

# HFE52 CHANGE OVER HIGH POWER LATCHING RELAY



## Features

- Latching relay for phase change-over switch
- With micro switch detection function
- 120A switch capacity
- UC3 in IEC 62055-31 compliant.  
Short circuit current withstand capacity of 6000A for 100ms(breaking 2 times voltage)
- Switching within 10ms

**RoHS compliant**

## CONTACT DATA

Contact arrangement	1A1B
Contact resistance <sup>1)</sup>	Typical value: <sup>2)</sup> ≤0.35mΩ(100A)
Contact material	AgSnO <sub>2</sub>
Contact rating (Res. load)	120A 220VAC
Max. switching voltage	380VAC
Max. switching current	120A
Max. switching power	26400W
Mechanical endurance	1 x 10 <sup>5</sup> ops
Electrical endurance	2 x 10 <sup>4</sup> ops(120A 220VAC)

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

2) Typical value: Sampling quantity for contact resistance shall not less than 20 pcs, take the average value from 5 continuous measurements for each sample.

## CHARACTERISTICS

Insulation resistance		1000MΩ(500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	2500VAC 1min
Creepage distance		>10mm
Operate time(at 2.5 times nomi. volt.)		Approx.5.5ms
Release time(at 2.5 times nomi. volt.)		Approx.4.5ms
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance		10Hz ~ 55Hz 1.5mm DA
Humidity		5% ~ 85% RH
Ambient temperature		-40°C ~ 85°C
Termination	Coil terminal	PCB、QC
	Load terminal	QC
Unit weight		Approx.70g
Construction		Plastic sealed

**Notes:** The data shown above are initial values.

## COIL

Rated power	Single coil latching: Approx.5W Double coils latching: Approx.10W
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## COIL DATA

23°C

### Single coil latching

Nominal Voltage VDC	Set / Reset Voltage <sup>1)2)</sup> VDC	Pulse Duration ms	Coil Resistance x (1±10%) Ω
5	≤4.0	≥100	5
6	≤4.8	≥100	7.2
9	≤7.2	≥100	16.2
12	≤9.6	≥100	28.8
24	≤19.2	≥100	115.2
48	≤38.4	≥100	460.8

### Double coils latching

Nominal Voltage VDC	Set / Reset Voltage <sup>1)2)</sup> VDC	Pulse Duration ms	Coil Resistance x (1±10%) Ω
5	≤4.0	≥100	2.5+2.5
6	≤4.8	≥100	3.6+3.6
9	≤7.2	≥100	8.1+8.1
12	≤9.6	≥100	14.4+14.4
24	≤19.2	≥100	57.6+57.6
48	≤38.4	≥100	230.4+230.4

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

2) The above set voltage, reset voltage are the test value for relay without load. Please use 1~1.5 times of rated voltage to drive the relay for your application.



HONGFA RELAY

ISO9001、IATF16949、ISO14001、OHSAS18001、IECQ QC 080000 CERTIFIED

2021 Rev.1.00

## ORDERING INFORMATION

	HFE52	/12	-1HD	T	-L1	-R	(XXX)
Type							
Coil voltage	5,6,9,12,24,48 VDC						
Contact arrangement	1HD:1 Form A + 1 Form B						
Contact material	T: AgSnO <sub>2</sub>						
Coil type	L1: Single coil latching			L2: Double coils latching			
Polarity	R: Reverse polarity			Nil: Standard polarity			
Special code <sup>1)2)</sup>	XXX: Customer special requirement (729):Double micro switches						

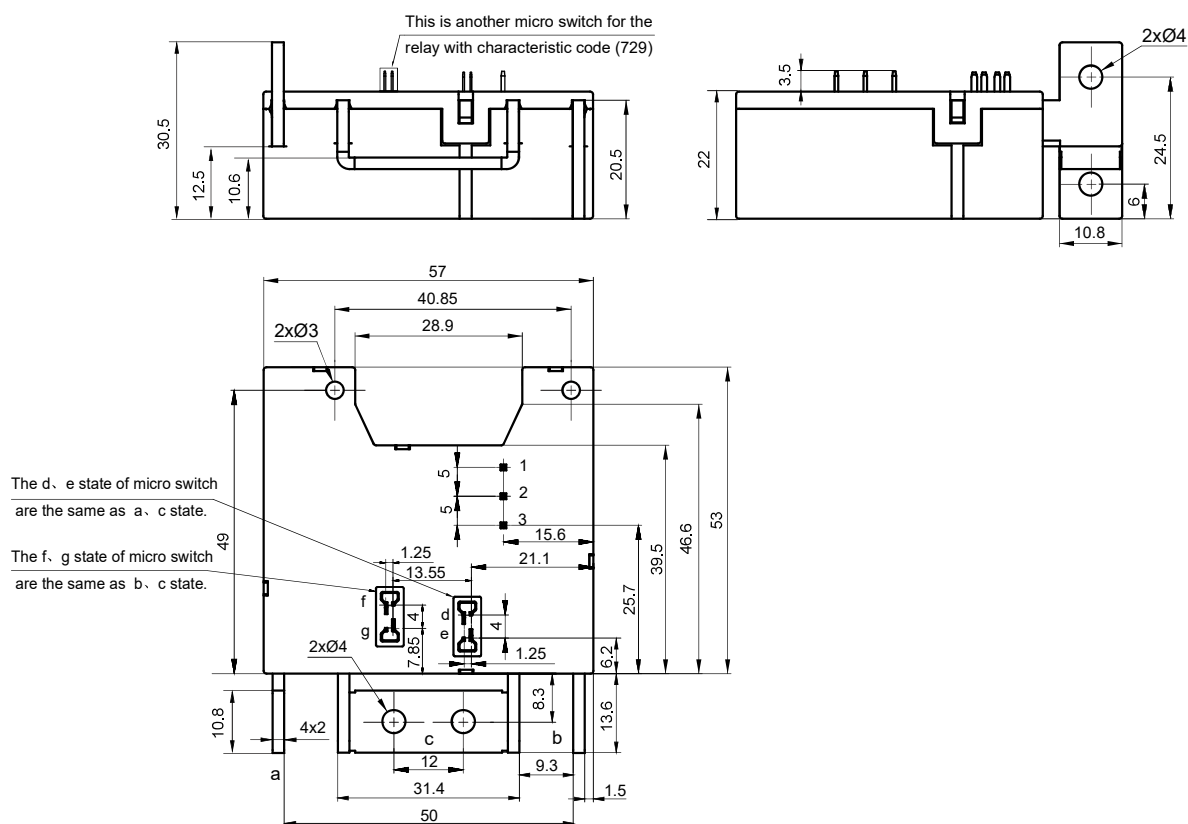
Note: 1) Please contact us if micro switch is needed.

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

## OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

### Outline Dimensions

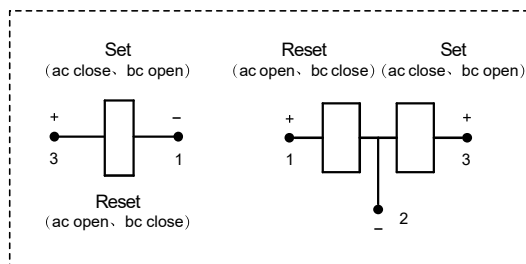


**Remark:** 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should be  $\pm 0.4\text{mm}$ .

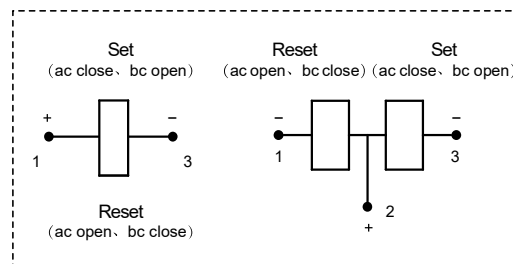
## OUTLINE DIMENSIONS AND WIRING DIAGRAM

### Wiring Diagram

Standard polarity

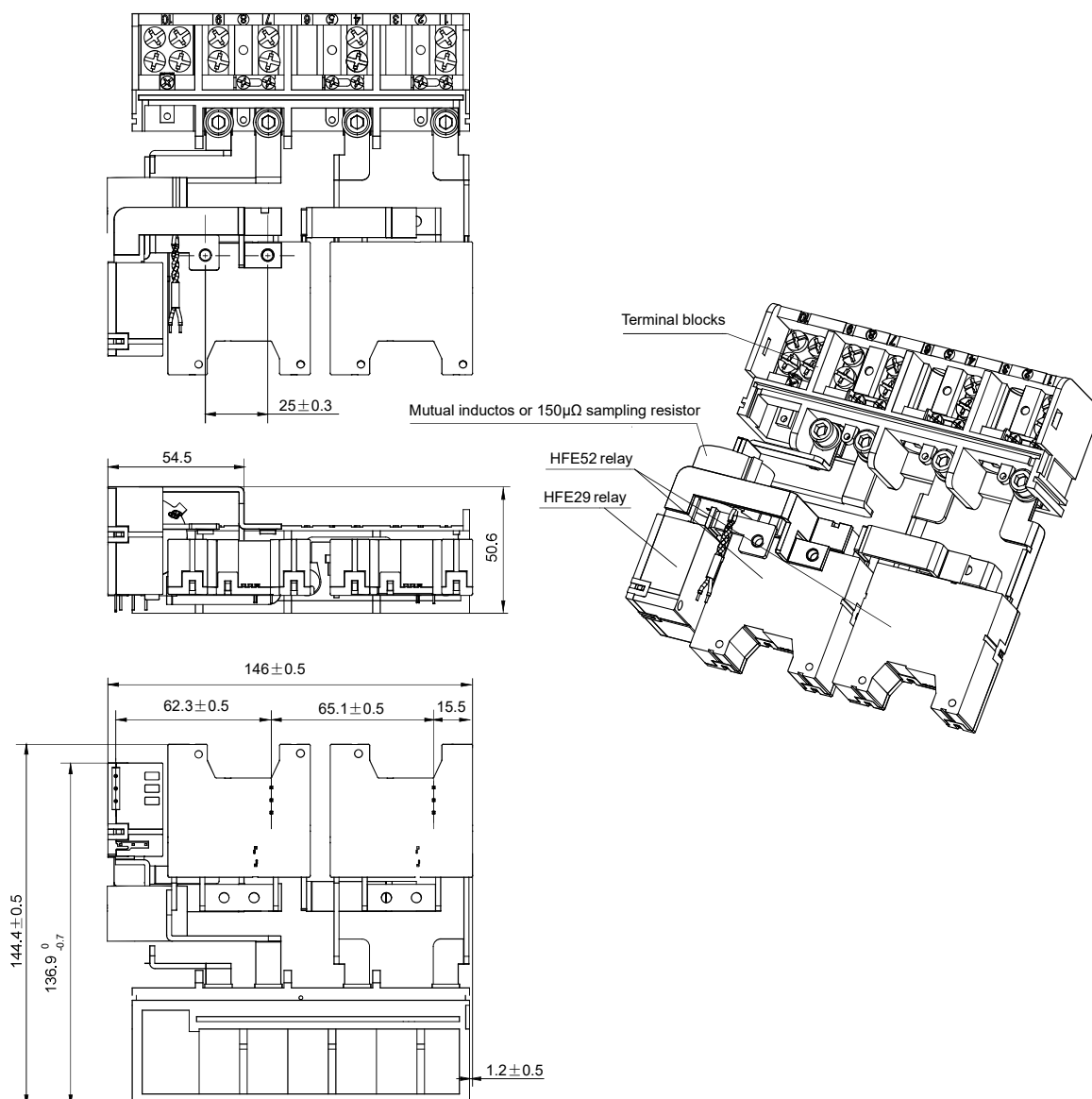


Reverse polarity



### Typical Design

Typical Design for phase change-over switch (HFE29+HFE52+HFE52)

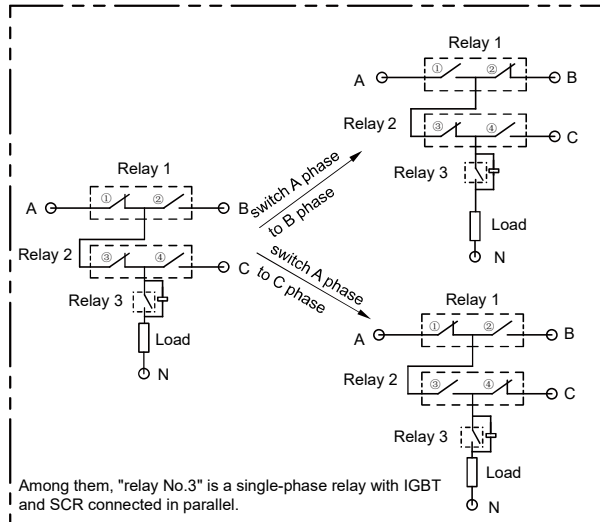


# TYPICAL DESIGN

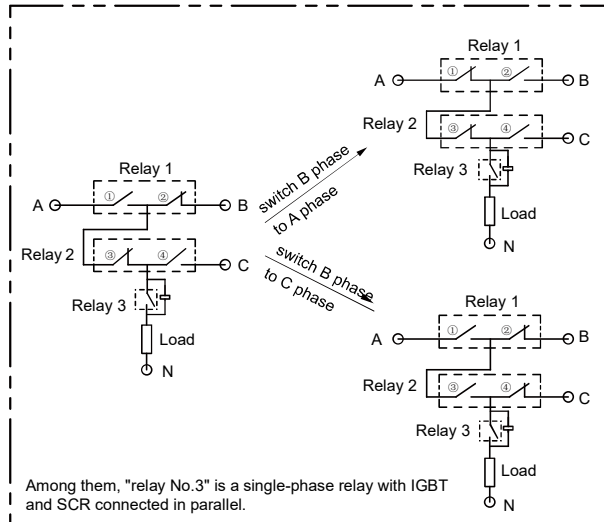
## Typical Design

Typical wiring diagram of phase change-over switch  
(HFE29+HFE52+HFE52)

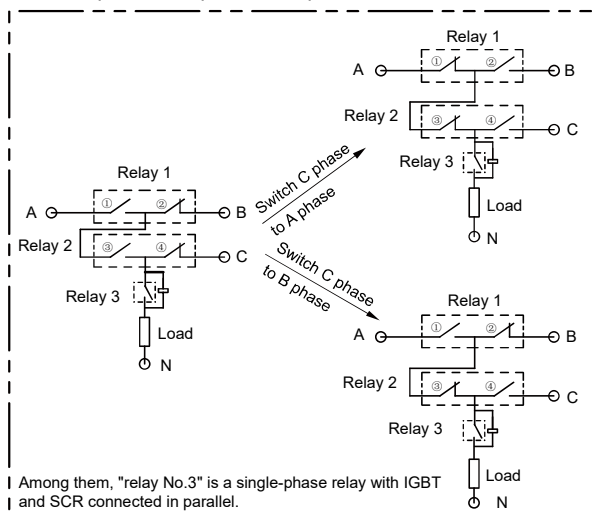
Switch A phase to B phase or C phase



Switch B phase to A phase or C phase



Switch C phase to A phase or B phase



### Description of phase-change process::

#### 1. Load disconnection:

Close SCR first → Make "relay No.3" open → Disconnect SCR → Judge whether the load current is cut off through the current transformer at the load end. Because SCR is connected in parallel, so that the relay can be switched randomly without considering whether it crosses zero during operation.

#### 2.Phase-change:

Complete phase switching through the operation and reset of "relay No.1" and "relay No.2" (whether the phase-change is completed can be identified by microswitch), as shown in the figure.

#### 3.Load connection:

Close SCR first → Operate "relay No.3" to connect the load (whether it is closed can be identified by microswitch) → Disconnect SCR; Phase switching is completed after the above processes finished.

Because relay No.3 is connected in parallel with SCR, and SCR is closed first and then disconnected, so the operation time of relay No. 3 can be neglected, and the overall phase-change time only refers to the operation time of single relay No.1 or relay No. 2 (which can be driven at the same time).

#### Disclaimer

The specification is for reference only. 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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