HFD17 SUBMINIATURE SIGNAL RELAY

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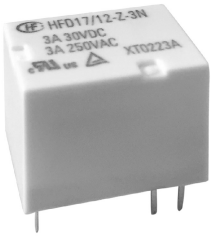
File No.: E133481

File No.:R50431434



Features

- 8A switching capability
- UL insulation system: Class F
- Plastic sealed and flux proofed types available
- Standard PCB layout
- Product in accordance to IEC 60335-1 available

RoHS compliant

CONTACT DATA

Contact arrangement	1C
Contact resistance[1)]	100mΩ max. (AgNi gold-plated specifications: 0.1A 6VDC, AgNi non gold-plated specifications and $AgSnO_2$:1A 6VDC)
Contact material	AgNi, $AgSnO_2$
Contact rating (Res. load)	3A 30VDC 3A 250VAC
Max. switching voltage	250VAC / 220VDC
Max. switching current	8A
Max. switching power	750VA / 90W
Min. applicable load	5V 1mA(Suitable for AgNi gold-plated specifications)
Mechanical endurance	1 x 10^7OPS
Electrical endurance	1x10^5OPS (AgNi, 85°C, 1s on 9s off, NO. HFD17:3A 125VAC HFD17-1:1A 125VAC)

Notes: 1) The data shown above are initial values.
2)Min. applicable load is reference value. Please perform the confirmation test with the actual load before production since reference value may change according to switching frequencies, environmental conditions and expected contact resistance and reliability.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	between open contacts	750VAC 1min
	between coil & contacts	1500VAC 1min
Surge withstand voltage between open contacts(10/160 μ s) between coil & contacts(2/10 μ s)		1500V(FCC part 68) 2000V(Telecordia)
Operate time (at rated voltage.)		5ms max.
Release time (at rated voltage.)		5ms max.
Ambient temperature		-40°C to 85°C
Humidity		5% to 85% RH
Shock resistance	Functional	147m/s²
	Destructive	980m/s²
Vibration resistance	Functional	10Hz to 55Hz 2.5mm DA
	Destructive	10Hz to 55Hz 5mm DA
Termination		DIP
Unit weight		Approx. 4g
Construction		Plastic sealed Flux proofed

Notes: 1) The data shown above are initial values.
2) UL insulation system: Class F.

COIL

Coil power	H:150mW;Nil:200mW

COIL DATA at 23°C

Standard type: (200mW)

Nominal Voltage VDC[1)]	Pick-up Voltage VDC[1)] max.	Drop-out Voltage VDC min.	Max. Voltage[4)] VDC	Coil Resistance x (1±10%) Ω
2.4	1.80	0.24	4.8	28.8
3	2.25	0.3	6.0	45.0
4.5	3.38	0.45	9.0	101.3
5	3.75	0.5	10	120
6	4.5	0.6	12	180
9	6.75	0.9	18	400
12	9.00	1.2	24	700
18	13.5	1.8	36	1620
24	18.0	2.4	48	2800

High sensitive type: (150mW)

Nominal Voltage VDC[1)]	Pick-up Voltage VDC[1)] max.	Drop-out Voltage VDC min.	Max. Voltage[4)] VDC	Coil Resistance x (1±10%) Ω
2.4	1.92	0.24	4.8	38.4
3	2.4	0.30	6.0	60.0
4.5	3.6	0.45	9.0	135
5	4.0	0.5	10	166.7
6	4.8	0.6	12	240
9	7.2	0.9	18	540
12	9.6	1.2	24	960
18	14.4	1.8	36	2160
24	19.2	2.4	48	3840

Notes: (1) Energizing coil with rated voltage is basic for normal operation of a relay. Please make sure the energized voltage to relay coil have reached the rated voltage.
(2) In case 5V of transistor drive circuit, it is recommended to use 4.5V type relay, and 3V to use 2.4V type relay.
(3) For monostable relays,if you need to drop down voltage and hold mode after reliably operating,make sure that the effective value of holding voltage is not less than 60% of the rated voltage.
(4) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.
(5) When user's requirements can't be found in the above table, special order allowed.

SAFETY APPROVAL RATINGS

		HFD17	HFD17-1
UL/CUL	AgNi	3A 125VAC,85°C 3A 250VAC,Room temp 3A 30VDC,85°C	1A 125VAC,85°C 1A 250VAC,Room temp 1A 30VDC,85°C
	$AgSnO_2$	3A 250VAC,85°C 3A 30VDC,85°C TV-1 125VAC,Room temp	1A 250VAC,85°C 1A 30VDC,85°C
TÜV	AgNi	3A 125VAC,85°C 3A 250VAC,Room temp 3A 30VDC,85°C	1A 250VAC,85°C 1A 250VAC,Room temp 1A 30VDC,85°C
	$AgSnO_2$	3A 250VAC,85°C 3A 30VDC,85°C 1(1) 250VAC,Room temp	1A 250VAC,85°C 1A 30VDC,85°C 1(1) 250VAC,Room temp

Notes: 1)Only typical loads are listed above. Other load specifications can be available upon request.

ORDERING INFORMATION

HFD17/ 24 -Z F H -3 N (XXX)

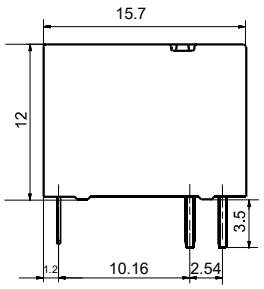
Type	HFD17:3A contact rating HFD17-1:1A contact rating	
Coil voltage	2.4, 3, 4.5, 5, 6, 9, 12, 18, 24VDC	
Contact arrangement	**Z:**1 Form C	
Construction	**F:** Flux proofed	**Nil:** Plastic sealed
Coil power	**H:** High sensitive(150mW)	**Nil:** Standard(200mW)
Contact material	**3:** AgNi	**T:** $AgSnO_2$
Contact plating	**N:** No gold plated	**Nil:**Gold plated(Only for AgNi type)
Special code[1)]	**XXX:** Customer special requirement	

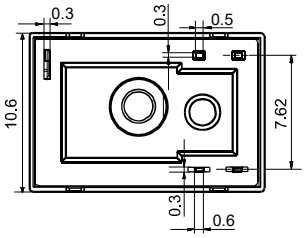
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.
2) For products that should meet the explosion-proof requirements of "IEC 60079 series",please note [Ex] after the specification while placing orders.Not all products have explosion-proof certification,so please contact us if necessary, in order to select the suitable products.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



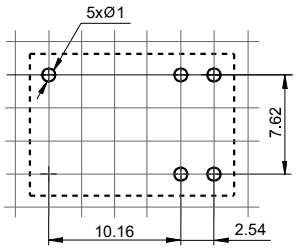


(Bottom view)

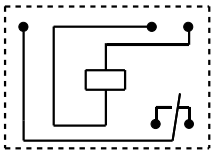
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout
(Bottom view)



Wiring Diagram
(Bottom view)

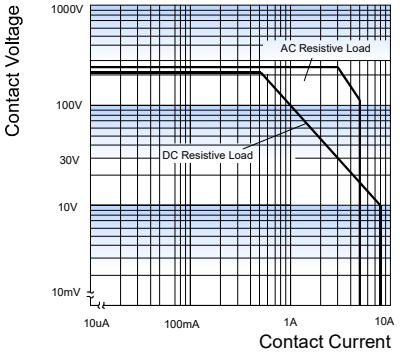


Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The width of the gridding is 2.5mm.

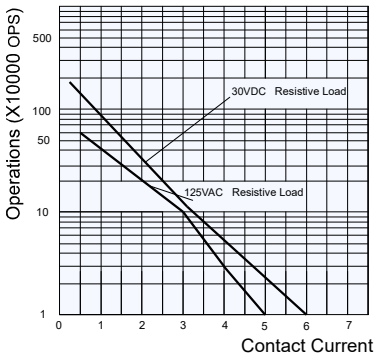
CHARACTERISTIC CURVES

HFD17

MAXIMUM SWITCHING POWER



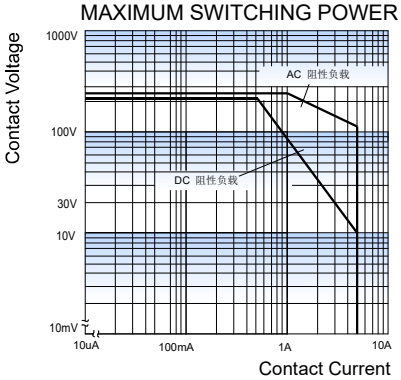
ENDURANCE CURVE



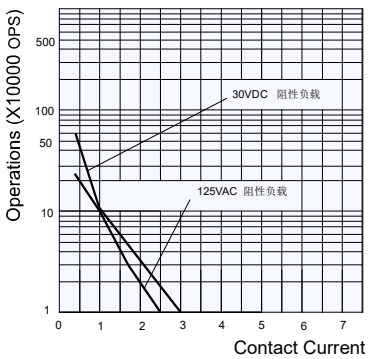
Test conditions:
AgNi, NO contact ,Resistive load, 85°C.

HFD17-1

MAXIMUM SWITCHING POWER



ENDURANCE CURVE



Test conditions:
AgNi, NO contact ,Resistive load, 85°C.

CHARACTERISTIC CURVES

Notice

1) To avoid using relays under strong magnetic field which will change the parameters of relays such as pick-up voltage and drop-out voltage.
2) Energizing coil with rated voltage is basic for normal operation of a relay, please make sure the energized voltage to relay coil have reached the rated voltage. Regarding latching relay, in order to maintain the "set" or "reset" status, impulse width of the rated voltage applied to coil should be more than 5 times of "set" or "reset" time.
3) For a monosteady state relay, after the relay is reliably operated, if it needs to be kept under pressure, make sure that the effective value of the voltage is not less than 60 % of the rated voltage;
4) The relay may be damaged because of falling or when shocking conditions exceed the requirement.
5) Please use wave soldering or manual soldering for straight-in relay. If you need reflow welding, please confirm the feasibility with us.
6)Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
7)Plastic sealed type is recommended for an environment with noxious gas such as H2S, SO2 and NO2,ect., and/or when load current is low,and/or the PCB boards need to be washed after relays are soldered. For other using conditions flux proofed type could be adopted.
8)Regarding the plastic sealed relay, we should leave it cooling naturally untill below 40˚C after welding, then clean it and deal with coating, remarkably the temperature of solvents should also be controlled below 40˚C.Please avoid cleaning the relay by ultrasonic, avoid using the solvents like gasoline, Freon, and so on, which would affect the configuration of relay or influence the environment.
9) When applied with continuous current, the heat from relay coil will age its isolation. Thus, please do not ground connected the coil to reduce electrical errosion if possible. And please provide protection circuit to avoid broken wire and losses.
10)Please make sure that there are no silicon-based substances (such as silicon rubber, silicone oil, silicon-based coating agents, silicon fillers, etc.) around the relay, because it will generate silicon-containing volatile gas, which may cause poor contact in case of silicon-containing volatile gas sticking on contact
11) About preferable condition of operation, storage and transportation, please refer to "Explanation to terminology and guidetines of relay".