HFE20 MINIATURE HIGH POWER LATCHING RELAY

c UL us
File No.:E134517

VDE
File No.: 40031831

Features

- 16A switching capability
- Latching relay
- Max.inrush current Capacitor 170A/2ms (Contact material: W+AgSnO2)
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (29.0 x 12.7 x 15.7)mm

CONTACT DATA

Contact arrangement	1A, 1B, 1C
Contact resistance	20mΩ max. (at 1A 24VDC)
Contact material	$AgSnO_2$, $W+AgSnO_2$
Contact rating	1A,1B: 16A 250VAC,1 x 10^5 OPS(Resistive) 20A 250VAC,2 x 10^4 OPS(Resistive) 1.5HP 250VAC 4 x 10^4 OPS(Motor) 8A 220VAC COSØ=0.4, 1x10^5OPS(Inductive) HFE20-1/X-1HD: 3300W 277VAC, 2 x 10^4 OPS (Electronic rectifier) 1C: 16A 250VAC,5 x 10^4 OPS(Resistive)
Max. switching voltage	250VAC
Max. switching current	20A
Max. switching power	4000VA
Mechanical endurance	1 x 10^6OPS
Electrical endurance	See "Contact rating"

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4400VAC 1min
	Between open contacts	1000VAC 1min
Creepage distance		8mm
Operate time (at nomi. volt.)		15ms max.
Release time (at nomi. volt.)		15msmax.
Shock resistance	Functional	98m/s^2
	Destructive	980m/s^2
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient temperature		PCB
Termination		-40˚C to 85˚C
Unit weight		Approx. 13g
Construction		Plastic sealed, Flux proofed

Notes: The data shown above are initial values.

COIL

Coil power	1 coil latching: Approx 400mW 2 coils latching: Approx 600mW

COIL DATA at 23˚C

Nominal Voltage VDC	Set / Reset Voltage VDC max.	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω	
3	2.4	50	1 coil latching	22.5
5	4.0	50		62.5
6	4.8	50		90
9	7.2	50		202.5
12	9.6	50		360
24	19.2	50		1440
3	2.4	50	2 coils latching	15+15
5	4.0	50		42+42
6	4.8	50		60+60
9	7.2	50		135+135
12	9.6	50		240+240
24	19.2	50		886+886

SAFETY APPROVAL RATINGS

UL/CUL	1H	20A 250VAC at 70˚C 16A 250VAC at 85˚C 1.5HP 250VAC at 40˚C
	1Z	NO:20A 250VAC at 70˚C 16A 250VAC at 85˚C NC:16A 250VAC at 85˚C
VDE	1H	20A 250VAC(COSØ=1) at 70˚C 16A 250VAC(COSØ=1) at 85˚C 8A 250VAC (COSØ=0.4) at 85˚C
	1Z	16A 250VAC(COSØ=1) at 85˚C

Notes: Only some typical ratings are listed above. If more details are required, please contact us.

ORDERING INFORMATION

	HFE20	- 3	/12	-1D	S	T	-L2	-R	(XXX)
Type									
Version	**1:** 5mm pin **2:** 3.5mm pin **3:** 2.5mm pin								
Coil voltage	3, 5, 6, 9,12, 24 VDC								
Contact form[1)]	**1D:** 1 Form B **1H:** 1 Form A **1Z:** 1 Form C (Only for HFE20-1, HFE20-2)								
Construction[2)]	**S:** Plastic sealed **Nil:** Flux proofed								
Contact material	**T:** AgSnO2 **D:** W+AgSnO2(Only for HFE20-1/XX-1H)								
Sort	**L1:** 1 coil latching **L2:** 2 coils latching								
Polarity	**R:** Reverse polarity **Nil:** Positive polarity								
Customer special code	**(359):** lamp load **(399):** Special polarity (See Wiring Diagram)								

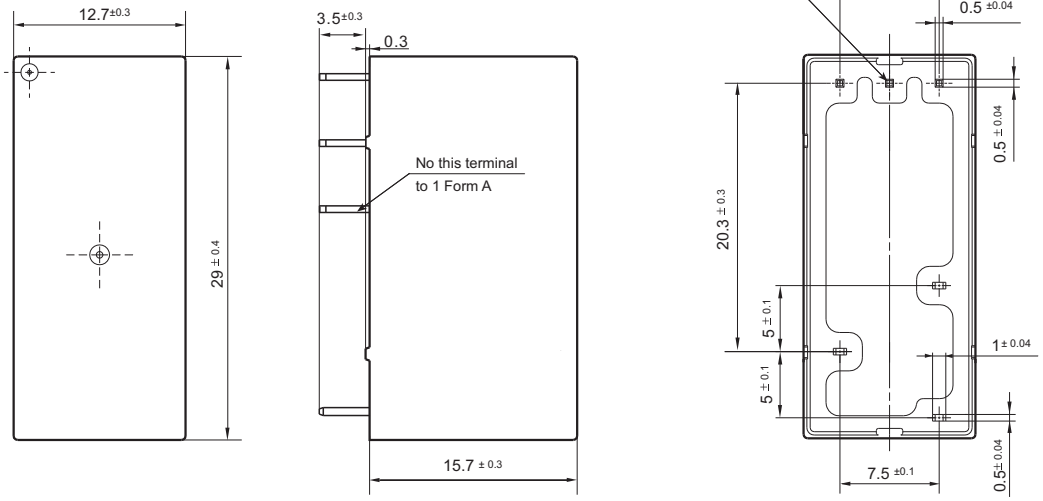
Notes: 1) 1H means that relay is on the "reset" status when delivery; 1D means that relay is on the "set" status when delivery. we will recommend use one form B if customer can use normally (except the pre-make version HFE20-1/XX-1HXD).
2) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

HFE20-1

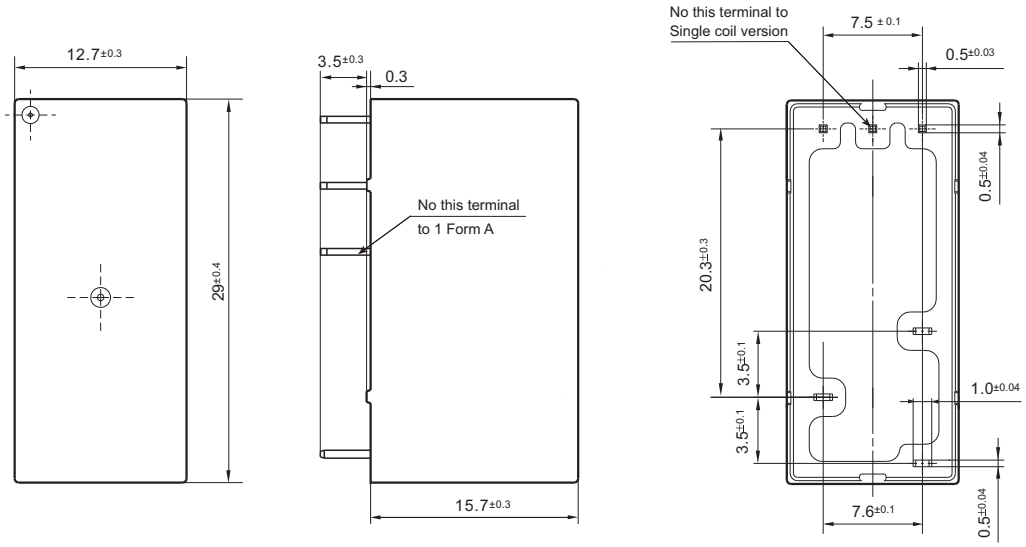


OUTLINE DIMENSIONS AND WIRING DIAGRAM

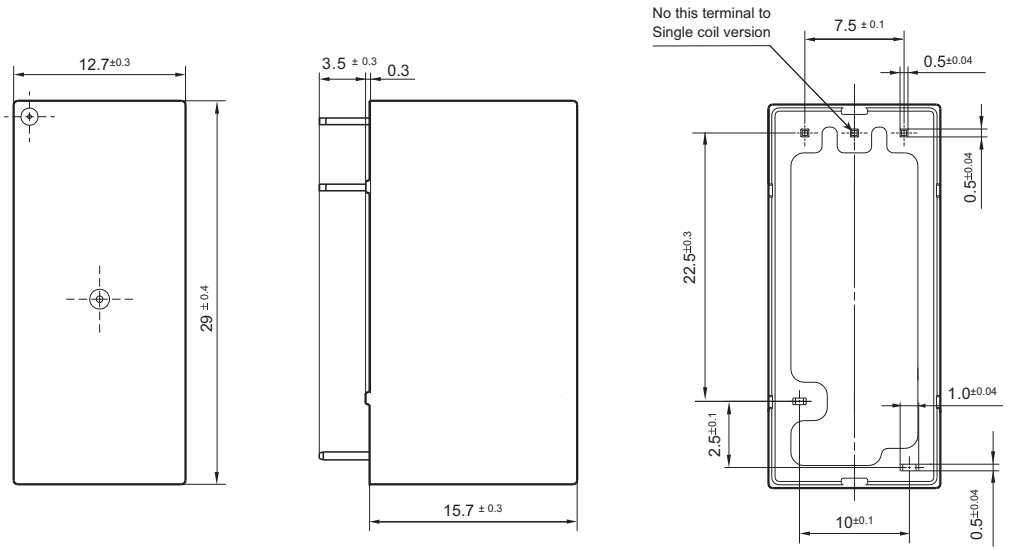
Unit: mm

Outline Dimensions

HFE20-2



HFE20-3



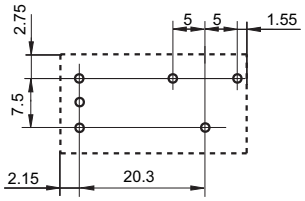
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

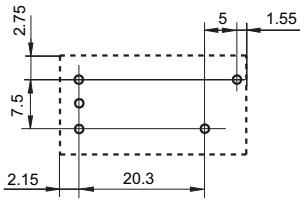
PCB Layout (Bottom view)

HFE20-1

1 Form C

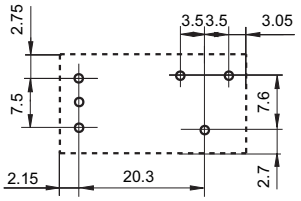


1 Form A, 1 Form B

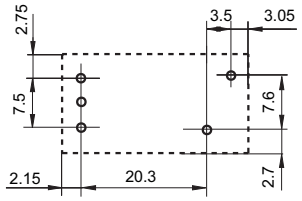


HFE20-2

1 Form C

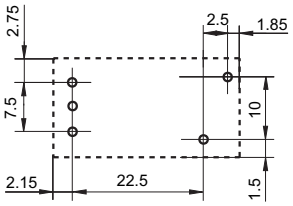


1 Form A, 1 Form B



HFE20-3

1 Form A, 1 Form B

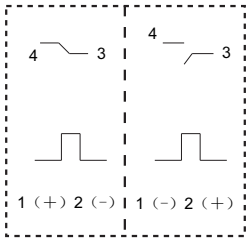


Wiring Diagram (Bottom view)

HFE20-3

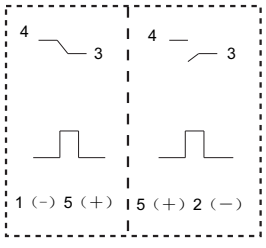
Positive polarity

Single coil latching, 1 Form A



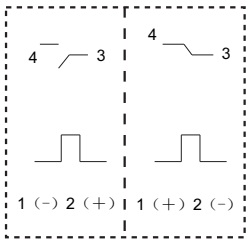
set reset

Double coils latching, 1 Form A



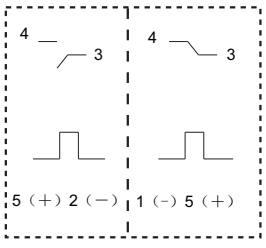
set reset

Single coil latching, 1 Form B



set reset

Double coils latching, 1 Form B



set reset

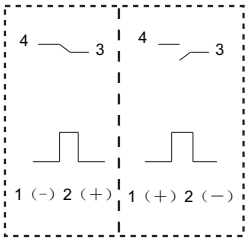
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

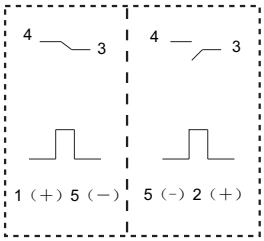
Wiring Diagram (Bottom view)

Reverse polarity

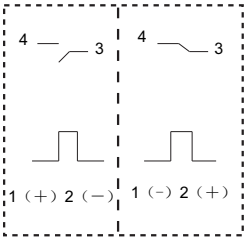
Single coil latching, 1 Form A



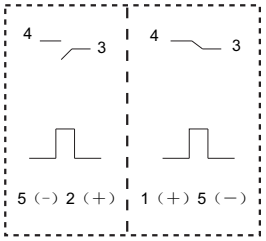
Double coils latching, 1 Form A



Single coil latching, 1 Form B

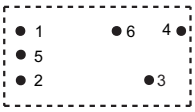


Single coils latching, 1 Form B



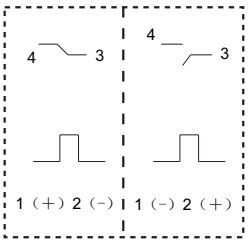
Wiring Diagram (Bottom view)

HFE20-1
HFE20-2

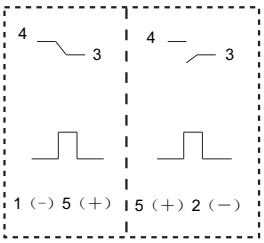


Positive polarity

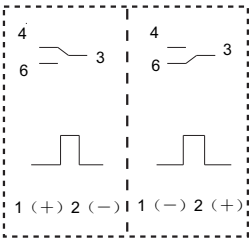
Single coil latching, 1 Form A



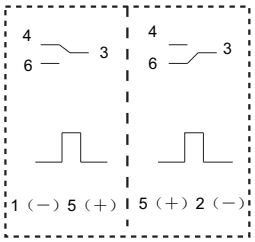
Double coils latching, 1 Form A



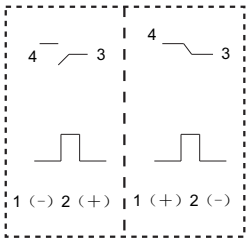
Single coil latching, 1 Form C



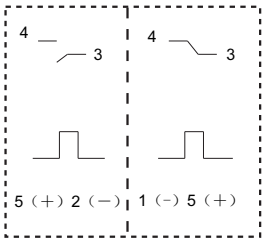
Double coils latching, 1 Form C



Single coil latching, 1 Form B



Double coils latching, 1 Form B



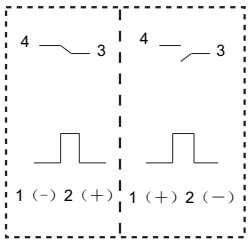
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

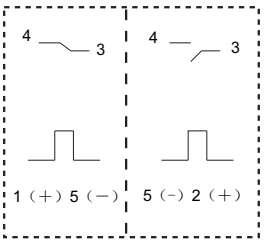
Wiring Diagram (Bottom view)

Reverse polarity

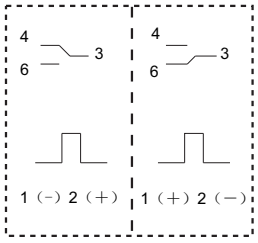
Single coil latching, 1 Form A



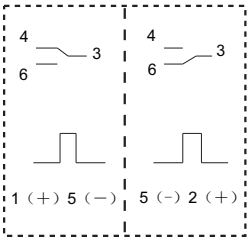
Double coils latching, 1 Form A



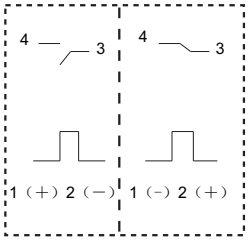
Single coil latching, 1 Form C



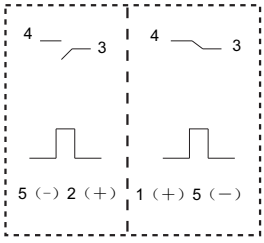
Double coils latching, 1 Form C



Single coil latching, 1 Form B

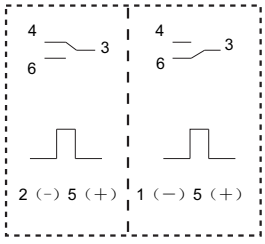


Double coils latching, 1 Form B



(399)：Special polarity

Double coils latching



Notice

1. Relay is on the “reset” or "set" status when being released from stock, with the consideration of shock risen from transit and relay mounting, relay would be changed to “set” or "reset" status, therefore, when application (connecting the power supply), please reset the relay to “set” or “reset” status on request.
2. In order to maintain “set” or “reset” status, energized voltage to coil should reach the rated voltage, impulse width should be 5 times more than “set” or “reset” time. Do not energize voltage to “set” coil and “reset” coil simultaneously. And also long energized time (more than 1 min) should be avoided.

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.