

HFD16

SUBMINIATURE SIGNAL RELAY



File No.: E133481



File No.: R50075326



Features

- 5A switching capability
- UL insulation system: Class F available
- Plastic sealed and flux proofed types available
- Standard PCB layout
- Product in accordance to IEC 60335-1 available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (15.7 x 10.6 x 11.8) mm

CONTACT DATA

| | |
|-------------------------------|---|
| Contact arrangement | 1C |
| Contact resistance | 100mΩ max. (at 0.1A 30mVDC) |
| Contact material | AgNi, AgSnO ₂ |
| Contact rating (Res. load) | 3A 30VAC 1A 125VAC |
| Max. switching voltage | 250VAC / 220VDC |
| Max. switching current | 8A(30VDC) |
| Max. switching power | 250VA / 90W |
| Min. applicable load | 5V 1mA |
| Mechanical endurance | 1 x 10 ⁷ OPS |
| Electrical endurance | 1×10 ⁵ OPS(AgNi, 85°C, 1s on 9s off, 3A 30VDC) 1×10 ⁴ OPS(AgNi, Room temperature, 1s on 9s off, 5A 125VAC) |

Notes: 1) 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 coil & contacts | 1100VAC 1min |
| | between open contacts | 750VAC 1min |
| Operate time (at rated voltage.) | 5ms max. | |
| Release time (at rated voltage.) | 5ms max. | |
| Shock resistance | Functional | 98m/s ² |
| | Destructive | 980m/s ² |
| Vibration resistance | Functional | 10Hz to 55Hz 1.5mm DA |
| | Destructive | 10Hz to 55Hz 3.3mm DA |
| Surge withstand voltage between open contacts(10/160 μ s) | 1000V(FCC part 68) | |
| between coil & contacts(2/10 μ s) | 1500V(Telecordia) | |
| Humidity | 5% to 85% RH | |
| Ambient temperature | -40°C to 85°C | |
| Termination | PCB (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 type: 200mW; S type: 360mW; Nil: 450mW; |
|------------|---|

COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Voltage ¹⁾ VDC | Coil Resistance x (1±10%) Ω | | |
|---------------------|--------------------------|---------------------------|--------------------------------|-----------------------------|------|------|
| | | | | H | S | Nil |
| 2.4 | ≤1.80 | ≥0.24 | 3.12 | 28.8 | 19.2 | 12.8 |
| 3 | ≤2.25 | ≥0.3 | 3.90 | 45.0 | 25.0 | 20 |
| 4.5 | ≤3.38 | ≥0.45 | 5.85 | 101.3 | 67.5 | 45 |
| 5 | ≤3.75 | ≥0.5 | 6.50 | 120 | 70.0 | 56 |
| 6 | ≤4.5 | ≥0.6 | 6.63 | 180 | 100 | 80 |
| 9 | ≤6.75 | ≥0.9 | 11.7 | 400 | 220 | 180 |
| 12 | ≤9.00 | ≥1.2 | 15.6 | 700 | 400 | 320 |
| 18 | ≤13.5 | ≥1.8 | 23.4 | 1620 | 1080 | 720 |
| 24 | ≤18.0 | ≥2.4 | 31.2 | 2800 | 1600 | 1280 |

Notes: 1) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

| | | |
|--------|--------------------|--|
| UL/CUL | AgNi | 5A 125VAC 1A 125VAC, 85°C 3A 30VDC, 85°C |
| | AgSnO ₂ | 1A 125VAC, 85°C 3A 30VDC, 85°C TV-1 125VAC |
| TÜV | AgNi | 1A 250VAC 1A 125VAC, 85°C 3A 30VAC, 85°C |
| | AgSnO ₂ | 1A 250VAC, 85°C 3A 30VAC, 85°C 1(1) 250VAC |

Notes: 1) All values unspecified are at room temperature.
2) Only typical loads are listed above. Other load specifications can be available upon request.



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2017 Rev. 1.20

ORDERING INFORMATION

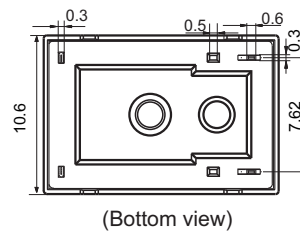
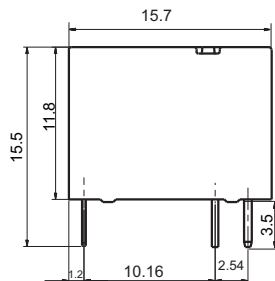
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|----------------------------|--------------------------------------|--------|--|-----------------------|----|----------------------|---|----|---------|
| Type | | HFD16/ | | 24 | -Z | F | H | -3 | N (XXX) |
| Coil voltage | 2.4, 3, 4.5, 5, 6, 9, 12, 18, 24 VDC | | | | | | | | |
| Contact arrangement | Z:1 Form C | | | | | | | | |
| Construction | F: Flux proofed | | | Nil: Plastic sealed | | | | | |
| Coil power | H: High sensitive (200mW) | | | S: Sensitive (360mW) | | Nil: Standard(450mW) | | | |
| Contact material | 3: AgNi | | | T: AgSnO ₂ | | | | | |
| Contact plating | N: No gold plated | | | Nil:Gold plated | | | | | |
| Special code ¹⁾ | XXX: Customer special requirement | | | Nil: Standard | | | | | |

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

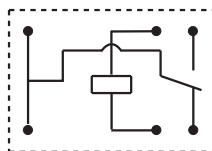
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

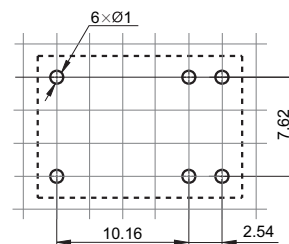
Outline Dimensions



Wiring Diagram
(Bottom view)

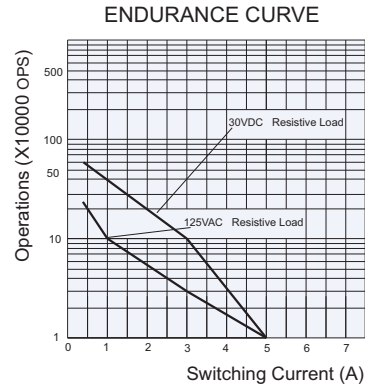
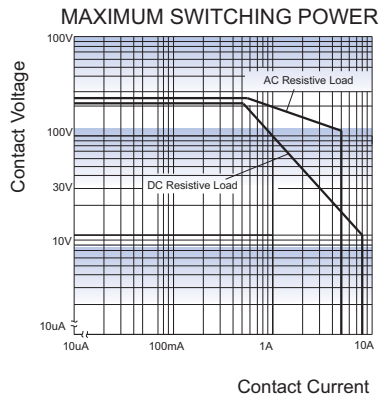


PCB Layout
(Bottom view)



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

CHARACTERISTIC CURVES



Test conditions:

AgNi, Resistive load, 85°C, 1s on 9s off.

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.
- 3) The relay may be damaged because of falling or when shocking conditions exceed the requirement.
- 4) 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.
- 5) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
- 6) Regarding the plastic sealed relay, we should leave it cooling naturally until 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.
- 7) About preferable condition of operation, storage and transportation, please refer to "Explanation to terminology and guidelines of relay".
- 8) Please contact us for more details if you have different conditions of application.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.