

# HFA4B

# Forcibly Guided RELAY

c  US

File No.:E133481



File No.:R50507878



File No.:CQC21002290220



## Features

- Forcibly guided contacts according to IEC 61810-3 (EN50205)
- 8A switching capability
- Mechanical life:  $1 \times 10^7$  cycles
- 4kV dielectric strength (Contact - Coil; Contact - Contact)
- UL insulation system: Class F available
- Outline dimensions: (41.7×25×10.2) mm

RoHS compliant

## CONTACT DATA

Contact arrangement	2NO+2NC ,3NO+1NC
Forcibly guided contacts Type (according to EN50205)	Type A
Contact resistance <sup>1)</sup>	100mΩ max.(at 6VDC 100mA)
Contact material	AgSnO <sub>2</sub> +Au plated
Contact rating (Res. load)	8A 250VAC/ 30VDC
Min.contact load <sup>2)</sup>	5V 10mA
Max.swtiching voltage	400VAC(at 3.5A Res. Load)
Max.switching current	8A
Max.switching capacity	2000VA / 240W
Contact rating DC-13	1NO:4A 24VDC (1s on 9s off)
Contact rating AC-15	1NO:3A 250VAC (1s on 9s off)
Mechanical endurance <sup>3)</sup>	$1 \times 10^7$ cycles
Electrical endurance	$5 \times 10^4$ ops(1NO:85°C,1s on 9s off, 8A 250VAC,Resistive load)

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(500VDC)
Dielectric strength	Between open contacts	1500VAC 1min
	Between contact sets	4000VAC 1min
	Between coil & contacts	4000VAC 1min
Surge voltage	Between contact sets	6kV(1.2/50μs)
	Between coil & contacts	6kV(1.2/50μs)
Operate time(at rated voltage)		20ms max.
Release time(at rated voltage)		10ms max.
Temperature rise (at rated voltage)		70K max. (All NO Contact load current 8A, rated voltage excitation,at 85℃)
Shock resistance	Functional	10g(NO)
	Destructive	980m/s <sup>2</sup>
Vibration resistance		10Hz to 200Hz 5g(NO)
Humidity		5% to 85%RH
Ambient temperature		-40℃ to 85℃
Termination		PCB
Unit weight		Approx. 15.5g
Construction		Plastic sealed

Notes: The data shown above are initial values.

## COIL

Coil power	Approx. 0.65W
Holding Voltage <sup>1)</sup>	50% to 100%U <sub>N</sub> (at 23°C) 60% to 100%U <sub>N</sub> (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 250/277VAC cos(φ)=1 85°C 8A 30VDC L/R=0 85°C NO: B300 Q300 85°C NC: Q300 85°C NO: 3.5A 400VAC cos(φ)=1 85°C
	8A 250/277VAC cos(φ)=1 85°C 8A 30VDC L/R=0 85°C NO: 3A 250VAC(AC-15) 85°C 4A 24VDC(DC-13) 85°C

Notes: Only typical loads are listed above. Other load specifications can be available upon request.



HONGFA RELAY

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

2024 Rev. 1.00

## COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC <sup>1)</sup>	Drop-out Voltage VDC <sup>1)</sup>	Max. Voltage VDC <sup>2)</sup>	Coil Resistance Ω
5	≤3.5	≥0.5	6.5	38 ×(1±10%)
6	≤4.2	≥0.6	7.8	55 ×(1±10%)
9	≤6.3	≥0.9	11.7	125 ×(1±10%)
12	≤8.4	≥1.2	15.6	220 ×(1±10%)
15	≤10.5	≥1.5	19.5	350 ×(1±10%)
18	≤12.6	≥1.8	23.4	500 ×(1±10%)
21	≤14.7	≥2.1	27.3	680 ×(1±10%)
24	≤16.8	≥2.4	31.2	900 ×(1±10%)
36	≤25.2	≥3.6	46.8	2000 ×(1±10%)
48 <sup>3)</sup>	≤33.6	≥4.8	62.4	3600 ×(1±10%)
60 <sup>3)</sup>	≤42	≥6	78	5600 ×(1±10%)
110 <sup>3)</sup>	≤77	≥11	143	18500 ×(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.

3) 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).

## ORDERING INFORMATION

Type	HFA4B/	12	-2H2D	S	T	F	G	(XXX)
Coil voltage	5,6,9,12,15,18,21, 24,36,48,60,110 VDC							
Contact arrangement	2H2D: 2NO+1NC 3H1D: 3NO+1NC							
Construction	S: Plastic sealed							
Contact material	T: AgSnO <sub>2</sub>							
Insulation class	F: Class F							
Contact plating	G: Au plated							
Special code	XXX: Customer special requiremen; Nil: Standard							

Notes: 1) Contact is recommended for suitable condition and specifications if water cleaning or surface precess is involved in assembling relays on PCB.

2) The customer special requirement express as special code after evaluating by Hongfa.

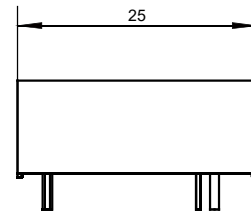
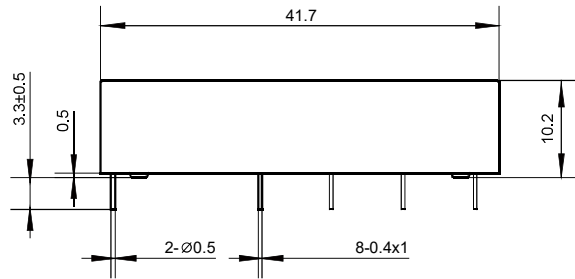
3) Please avoid using the relay in an environment containing organic silicon,otherwise the entry of organic silicon into the relay may acceleration contact failure.If there are harmful substances and elements such as water vapor,H<sub>2</sub>S,SO<sub>2</sub>,NO<sub>2</sub>,Cl,P,dust,etc. , as well as 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.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

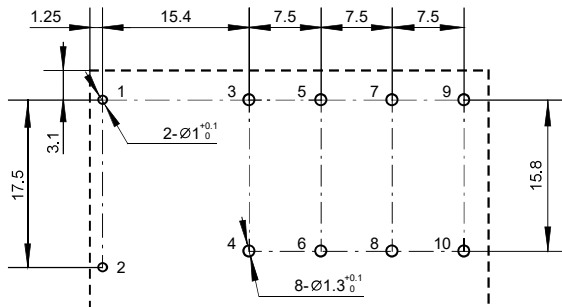
Unit: mm

HFA4B/□□-2H2DSTFG

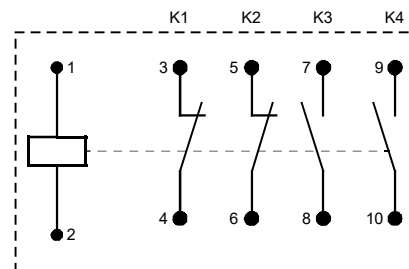
Outline Dimensions



PCB Layout  
(Bottom view)

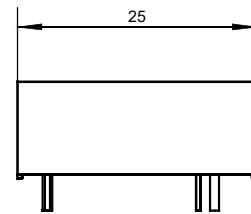
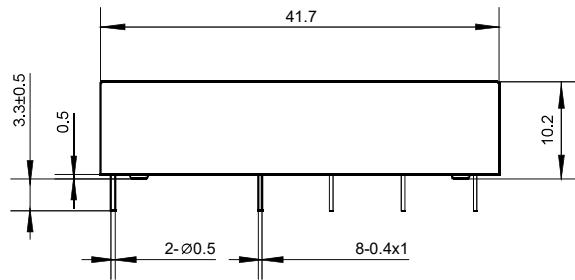


Wiring Diagram  
(Bottom view)

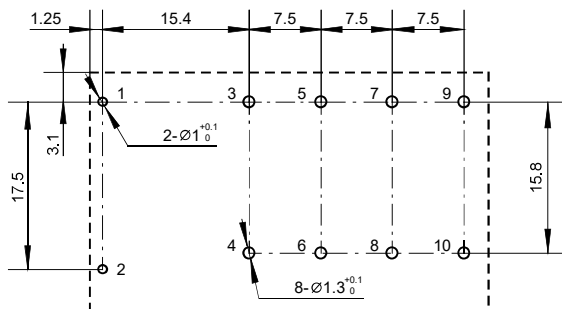


HFA4B/□□-3H1DSTFG

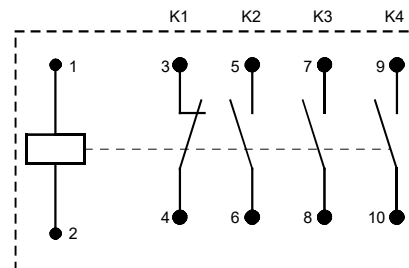
Outline Dimensions



PCB Layout  
(Bottom view)



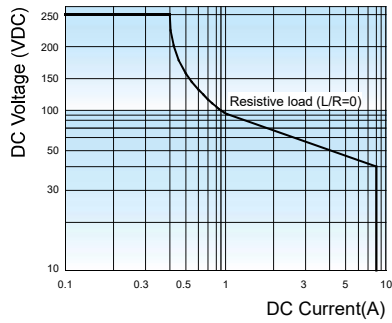
Wiring Diagram  
(Bottom view)



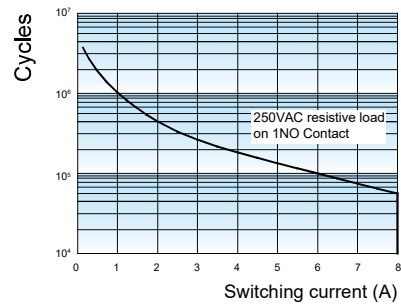
Notes: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm;  
2) The tolerance without indicating for PCB layout is always ±0.1mm.

## CHARACTERISTIC CURVES

Max.DC load breaking capacity

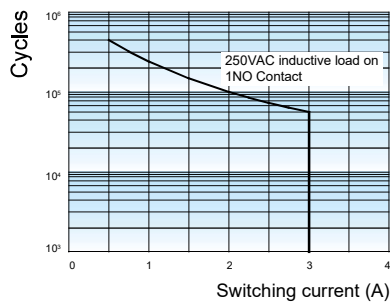


Electrical Endurance



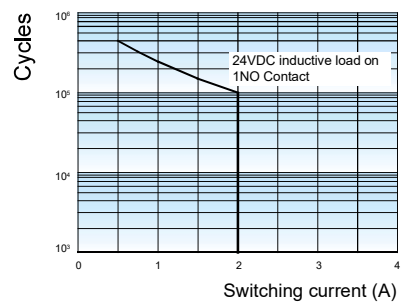
Test condition:  
250VAC, 85°C, 1s on 9s off.

AC-15 Electrical Endurance



Notes:  
1) The AC-15 electrical endurance test load according to IEC 60947-5-1.  
2) The test condition: 250VAC, 85°C, 1s on 9s off.

DC-13 Electrical Endurance



Notes:  
1) The DC-13 electrical endurance test load according to IEC 60947-5-1.  
2) The test condition: 24VDC, 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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