HFE20 MINIATURE HIGH POWER LATCHING RELAY

File No.:E134517

File No.: 40031831

File No.: CQC14002113728

Features

- 16A switching capability
- Latching relay
- Have passed TV-8 (UL) certification
- Inrush current Capacitor
  500A/2ms and 320A/2ms
  (Contact material: W+AgSnO2 and 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, at 85°C, 1s on 9s off) 1A,1B: 20A 250VAC, 2 x 10^4 OPS (Resistive, at 70°C, 1s on 9s off) 1A,1B: 1.5HP 250VAC 4 x 10^4 OPS (Motor, at 40°C, 0.5s on 0.5s off) 1A,1B: 8A 220VAC COSØ=0.4, 1x10^5OPS (Inductive, at 85°C,1s on 9s off) HFE20-1/X-1HD: 3300W 277VAC, 2 x 10^4 OPS (Electronic rectifier,at 40°C,1s on 9s off) 1C: 16A 250VAC, 5 x 10^4 OPS (Resistive, at 85°C, 3s on 3s off)
Max. switching voltage	277VAC
Max. switching current	20A
Max. switching power	4000VA
Mechanical endurance	1 x 10^6OPS
Electrical endurance	See "Contact rating"

SAFETY APPROVAL RATINGS

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

Notes: Only typical loads are iisted above.other load specifications can be available upon request.

COIL

Coil power	Single coil latching: Approx 400mW Double coils latching: Approx 600mW

COIL DATA at 23°C

Single coil latching

Nominal Voltage VDC	Set / Reset Voltage VDC max.	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω
3	2.4	50	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

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1000VAC 1min
Creepage distance		8mm
Surge voltage(Between coil & contacts)		10000V
Set time (at nomi. volt.)		10ms max.
Reset time (at nomi. volt.)		10ms max.
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 DATA

at 23°C

Double coils latching

Nominal Voltage VDC	Set / ResetVoltage VDC max.	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω
3	2.4	50	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

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/□□ -1H, UL certification only)								
Sort	**L1:** Single coil latching **L2:** Double coils latching								
Polarity	**R:** Reverse polarity **Nil:** Positive polarity								
Special code[3)]	**XXX:** Customer special requirement **Nil:** Standard								

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/□□-1H□D).

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

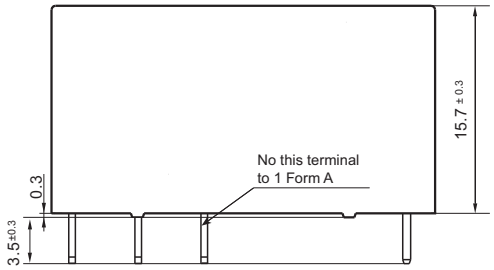
3) The customer special requirement express as special code after evaluating by Hongfa. e.g. (359) stands for lamp load; e.g. (399) stands for special polarity(See Wiring Diagram).

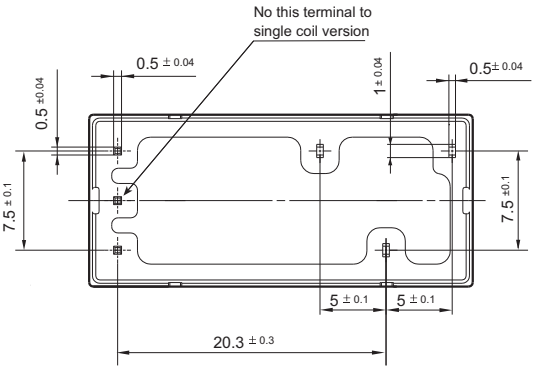
OUTLINE DIMENSIONS AND WIRING DIAGRAM

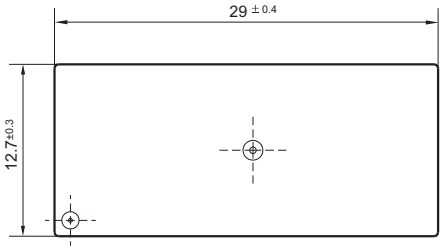
Unit: mm

Outline Dimensions

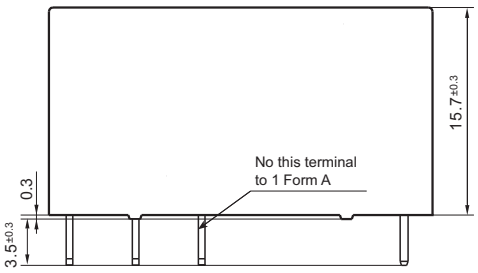
HFE20-1

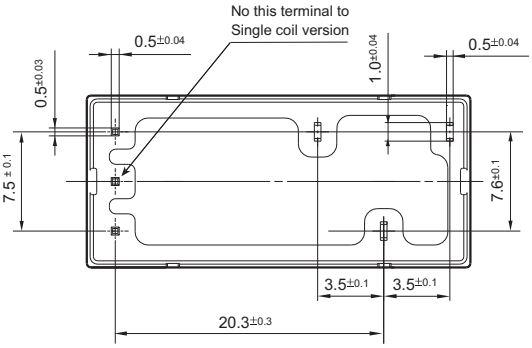


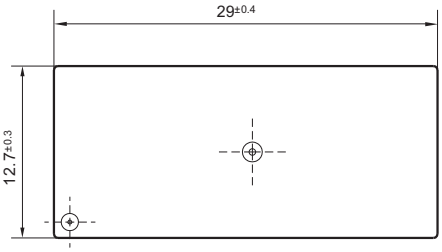




HFE20-2





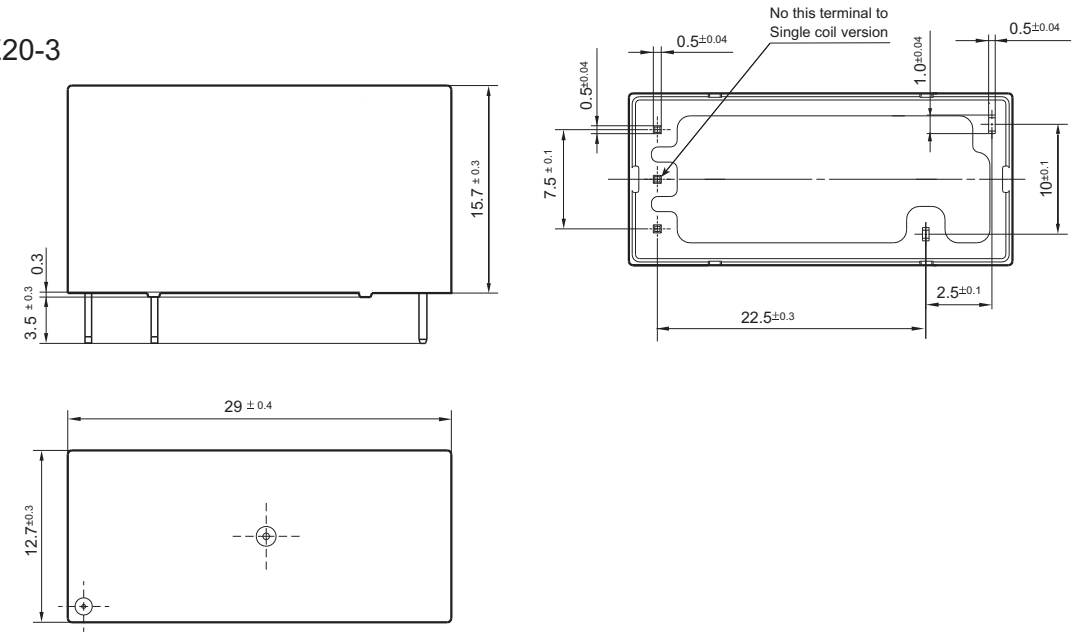


OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

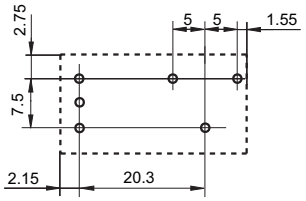
HFE20-3



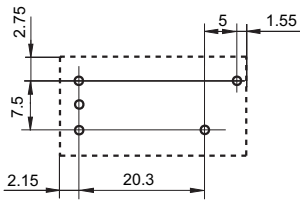
PCB Layout (Bottom view)

HFE20-1

1 Form C

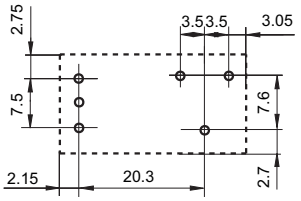


1 Form A, 1 Form B

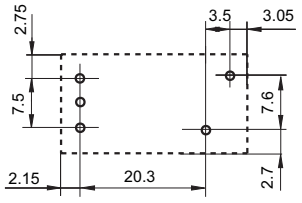


HFE20-2

1 Form C

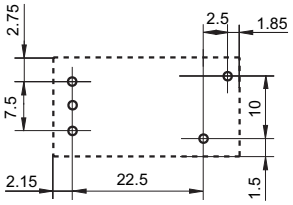


1 Form A, 1 Form B



HFE20-3

1 Form A, 1 Form B



Remark: 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.

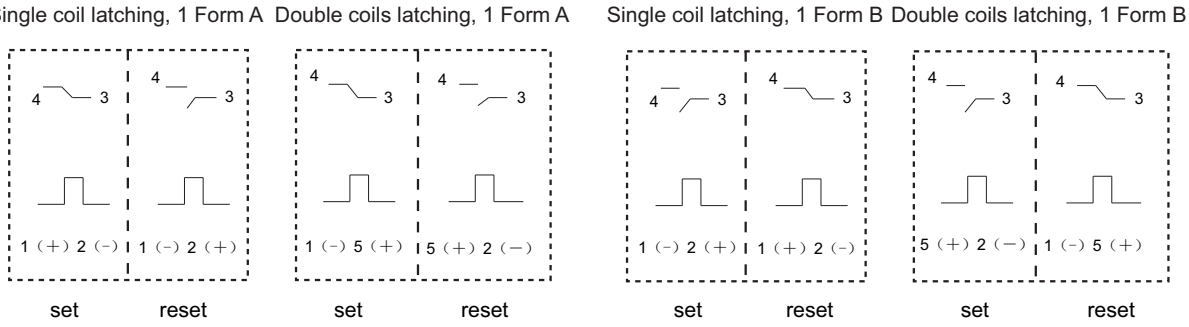
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Wiring Diagram (Bottom view)

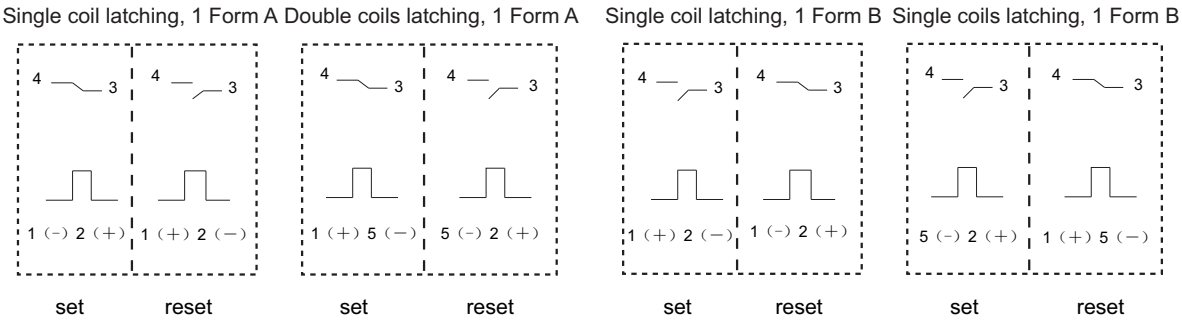
HFE20-3

Positive polarity

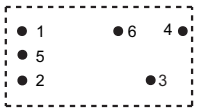


Wiring Diagram (Bottom view)

Reverse polarity

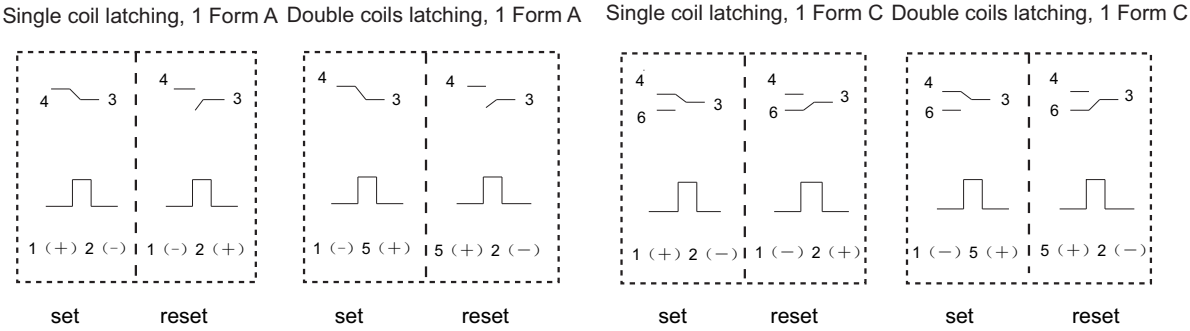


Wiring Diagram (Bottom view)



HFE20-1
HFE20-2

Positive polarity

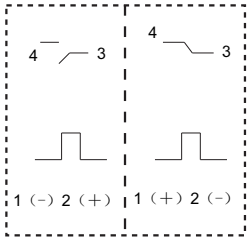


OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

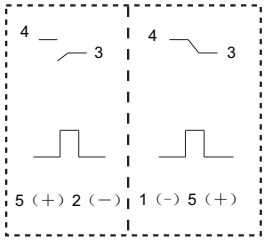
Wiring Diagram (Bottom view)

Single coil latching, 1 Form B



set reset

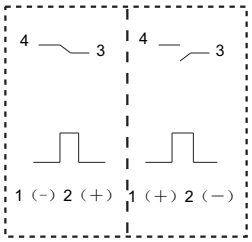
Double coils latching, 1 Form B



set reset

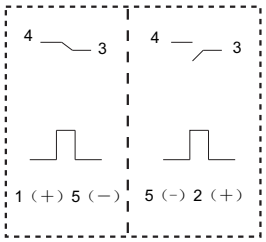
Reverse polarity

Single coil latching, 1 Form A



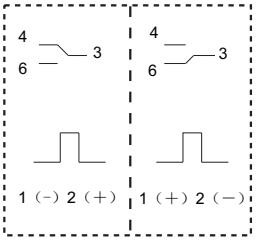
set reset

Double coils latching, 1 Form A



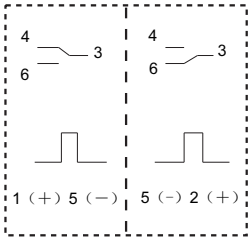
set reset

Single coil latching, 1 Form C



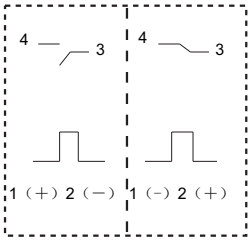
set reset

Double coils latching, 1 Form C



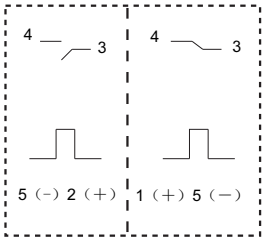
set reset

Single coil latching, 1 Form B



set reset

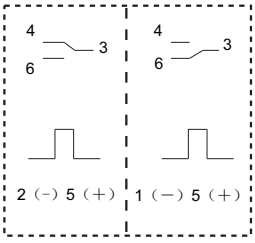
Double coils latching, 1 Form B



set reset

(399)：Special polarity

Double coils latching



set reset

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Notice:

1. Latching 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.
3. When choose the relay with PCB termination, the recommended welding temperature range and duration is 240°C to 260°C, 2s to 5s; Please do not use the reflow welding method, if the reflow is really required, please contact our technicals; the normal recommeded wave soldering temperature is 250°C within 2s; the below chart is the wave soldering temperature distribution chart we recommended for your reference.

Wave soldering temperature distribution chart