

HF3FF

SUBMINIATURE HIGH POWER RELAY



File No.:E134517



File No.:40025218



File No.:R50148356



File No.:CQC13002098175
CQC16002140467



Features

- 15A 125VAC、10A 250VAC switching capability
- 1 Form A and 1 Form C configurations
- Subminiature, standard PCB layout
- Plastic sealed and flux proofed types available
- UL insulation system: Class F

CONTACT DATA

| | | | |
|------------------------------------|---|---|-----------|
| Contact arrangement | 1A | 1C | |
| | | NO | NC |
| Contact resistance ¹⁾ | 100mΩ max.(at 1A 6VDC) | | |
| Contact material | AgSnO ₂ , AgCdO | | |
| Contact rating (Res. load) | 10A 277VAC 10A 28VDC | 10A 277VAC ²⁾ 10A 28VDC ²⁾ | 5A 250VAC |
| Max. switching voltage | 277VAC / 28VDC | | 250VAC |
| Max. switching current | 15A | 10A | 5A |
| Max. switching power | 2770VA / 280W | | 1250VA |
| Mechanical endurance | 1 x 10 ⁷ OPS | | |
| Electrical endurance ³⁾ | 1H type: 1x 10 ⁵ OPS (10A 250VAC, Resistive load, Room temp., 1s on 9s off) 1Z type: 5 x 10 ⁴ OPS (NO: 5A/NC: 5A 250VAC, Resistive load, Room temp., 5s on 5s off) | | |

Notes: 1) The data shown above are initial values.
2) Applicable when NC is not energized with load.
3) For plastic sealed type, the venting-hole should be opened in electrical endurance test.

CHARACTERISTICS

| | | |
|--------------------------------|---------------------------------|---------------------|
| Insulation resistance | 100MΩ (at 500VDC) | |
| Dielectric strength | Between coil & contacts | 1500VAC 1min |
| | Between open contacts | 750VAC 1min |
| Operate time (at rated. volt.) | 10ms max. | |
| Release time (at rated. volt.) | 5ms max. | |
| Shock resistance | Functional | 98m/s ² |
| | Destructive | 980m/s ² |
| Vibration resistance | 10Hz to 55Hz 1.5mm DA | |
| Humidity | 5% to 85% RH | |
| Ambient operating temperature | -40°C to 105°C | |
| Termination | PCB | |
| Unit weight | Approx. 10g | |
| Construction | Plastic sealed, Flux proofed | |

Notes: 1) The data shown above are initial values.
2) If the ambient temperature is higher than 85°C, please contact with Hongfa.

COIL

| | |
|------------|---|
| Coil power | Standard type: Approx. 360mW; 48VDC:Approx. 510mW; (899):Approx. 450mW; |
|------------|---|

COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. ¹⁾ | Drop-out Voltage VDC min. ¹⁾ | Max. Voltage VDC * ³⁾ | Coil Resistance Ω | Coil Power mW |
|---------------------|--|---|----------------------------------|-------------------|----------------------------|
| 5 | ≤3.80 | ≥0.5 | 6.5 | 70 x (1±10%) | Approx. 360 |
| 6 | ≤4.50 | ≥0.6 | 7.8 | 100 x (1±10%) | |
| 9 | ≤6.80 | ≥0.9 | 11.7 | 225 x (1±10%) | |
| 12 | ≤9.00 | ≥1.2 | 15.6 | 400 x (1±10%) | |
| 18 | ≤13.5 | ≥1.8 | 23.4 | 900 x (1±10%) | |
| 24 | ≤18.0 | ≥2.4 | 31.2 | 1600 x (1±10%) | Approx. 510 |
| 48 ⁽²⁾ | ≤36.0 | ≥4.8 | 62.4 | 6400 x (1±10%) | |
| 48 | ≤36.0 | ≥4.8 | 62.4 | 4500 x (1±10%) | |
| 5 | ≤3.8 | ≥0.5 | 6.5 | 55 x (1±10%) | |
| 6 | ≤4.5 | ≥0.6 | 7.8 | 80 x (1±10%) | Approx. 450 ⁽⁴⁾ |
| 9 | ≤6.8 | ≥0.9 | 11.7 | 180 x (1±10%) | |
| 12 | ≤9.0 | ≥1.2 | 15.6 | 320 x (1±10%) | |
| 18 | ≤13.5 | ≥1.8 | 23.4 | 720 x (1±10%) | |
| 24 | ≤18.0 | ≥2.4 | 31.2 | 1280 x (1±10%) | |
| 48 | ≤36.0 | ≥4.8 | 62.4 | 5120 x (1±10%) | |

Notes: 1) The data shown above are initial values.
2) If 48VDC coil voltage specification of 360mW is required, please add special suffix (068) in the ordering information.
3) *Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.
4) If 360mW type is required, please add a special suffix (068) in the ordering information.



HONGFA RELAY

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

2022Rev. 1.00

SAFETY APPROVAL RATINGS

| | | |
|---|----------|--|
| UL/CUL | 1 Form A | 10A 277VAC 10A 28VDC 15A 125VAC 6A 250VAC |
| | 1 Form C | NO:10A 277VAC NO:10A 28VDC NO:10A 120VAC NO:6A 250VAC |
| VDE (only AgSnO₂) | 1 Form A | 10A 250VAC 12A 125VAC |
| | 1 Form C | NO/NC:5A/5A 250VAC NO:10A 250VAC NO:12A 125VAC |

Notes: 1) Only typical loads are listed above. Other load specifications can be available upon request.
2) For sealed type, the vent-hole cover should be excised.

ORDERING INFORMATION

| | | | | | | | |
|--------------------------------------|-----------------------------------|-------------------|--|---------------|--|--|--|
| Type | HF3FF / 012 -1H S T F (XXX) | | | | | | |
| Coil voltage | 5, 6, 9, 12, 18, 24, 48VDC | | | | | | |
| Contact arrangement | 1H:1 Form A | 1Z:1 Form C | | | | | |
| Construction ^{1) 2)} | S: Plastic sealed | Nil: Flux proofed | | | | | |
| Contact material | T: AgSnO ₂ | Nil: AgCdO | | | | | |
| Insulation standard | F: Class F | | | | | | |
| Special code ⁴⁾ | XXX: Customer special requirement | | | Nil: Standard | | | |

- Notes:** 1) We recommend flux proofed types for a clean environment (free from contaminations like H₂S, SO₂, NO₂, dust, etc.). 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) The characteristic number represents the product with special requirements from customers, for example: 899 means power consumption 450mW. The customer special requirement express as special code after evaluating by Hongfa.
4) Two packing methods available: paper box package, tube package, Standard tube packing length is 420mm(Holds 25 relays). Any special requirement needed, please contact us for more details.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

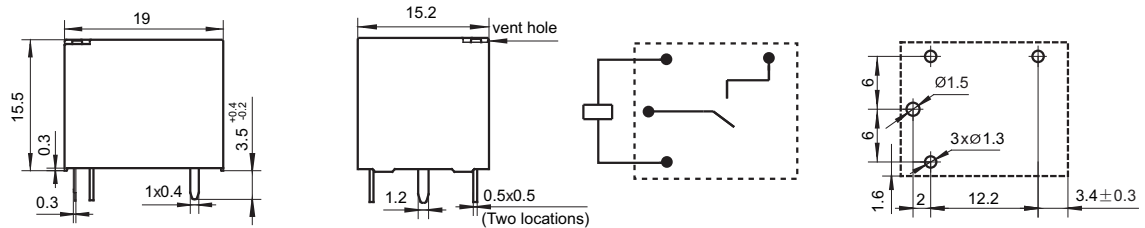
Unit: mm

Outline Dimensions

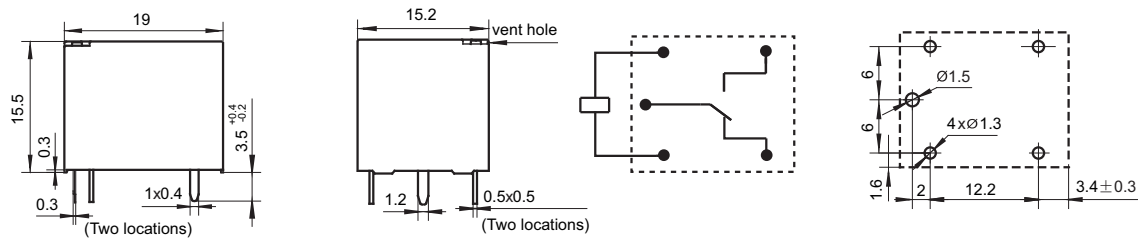
Wiring Diagram (Bottom view)

PCB Layout (Bottom view)

1 Form A



1 Form C



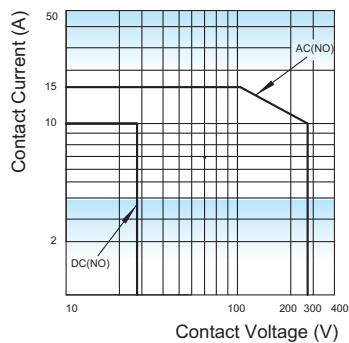
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤ 1 mm, tolerance should be ± 0.2 mm; outline dimension > 1 mm and ≤ 5 mm, tolerance should be ± 0.3 mm; outline dimension > 5 mm, tolerance should be ± 0.4 mm.

2) The additional tin top is max. 1mm.

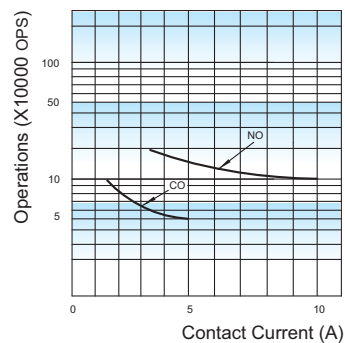
3) The tolerance without indicating for PCB layout is always ± 0.1 mm.

CHARACTERISTIC CURVES

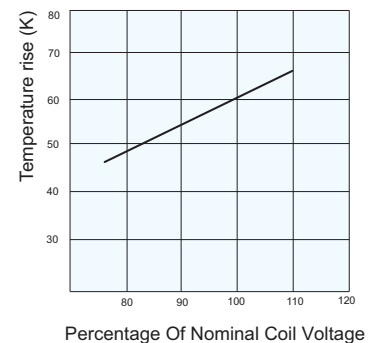
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



Test conditions:

NO, Resistive load, 277VAC/28VDC,
Flux proofed, Room temp., 1s on 9s off
CO, Resistive load, 250VAC,
Flux proofed, Room temp., 5s on 5s off.

Notes: For plastic sealed type, the venting-hole should be opened in electrical endurance test.

Testing conditions:

10A at 85°C.
Mounting distance: 10mm

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.

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