

HFA6A

SAFETY RELAY (RELAY WITH FORCIBLY GUIDED CONTACTS)



File No.:E133481



File No.:R50437848



File No.:CQC19002217420



Features

- Forcibly guided contacts according to IEC61810-3 (EN50205)
- 8A switching capability
- 4kV dielectric strength(between coil and contacts)
- UL insulation system: Class F available
- Dimensions(LxWxH): 55.0mm x16.5mm x15.7mm

RoHS compliant

CONTACT DATA

Contact arrangement	3NO+3NC. 4NO+2NC. 5NO+1NC
Forcibly guided contacts Type (according to EN50205)	Type A
Contact resistance ¹⁾	≤2Ω (at 6VDC 10mA), ≤100mΩ (at 6V 1A)
Contact material	AgSnO ₂ + Au plated
Contact rating (Res. load)	8A 250VAC/30VDC
Max. switching voltage	400VAC /220VDC(at 0.2A Res.Load)
Max. switching current	8A
Max. switching capacity	2000VA /240W
Min.contact load ²⁾	5VDC 10mA
Contact rating DC-13	2NO:6A 24VDC(1sON:9sOFF)
Contact rating AC-15	2NO:5A 250VAC(1sON:9sOFF)
Mechanical endurance	1 x 10 ⁷ OPS
Electrical endurance ³⁾	≥5 x 10 ⁴ OPS (1NO: 8A 250VAC, Resistive load, 85°C, 1s on 9s off)

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

2) Min. contact load is just a reference value in normal temperature, normal humidity, normal pressure environment and with relay pin up, which will vary depending on the power-on and off frequency, environmental conditions, expected lifespan, and installation direction. Thus, please have confirmation tests with actual load before use. And it is recommended to avoid using the relay when the temperature is below 0°C.

3) No loading test, no mechanical damage after the test.

CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	4000VAC 1 min
	Between contacts sets	3000VAC 1min
	Between open contacts	1500VAC 1 min
Surge voltage (Between coil & contacts)	6kV (1.2 / 50μs)	
Operate time (at rated voltage)	20ms max.	
Release time (at rated voltage)	20ms max.	
Temperature rise (at rated voltage)	70K max. (2NO Contact load current 8A, rated voltage excitation, at 85°C)	
Shock resistance	Functional	10g(NO)
	Destructive	980m/s ²
Vibration resistance	10Hz to 200Hz 10g(NO)	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 85°C	
Termination	PCB	
Unit weight	Approx. 25g	
Construction	Plastic sealed	

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

COIL DATA

at 23°C

Standard:

Nominal Voltage VDC	Pick-up Voltage VDC Max. ¹⁾	Drop-out Voltage VDC Min. ¹⁾	Max. Voltage VDC ²⁾	Coil resistance Ω
5	3.75	0.5	6	20.8 x (1±10%)
6	4.50	0.6	7.2	30 x (1±10%)
9	6.75	0.9	10.8	67.5 x (1±10%)
12	9.00	1.2	14.4	120 x (1±10%)
15	11.3	1.5	18	188 x (1±10%)
18	13.5	1.8	21.6	270 x (1±10%)
21	15.8	2.1	25.2	368 x (1±10%)
24	18.0	2.4	28.8	480 x (1±10%)
36	27.0	3.6	43.2	1080x (1±10%)
40	30.0	4.0	48	1333 x (1±10%)
48	36.0	4.8	57.6	1920x (1±10%)
50	37.5	5.0	60	2083 x (1±15%)
60	45.0	6.0	72	3000 x (1±15%)
110	82.5	11.0	132	10083x (1±15%)

Sensitive:

Nominal Voltage VDC	Pick-up Voltage VDC Max. ¹⁾	Drop-out Voltage VDC Min. ¹⁾	Max. Voltage VDC ²⁾	Coil resistance Ω
5	3.80	0.5	6	31.2x (1±10%)
6	4.50	0.6	7.2	45 x (1±10%)
9	6.75	0.9	10.8	101.3 x (1±10%)
12	9.00	1.2	14.4	180 x (1±10%)
15	11.3	1.5	18	281 x (1±10%)
18	13.5	1.8	21.6	405 x (1±10%)
21	15.8	2.1	25.2	550 x (1±10%)
24	18.0	2.4	28.8	720 x (1±10%)
36	27.0	3.6	43.2	1620x (1±10%)
40	30.0	4.0	48	2000 x (1±10%)
48	36.0	4.8	57.6	2880 x (1±10%)
50	37.5	5.0	60	3125 x (1±15%)
60	45.0	6.0	72	4500 x (1±15%)
110	82.5	11.0	132	15125x (1±15%)

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.



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

2023 Rev. 1.01

COIL

Coil power	Approx. 1200mW(Standard) Approx. 800mW(Sensitive)
Holding Voltage ¹⁾	50% to 100%U _N (at 23°C) 60% to 100%U _N (at 85°C)

Notes: 1) The coil holding voltage is the voltage applied to coil 100ms after the rated voltage.

SAFETY APPROVAL RATINGS

UL/CUL	8A 250VAC COS(phi)=1 at 85°C 8A 30VDC L/R=0 at 85°C NO:B300 R300 at 85°C NC:C300 R300 at 85°C
TÜV	8A 250VAC COS(phi)=1 at 85°C 8A 30VDC L/R=0 at 85°C 5A 250VAC(AC-15)at 40°C 6A 24VDC(DC-13)at 40°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.

ORDERING INFORMATION

Type	HFA6A / 18- 4H2D S 1 L T F G (XXX)		
Coil voltage	5,6,9,12,15,18,21,24,36, 48,50,60,110VDC		
Contact arrangement	3H3D: 3NO+3NC 4H2D: 4NO+2NC 5H1D: 5NO+1NC		
Construction	S:Plastic sealed		
Version	1:Standard 2:Type V version(only for 4H2D)		
Coil power	L: Sensitive(0.8W) Nil: Standard(1.2W)		
Contact material	T: AgSnO ₂		
Insulation standard	F: Class F		
Contact plating	G:Au plated		
Special code ³⁾	XXX: Customer special requirement		Nil: Standard

Notes: 1) Flux-proofed relays can not be used in the environment with pollutants like H₂S, SO₂, NO₂, dust, etc.

2) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB

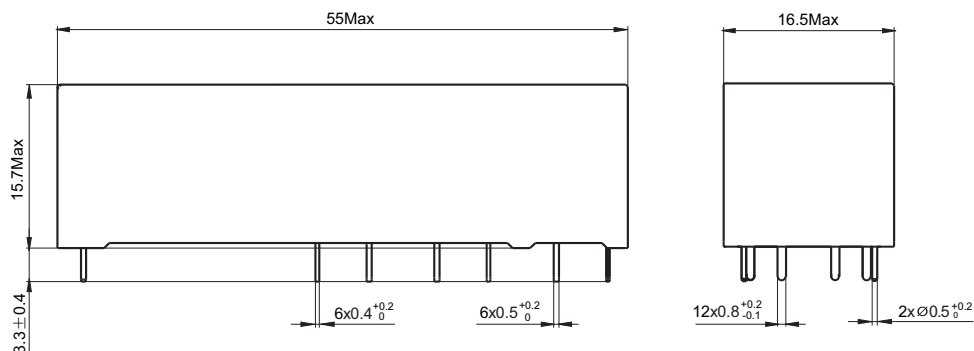
3) The customer special requirement express as special code after evaluating by hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

HFA6A/□□-3H3D□□1□□(□□)

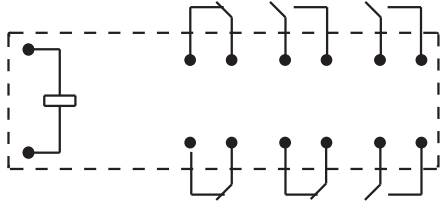
Outline Dimensions



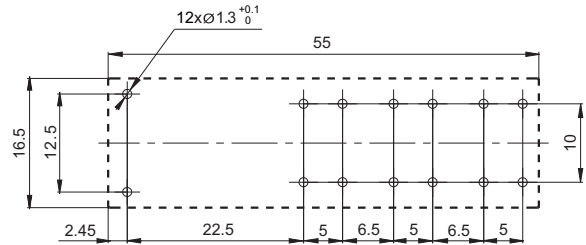
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Wiring Diagram
(Bottom view)

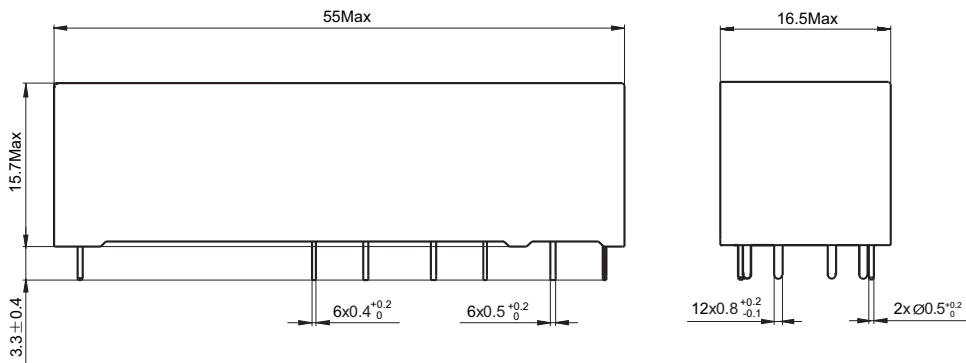


PCB Layout
(Bottom view)

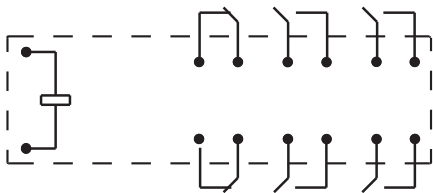


HFA6A□□-4H2D□□1□□(□□)

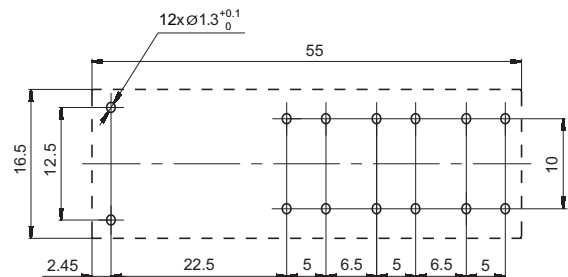
Outline Dimensions



Wiring Diagram
(Bottom view)



PCB Layout
(Bottom view)

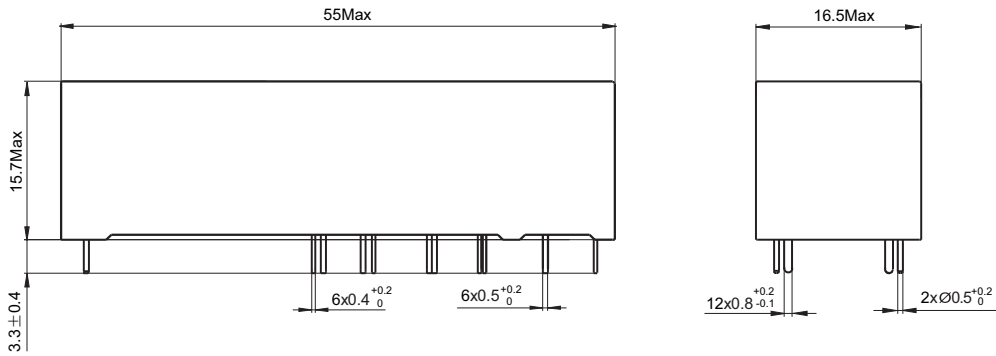


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

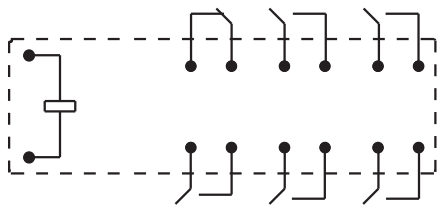
Unit: mm

HFA6A/□□-5H1D□□1□□(□□)

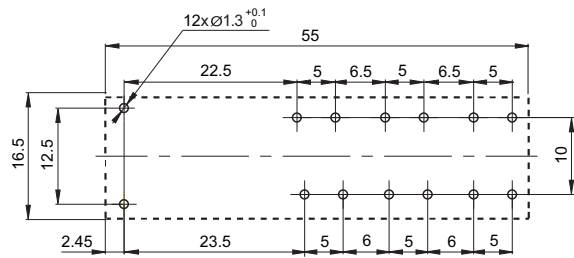
Outline Dimensions



Wiring Diagram (Bottom view)

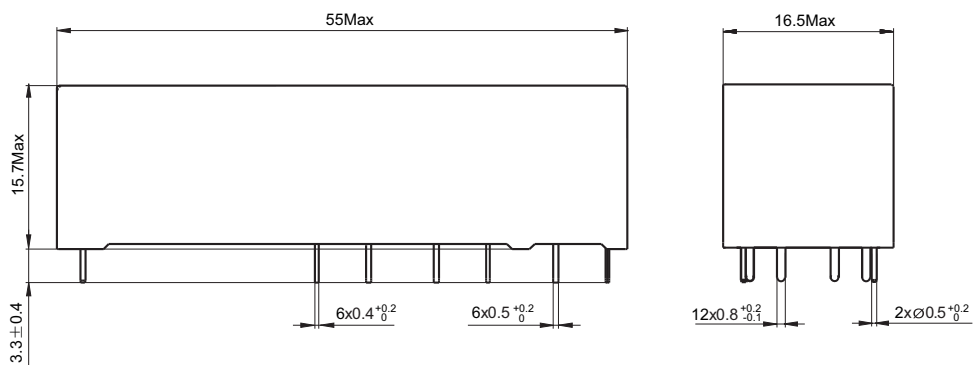


PCB Layout (Bottom view)



HFA6A/□□-4H2D□□2□□(□□)

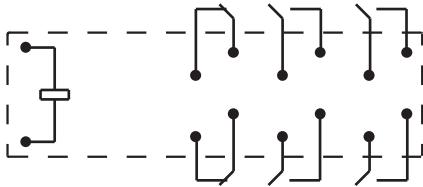
Outline Dimensions



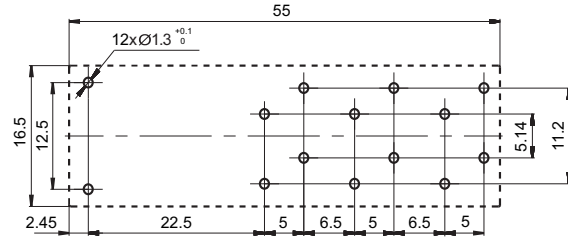
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Wiring Diagram
(Bottom view)



PCB Layout
(Bottom view)

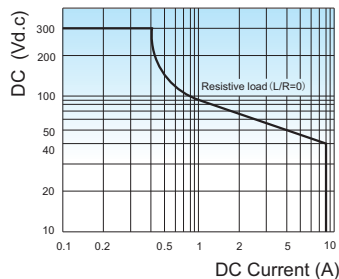


Remark:1) The pin dimension of the product outline drawing is the size before tinning (it will become larger after tinning), and the mounting hole size is the recommended design size of the PCB board hole. The specific PCB board hole design size can be mapped and adjusted according to the actual product.

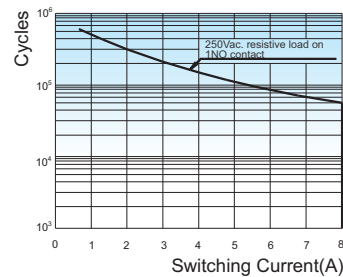
- 2) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.
- 3) The tolerance without indicating for PCB layout is always $\pm 0.1\text{mm}$.

CHARACTERISTIC CURVES

MAX.DC LOAD BREAKING CAPACITY

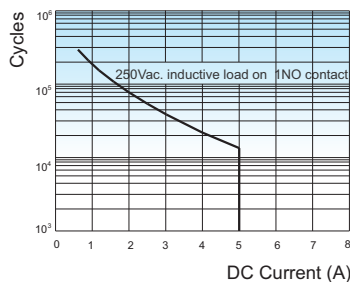


ELECTRICAL ENDURANCE

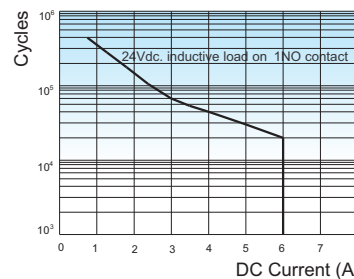


Test conditions:
250Va.c., 85°C, 1s on 9s off

AC-15 ELECTRICAL ENDURANCE



DC-13 ELECTRICAL ENDURANCE



Note:

- 1) AC-15 electrical endurance test load according to Table B.3 of IEC 61810-1.
- 2) The test condition: 250Va.c., 85°C, 1s on 9s off.

Note:

- 1) DC-13 electrical endurance test load according to Table B.3 of IEC 61810-1.
- 2) The test condition: 24Vd.c., 85°C, 1s on 9s off.

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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