2/ □□ - HD1 □T □ (□□□)

Outline Dimensions

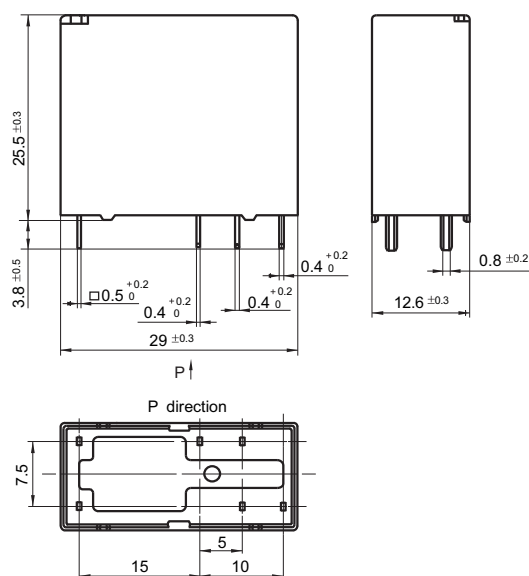


Wiring Diagram

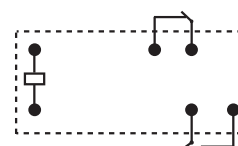
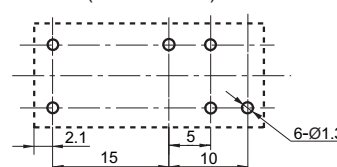
PCB Layout  
(Bottom view)

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

This datasheet is for the customers' reference. All the specifications are 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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