HFE39 MINIATURE HIGH POWER LATCHING RELAY

File No.:E134517

File No.:40049970

File No.: CQC20002257171

Features

- Latching relay
- 20A switching capacity
- Inrush current capacity up to 320A for 1.2ms

RoHS compliant

CONTACT DATA

Contact arrangement		2A, 2B, 1A+1B
Contact resistance 1)		20mΩ max. (at 1A 24VDC)
Contact material		$AgSnO_2$
Contact rating	2A 2B	16A 250VAC,1x10^5 ops (Resistance) 20A 250VAC,1x10^5 ops (Resistance)(2) 1.5HP 250VAC, 5 x 10^4 ops (Motor) 10A 277VAC, 2 x 10^4 ops (Electronic ballast) 10A 277VAC, 3 x 10^4 ops (Standard ballast) 10A 240VAC, 2.5 x 10^4 ops (TV-10)
	1A+1B	16A 250VAC, 5 x 10^4 ops (Resistance)
Max. switching voltage		277VAC
Max. switching current		20A
Max. switching power		5000VA
Mechanical endurance		1 x 10^{6}ops
Electrical endurance		See “contact rating”

Notes: 1) The data shown above are initial values.
2) A special suffix (530) will be required to follow at the end of relay partnumber,when the electrical life requirement up to 1 x 10^5 cycles at 20A 250VAC resistive load.

COIL

Rated power	Standard: Single coil latching: Approx 1W Double coils latching: Approx 2W
	Sensitive: Single coil latching: Approx 0.6W Double coils latching: Approx 1.2W

SAFETY APPROVAL RATINGS

UL/CUL	2A, 2B (Only for standard type)	20A 250VAC Resistance at 85°C 1.5HP 250VAC Motor at 40°C 277VAC 10A Standard ballast at 40°C 277VAC 10A Electronic ballast at 40°C 240VAC 10A TV-10 at 40°C
VDE	2A, 1A+1B	8A 250VAC Resistance at 85°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.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1000VAC 1min
Creepage distance		>8mm
Set time (at nomi. volt.)		⩽15ms
Reset time (at nomi. volt.)		⩽15ms
Shock resistance	Functional	98m/s^2
	Destructive	980m/s^2
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% ~85% RH
Ambient temperature		-40°C ~85°C
Termination		PCB
Unit weight		Approx.12g
Construction		Plastic sealed,Flux proofed

Notes: The data shown above are initial values.

COIL DATA at 23°C

Standard type:

Nominal Voltage VDC	Set / Reset Voltage VDC 1)2) max.	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω	
3	2.1	50	Single coil latching	9
5	3.5	50		25
6	4.2	50		36
9	6.3	50		81
12	8.4	50		144
24	16.8	50		576
48	33.6	50		2304
3	2.1	50	Double coils latching	4.5+4.5
5	3.5	50		12.5+12.5
6	4.2	50		18+18
9	6.3	50		40.5+40.5
12	8.4	50		72+72
24	16.8	50		288+288
48	33.6	50		1152+1152

COIL DATA

at 23°C

Sensitive type:

Nominal Voltage VDC	Set / Reset Voltage VDC max. 1)2)	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω	
3	2.1	50	Single coil latching	15
5	3.5	50		42
6	4.2	50		60
9	6.3	50		135
12	8.4	50		240
24	16.8	50		960
3	2.1	50	Double coils latching	7.5+7.5
5	3.5	50		21+21
6	4.2	50		30+30
9	6.3	50		67.5+67.5
12	8.4	50		120+120
24	16.8	50		480+480

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

ORDERING INFORMATION

HFE39 -1 /12 -2D S L T -L1 -R (XXX)

Type	
Version	**1:** With manual switch **Nil:**Without manual switch
Coil voltage	3, 5, 6, 9,12, 24VDC 48 VDC(Only for standard type)
Contact arrangement 1)	**1HD:** 1 Form A + **1** Form B **2D:** 2 Form B **2H:** 2 Form A
Construction 2)	**S:** Plastic sealed(Not applicable for HFE39-1) **Nil:** Flux proofed
Coil power	**L:** Sensitive **Nil:** Standard
Contact material	**T:** $AgSnO_2$
Coil type	**L1:** Single coil latching **L2:** Double coils latching
Polarity	**R:** Reverse polarity **Nil**: Standard polarity
Special code 3)	**XXX:** Customer special requirement (A81): switching without load

Notes: 1) 2H means that relay is on the "reset" status when delivery; 2D means that relay is on the "set" status when delivery. If no speical required by customer, we will keep the relay on the "set" status when delivery.

2) If water cleaning or surface treatment is required after assembling relay on print circuit board, please contact us to confirm the suitable soldering conditions and specifications.

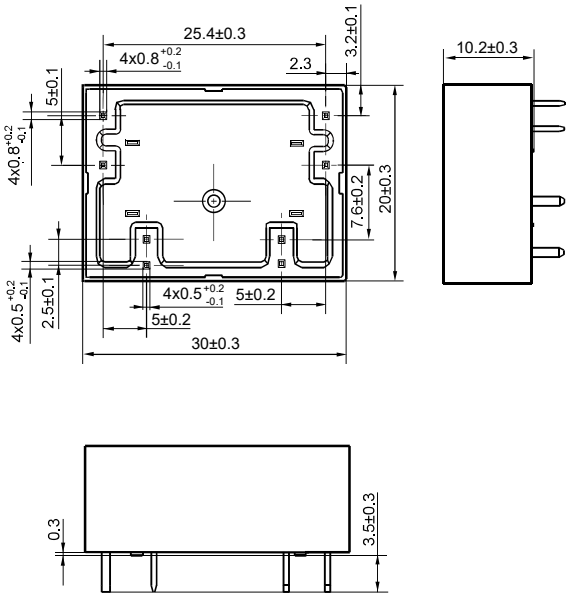
3) Customer's special technical requirements to be evaluated by Hongfa, and differentiated by the special code suffix. For example, suffix (170) is for flash light load; (530) is for electrical life requirement up to 1 x 10^5 cycles at 20A 250VAC resistive load.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

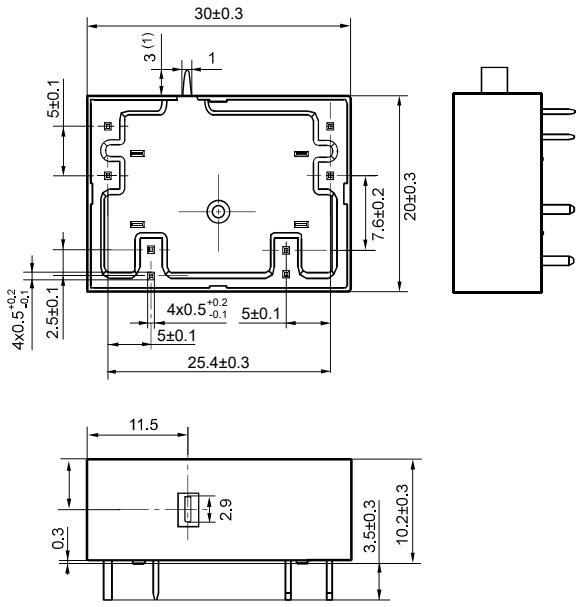
Unit: mm

Outline Dimensions

HFE39

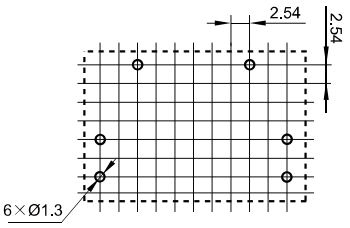


HFE39-1

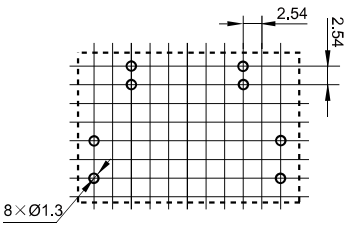


PCB Layout(Bottom view)

Single coil latching,
2 Form A, 2 Form B, 1A+1B



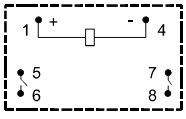
Double coils latching,
2 Form A, 2 Form B, 1A+1B



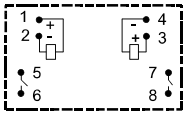
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The dimension is for reference only. Please contact us to determine the suitable dimension if any special requirement.

Wiring Diagram(Bottom view)

Single coil latching



Double coils latching



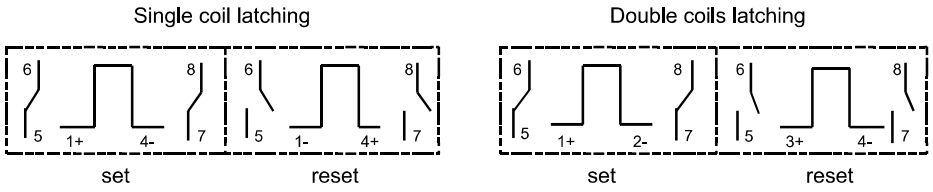
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

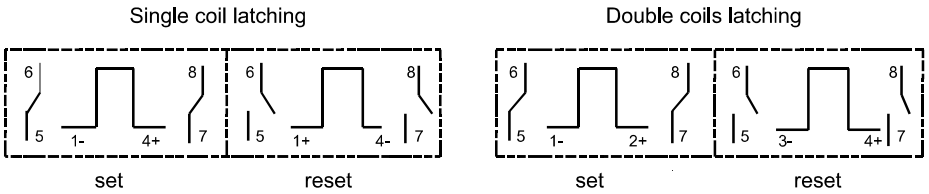
Wiring Diagram(Bottom view)

2 Form A

Positive polarity

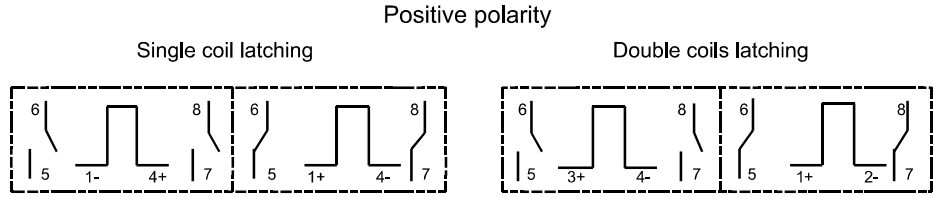


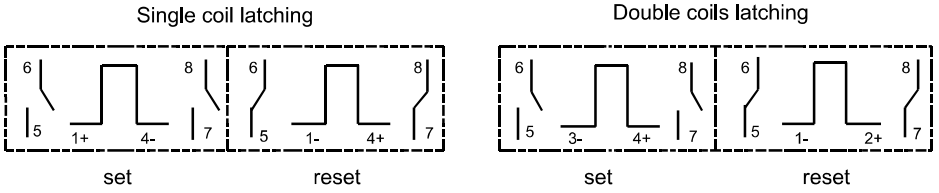
Reverse polarity



2 Form B

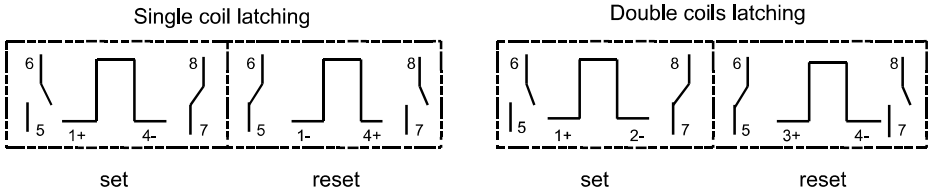
Positive polarity



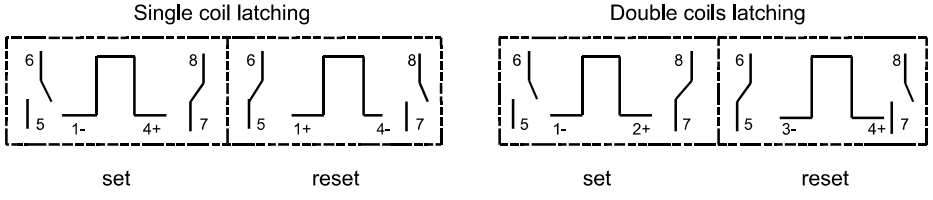


1 Form A + 1 Form B

Positive polarity



Reverse polarity



CAUTIONS

1.The recommended soldering temperature range is 250±10°C with the duration of 2～5s. It is not suggested to apply reflow soldering method, if it is required indeed, please contact with our technicians. It is general required that the wave soldering temperature at 250°C shall not more than 2s.
2. Latching relay is on the "reset" or "set" status when delivery, 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.
3. In order to maintain "set" or "reset" status, energized voltage applied across the 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.
4. Because of the dust proof structure, the recommended storage time shall not longer than 6 months, Please pay attention to the storage environment. To ensure contact reliability, we will keep contact status be closed when delivery if no special required by customer.

Wave soldering temperature distribution chart