

HF46F-G

SUBMINIATURE INTERMEDIATE POWER RELAY



File No.: E134517



File No.: 40025215



File No.: CQC08001024932



Features

- 10A switching capability
- 10kV impulse withstand voltage (between coil and contacts)
- Meets VDE 0631 reinforce insulation
- Highly efficient magnetic circuit for high sensitivity: 200mW
- Extremely small footprint utilizing PCB area
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (20.5 x 7.2 x 15.3) mm

CONTACT DATA

| | |
|----------------------------|--|
| Contact arrangement | 1A |
| Contact resistance | 100mΩ max.(at 1A 6VDC) |
| Contact material | AgSnO ₂ , AgNi |
| Contact rating (Res. load) | 7A 250VAC / 30VDC |
| Max. switching voltage | 277VAC / 30VDC |
| Max. switching current | 10A |
| Max. switching power | 2770VA / 300W |
| Mechanical endurance | 5 x 10 ⁶ OPS |
| Electrical endurance | 5 x 10 ⁴ OPS (7A 250VAC, Resistive load, AgNi, at 105°C, 3s on 3s off) |
| | 6 x 10 ⁴ OPS (7A 250VAC, Resistive load, AgSnO ₂ , at 85°C, 3s on 3s off) |
| | 1 x 10 ⁴ OPS (10A 250VAC, Resistive load, AgNi, at 85°C, 1s on 9s off) |
| | 1 x 10 ⁴ OPS (10A 250VAC, Resistive load, AgSnO ₂ , at 85°C, 1s on 9s off) |

CHARACTERISTICS

| | | |
|---|-------------------------|---------------------|
| Insulation resistance | 1000MΩ (at 500VDC) | |
| Dielectric strength | Between coil & contacts | 4000VAC 1min |
| | Between open contacts | 1000VAC 1min |
| Surge voltage (between coil & contacts) | 10kV (1.2 / 50μs) | |
| Operate time (at nomi. volt.) | 10ms max. | |
| Release time (at nomi. volt.) | 10ms max. | |
| Shock resistance 1) | Functional | 98m/s ² |
| | Destructive | 980m/s ² |
| Vibration resistance 1) | 10Hz to 55Hz 1.5mm DA | |
| Humidity | 5% to 85% RH | |
| Ambient temperature | -40°C to 85°C | |
| Termination | PCB | |
| Unit weight | Approx. 3g | |
| Construction | Plastic sealed | |

- Notes:** 1) Shock malfunction: 49m/s² for the length direction.
Vibration: 10Hz to 55Hz 1mm DA for the length direction.
2) The data shown above are initial values.
3) UL insulation system: Class F, Class B.

COIL

| | |
|------------|---------------|
| Coil power | Approx. 200mW |
|------------|---------------|

COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Voltage VDC * | Coil Resistance Ω |
|---------------------|--------------------------|---------------------------|--------------------|-------------------|
| 3 | 2.25 | 0.18 | 3.90 | 45 x (1±10%) |
| 5 | 3.75 | 0.25 | 6.50 | 125 x (1±10%) |
| 6 | 4.50 | 0.30 | 7.80 | 180 x (1±10%) |
| 9 | 6.75 | 0.45 | 11.7 | 405 x (1±10%) |
| 12 | 9.00 | 0.60 | 15.6 | 720 x (1±10%) |
| 18 | 13.5 | 0.90 | 23.4 | 1620 x (1±10%) |
| 24 | 18.0 | 1.20 | 31.2 | 2880 x (1±10%) |

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

SAFETY APPROVAL RATINGS

| | | |
|--------|--------------------|--|
| UL/CUL | AgNi | 10A 125VAC/250VAC at 85°C 10A 277VAC/30VDC at 85°C 7A 125VAC/250VAC at 105°C 7A 277VAC/30VDC at 105°C |
| | AgSnO ₂ | 10A 125VAC/250VAC at 85°C 10A 277VAC/30VDC at 85°C 7A 125VAC/250VAC at 85°C 7A 277VAC/30VDC at 85°C TV-3 |
| VDE | AgNi | 7A 250VAC/30VDC at 105°C 10A 250VAC/30VDC at 85°C |
| | AgSnO ₂ | 7A 250VAC/30VDC at 85°C 10A 250VAC/30VDC 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.



HONGFA RELAY

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

2015 Rev. 1.02

ORDERING INFORMATION

| | |
|---------------------------------|--|
| HF46F-G / 12 -H S 1 T G F (XXX) | |
| Type | |
| Coil voltage | 3, 5, 6, 9, 12, 18, 24VDC |
| Contact arrangement | H: 1 Form A |
| Construction ¹⁾²⁾ | S: Plastic sealed |
| Termination | 1: type 1 |
| Contact material ³⁾ | T: AgSnO ₂ Nil: AgNi |
| Contact plating | G: Gold plated Nil: No gold plated |
| Insulation standard | F: Class F Nil: Class B |
| Special code ⁵⁾ | XXX: Customer special requirement Nil: Standard |

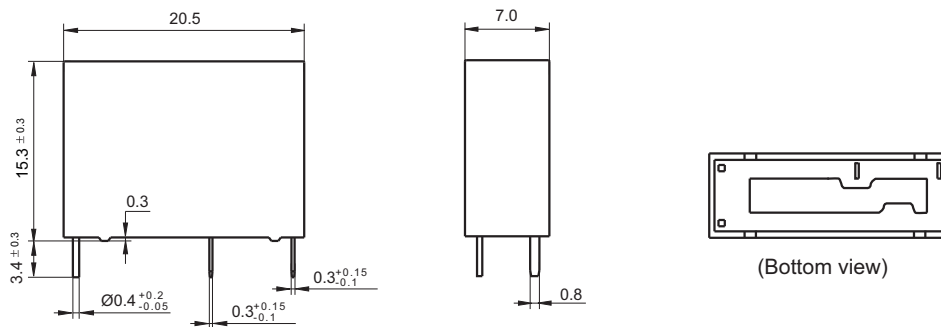
- Notes:** 1) We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H₂S, SO₂, NO₂, dust, etc).
 2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
 3) For the loads which can bring high inrush current when relay contacts connect instantly (eg. lamp, capacitive load), AgSnO₂ contact material is recommended on priority.
 4) For gold plated type, the min. switching current and min. switching voltage is 10mA 5VDC.
 5) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

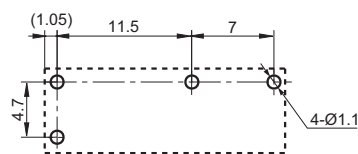
Unit: mm

Outline Dimensions

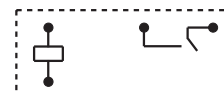
HF46F-G/□□-HS1□□(XXX)



PCB Layout
(Bottom view)



Wiring Diagram
(Bottom view)

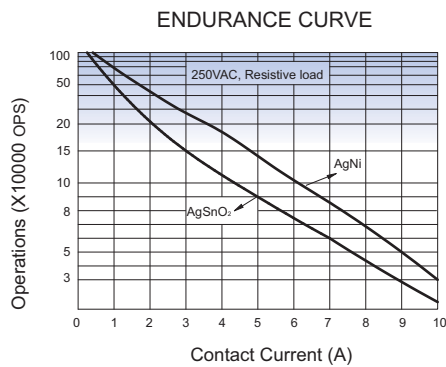


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

- 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 $\pm 0.1\text{mm}$.

CHARACTERISTIC CURVES



Test conditions: at 85°C, 3s on 3s off

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.

© Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.