HFE39   MINIATURE HIGH POWER LATCHING RELAY

Features

● 20A switching capability
● Latching relay
● Max.inrush current 350A/2ms
● Environmental friendly product (RoHS compliant)
● Outline Dimensions: 20.0mm x 30.0mm x 10.2mm

CONTACT DATA

Contact arrangement		2A, 2B, 1A+1B
Contact resistance [1]		20mΩ max. (at 1A 24VDC)
Contact material		AgSnO2
Contact rating	2A 2B	16A 250VAC, 1 x 10^5 ops (Resistance) 20A 250VAC, 1 x 10^5 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		4000VA
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

Coil 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

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 min.
Set time (at nomi. volt.)		15ms max.
Reset time (at nomi. volt.)		15ms max.
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient temperature		-40°C to 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] 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

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

Sensitive type:

Nominal Voltage VDC	Set / Reset Voltage VDC [1] max.	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.

ORDERING INFORMATION

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

Type

Version
1: with manual switch
Nil: No manual switch

Coil voltage
3, 5, 6, 9,12, 24VDC
48 VDC(Only for standard type)

Contact form [1]
1HD: 1 Form A + **1** Form B
2D: 2 Form B   **2H:** 2 Form A

Construction [2]
S: Plastic sealed(No for HFE39-1)
Nil: Flux proofed

Coil power   **L:** Sensitive   **Nil:** Standard

Contact material T: AgSnO2

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) 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.
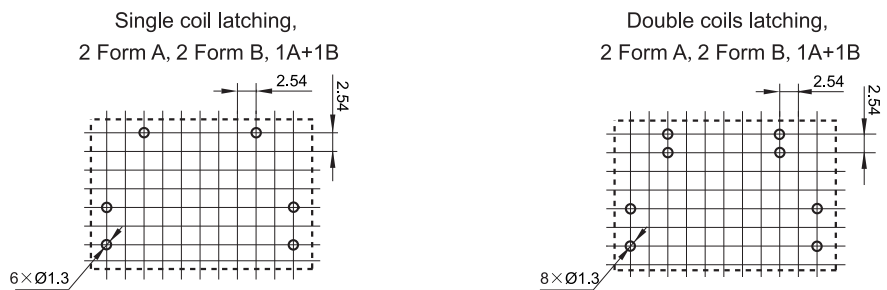2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relay on PCB.
3) Customer's special technical requirements to be evaluated by Hongfa, and differentiated by the special code suffix. For example, suffix (170) is for flash light load; (530) is for electrical life requirement up to 1×10^5 cycles at 20A 250VAC resistive load.

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

$6 \times \varnothing 1.3$

$8 \times \varnothing 1.3$
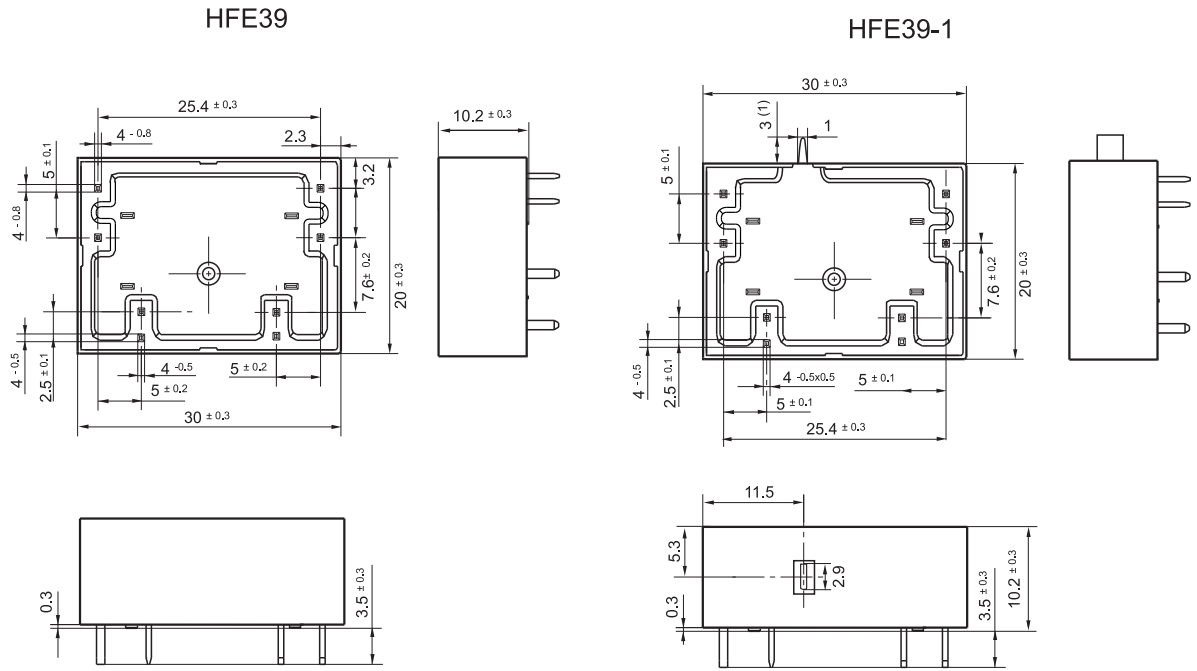
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) This size for reference only. Contact is recommended for suitable specifications if you have any special requirements.

Wiring Diagram (Bottom view)

Single coil latching

Double coils latching

2 Form A

Positive polarity
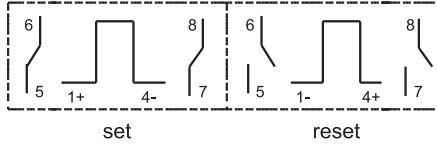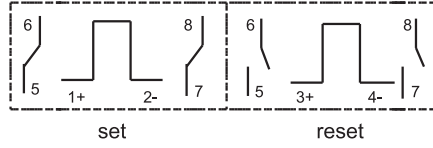
Single coil latching

| | Double coils latching |

set   reset   set   reset

Reverse polarity

Single coil latching

Double coils latching

set   reset   set   reset
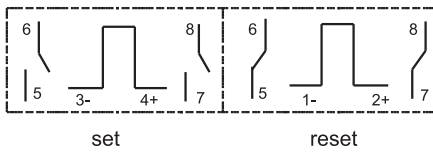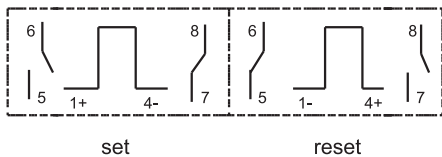
2 Form B

Positive polarity

Single coil latching

Double coils latching

set   reset   set   reset

Single coil latching

Double coils latching

set   reset   set   reset
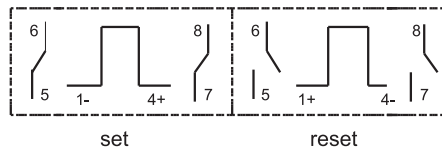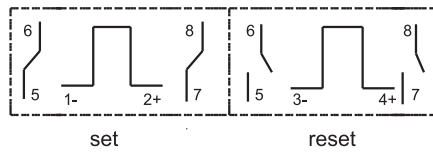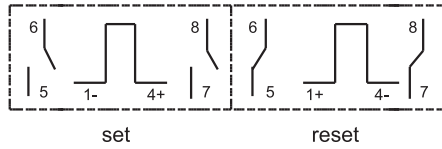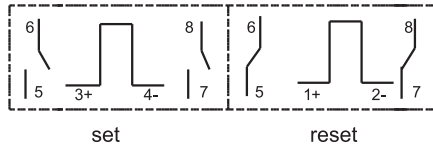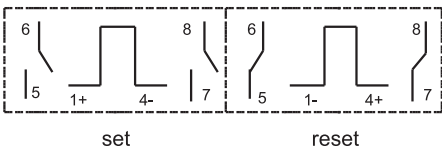
1 Form A + 1 Form B

Positive polarity

Single coil latching

Double coils latching

set   reset   set   reset

Reverse polarity

Single coil latching

Double coils latching

set   reset   set   reset
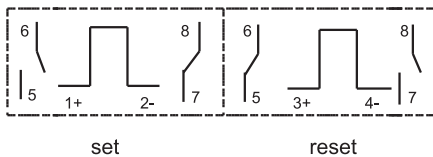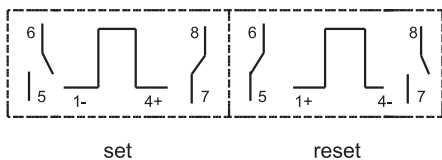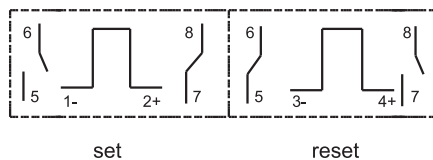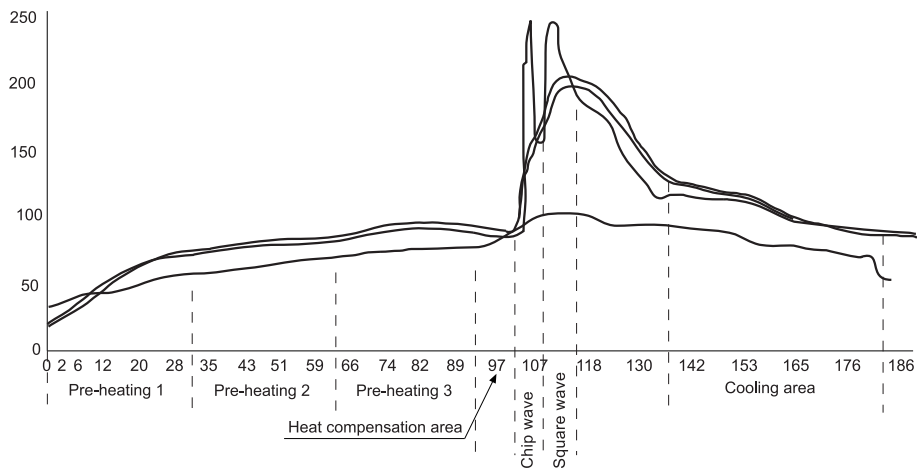
Notice:

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.

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.

4. Relays used for metering measuring applications are usually made with dust proof structure, while most relays could be made specially per customer's specific requirements. No longer than 6 months' storage time is recommended for this kind of relay, and 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