HFE7 SUBMINIATURE INTERMEDIATE POWER RELAY

File No.:E134517

File No.:40027342

Features

- High switching capacity
  1A, 1B: 10A 250VAC/8A 30VDC;
  2A, 2B,1A + 1B: 8A 250VAC/30VDC
- High sensitive
- 4kV dielectric strength (between coil & contacts)
- Single side stable and latching types available
- 1 Form A, 1 Form B, 2 Form A and 1A + 1B contact arrangement
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (20.0 x 15.0 x 10.2) mm

CONTACT DATA

Contact arrangement	1A, 1B	2A, 2B, 1A + 1B
Contact resistance	Gold AgNi plated: 30mΩ (at 1A 6VDC) No gold AgNi plated: 50mΩ (at 1A 6VDC) Gold $AgSnO_2$ plated: 60mΩ (at 1A 6VDC) No gold $AgSnO_2$ plated: 80mΩ (at 1A 6VDC)	
Contact material	$AgSnO_2$, AgNi	
Contact rating (Res. load)	10A 250VAC/30VDC	8A 250VAC/30VDC
Max. switching Voltage	277VAC	277VAC
Max. switching current	10A	8A
Max. switching power	2500VA	2000VA
Mechanical endurance	1×10^7 OPS	
Electrical endurance	1×10^5 OPS (2 Form A: 3×10^4 OPS)	

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric Strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1000VAC 1min
Pulse width of coil		50ms min. (Recommend: 100ms to 200ms)
Operate time (at nomi. volt.)		10ms max.
Release (Reset) time (at nomi. volt.)		10ms max.
Max. operate frequency (under rated load)		20cycles /min
Temperature rise (at nomi. volt.)		50K max.
Vibration resistance		10Hz to 55Hz 1.5mm DA
Shock resistance		98m/s²
Humidity		5% to 85% RH
Ambient temperature		-40˚C to 70˚C
Termination		PCB
Unit weight		Approx. 6g
Construction		Plastic sealed, Flux proofed

Notes: The data shown above are initial values.

COIL

Coil power	1 Form A, 1A+1B single side stable	200mW
	1 coil latching	200mW
	2 Form A single side stable	280mW
	2 coils latching	280mW

COIL DATA at 23˚C

1 Form A, 1A+1B Single side stable (200mW)

Nominal Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil Resistance x (1±10%)Ω
3	2.1	0.3	45
5	3.5	0.5	125
6	4.2	0.6	180
9	6.3	0.9	405
12	8.4	1.2	720
24	16.8	2.4	2880

2 Form A Single side stable (280mW)

Nominal Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil Resistance x (1±10%)Ω
3	2.1	0.3	32.1
5	3.5	0.5	89.3
6	4.2	0.6	129
9	6.3	0.9	289
12	8.4	1.2	514
24	16.8	2.4	2056

1 coil latching (200mW)

Nominal Voltage VDC	Set / Reset Voltage VDC	Coil Resistance x (1±10%)Ω
3	2.1	45
5	3.5	125
6	4.2	180
9	6.3	405
12	8.4	720
24	16.8	2880

COIL DATA

at 23˚C

2 coils latching (280mW)

Nominal Voltage VDC	Set / Reset Voltage VDC	Coil Resistance x (1±10%)Ω
3	2.1	32.1+32.1
5	3.5	89.3+89.3
6	4.2	129+129
9	6.3	289+289
12	8.4	514+514
24	16.8	2056+2056

SAFETY APPROVAL RATINGS

UL/CUL (AgNi)	1 Form A	10A 250VAC 8A 30VDC 1/4HP 125VAC 1/3HP 250VAC
	2 Form A	8A 250VAC/30VDC 1/4HP 125VAC 1/3HP 250VAC
	1 A +1 B	8A 250VAC/30VDC 1/4HP 125VAC 1/3HP 250VAC

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

ORDERING INFORMATION

HFE7 / 12 -1H S T G -L2 -R (XXX)

Type			
Coil voltage	3, 5, 6, 9, 12, 24VDC		
Contact form [1]	**1H:** 1 Form A	**1D:** 1 Form B	
	2H: 2 Form A	**2D:** 2 Form B	**1HD:** 1A + 1B
Construction [2]	**S:** Plastic sealed	**Nil**: Flux proofed	
Contact material	**T:** $AgSnO_2$	**Nil**: AgNi	
Contact plating	**G:** Gold plated	**Nil**: No gold plated	
Sort	**L1:** 1 coil latching	**L2:** 2 coils latching	**Nil:** Single side stable
Polarity	**R:** Reverse polarity	**Nil:** Positive polarity	
Customer special code			

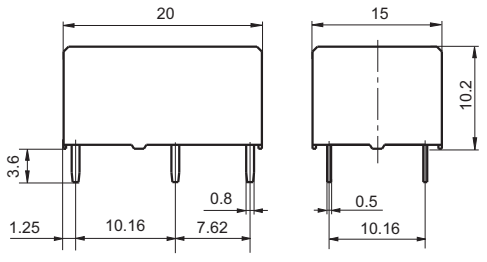
Notes: 1) 1H, 2H means that relay is on the "reset" status when delivery; 1D, 2D means that relay is on the "set" status when delivery.
2) Under the ambience with dangerous gas like H_2S, SO_2 or NO_2, plastic sealed type is recommended; Please test the relay in real applications.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

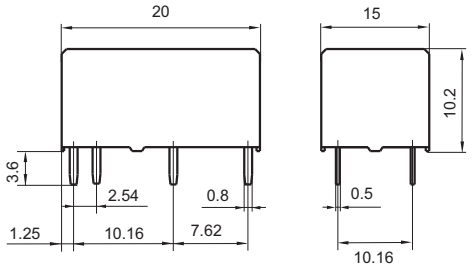
Unit: mm

Outline Dimensions

Single side stable & 1 coil latching



2 coils latching



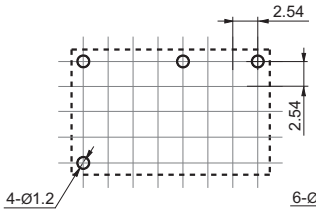
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

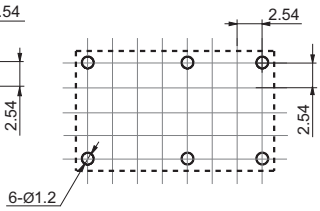
PCB Layout (Bottom view)

Single side stable & 1 coil latching

1 Form A, 1 Form B

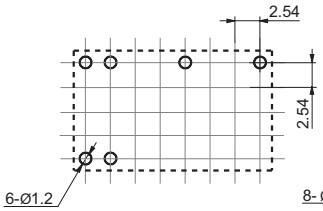


2 Form A, 2 Form B, 1A + 1B

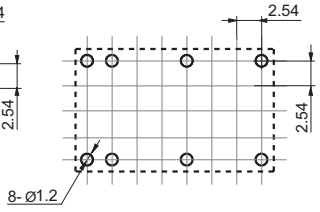


2 coils latching

1 Form A, 1 Form B



2 Form A, 2 Form B,1A + 1B

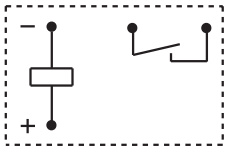


Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The width of the gridding is 2.54mm.

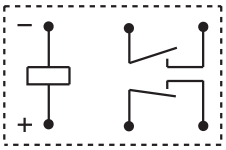
Wiring Diagram (Bottom view)

Single side stable (Positive polarity)

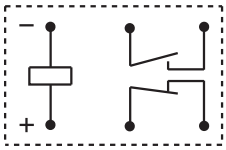
1 Form A



2 Form A

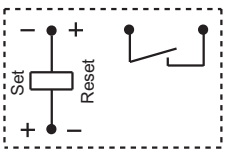


1A + 1B

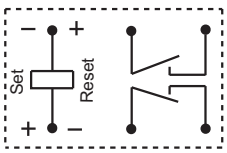


1 coil latching (Positive polarity)

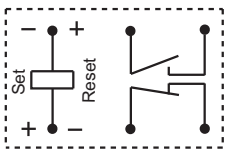
1 Form A



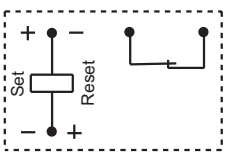
2 Form A



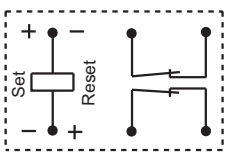
1A + 1B



1 Form B



2 Form B

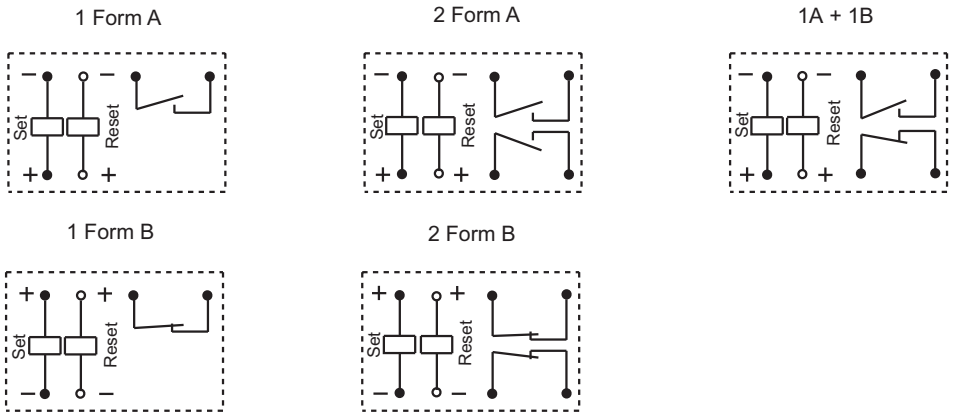


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Wiring Diagram (Bottom view)

2 coils latching (Positive polarity)



Remark: The coil polarity of Reverse polarity and Standard polarity is opposite.

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. The terminals of relay without twisted copper wire can not be tin-soldered, can not be moved willfully, more over two terminals can not be fixed at the same time.