

HF161F-40

MINIATURE HIGH POWER RELAY



File No.: E134517



File No.:R 50475730



File No.:CQC20002246447



Features

- Applicable to variable frequency air conditioning used for soft start
- 40 A 277 VAC loading current capability
- Class F insulation system

RoHS compliant

CONTACT DATA

| | |
|-------------------------------------|---|
| Contact arrangement | 1A |
| Contact resistance | 10mΩ max.(6VDC 20A) |
| Contact material | AgSnO ₂ |
| Contact rating (Res. load) | Making 20A Loading 40A Breaking 20A, 277VAC |
| Max. switching voltage | 277VAC |
| Max. switching current | 40A |
| Max. continuous current | 40A at 85°C |
| Max. switching power | 11080VA |
| Mechanical endurance | 2×10 ⁶ OPS |
| Electrical endurance ⁽¹⁾ | 1×10 ⁵ OPS MIN (85°C, 1s on 9s off, Making 20A Loading 40A Breaking 20A, 277VAC, Resistive load) 1×10 ⁴ OPS MIN (85°C, 1s on 9s off, 30A24VDC, Resistive load) |

Notes: 1) For plastic sealed type, the venting-hole should be opened in electrical endurance test.

CHARACTERISTICS

| | | |
|---|--|---------------------|
| Insulation resistance | 1000MΩ (at 500VDC) | |
| Dielectric strength | Between coil & contacts | 4500VAC 1min |
| | Between open contacts | 1000VAC 1min |
| Surge voltage (between coil & contacts) | 10kV (1.2 / 50μs) | |
| Operate time (at nomi. volt.) | 20ms max. | |
| Release time (at nomi. volt.) | 10ms max. | |
| Temperature rise (at nomi. volt.) | 70K max (Contact load current 40A, rated voltage excitation, at 85°C) | |
| Shock resistance | Functional | 196m/s ² |
| | Destructive | 980m/s ² |

CHARACTERISTICS

| | |
|----------------------|--------------------------------|
| Vibration resistance | 10Hz to 55Hz 1.5mm DA |
| Humidity | 5% to 85% RH |
| Ambient temperature | -40°C to 85°C |
| Termination | PCB |
| Unit weight | Approx. 25g |
| Construction | Flux proofed Plastic sealed |

Notes: The data shown above are initial values.

COIL

| | |
|------------|---------------|
| Coil power | Approx. 900mW |
|------------|---------------|

COIL DATA

at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. ⁽¹⁾ | Drop-out Voltage VDC min. ⁽¹⁾ | Max. Voltage VDC* ⁽²⁾ | Coil Resistance Ω |
|---------------------|---|--|----------------------------------|-------------------|
| 5 | 3.75 | 0.5 | 6.0 | 27.8 x (1±10%) |
| 12 | 9 | 1.2 | 14.4 | 160 x (1±10%) |
| 24 | 18 | 2.4 | 28.8 | 640 x (1±10%) |
| 48 | 36 | 4.8 | 57.6 | 2560 x (1±10%) |

Notes: 1) The data shown above are initial values.

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

SAFETY APPROVAL RATINGS

| | |
|--------|---|
| UL/CUL | Making 20A, Loading 40 A, Breaking 20 A |
| TÜV | 277V a.c., Resistive, 85°C |
| CQC | 40 A, 277V a.c., Resistive, 85°C 30 A, 24V d.c., Resistive, 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, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2024 Rev. 1.01

ORDERING INFORMATION

| | | | | | | | |
|-----------------------------|-----------------------------------|--|-------------------|---------------|---|---|-------|
| Type | HF161F-40 / 12 | | -H | S | T | F | (XXX) |
| Coil voltage | 5, 12, 24, 48VDC | | | | | | |
| Contact arrangement | H: 1 Form A | | | | | | |
| Construction ⁽¹⁾ | S: Plastic sealed | | Nil: Flux proofed | | | | |
| Contact material | T: AgSnO ₂ | | | | | | |
| Insulation standard | F: Class F | | | | | | |
| Special code | XXX: Customer special requirement | | | Nil: Standard | | | |

Notes: 1) Please avoid using the relay in an environment containing organic silicon, otherwise the entry of organic silicon into the relay may acceleration contact failure. If there are harmful substances and elements such as water vapor, H₂S, SO₂, NO₂, Cl, P, dust, etc., as well as unknown harmful substances and elements, in the use of environmental gases, it may lead to increased contact resistance and poor contact during the use of relays. In the above situations, please control the materials that produce harmful substances and elements or use plastic sealed type, and arrange relevant tests to confirm that it meets the requirements for actual use.

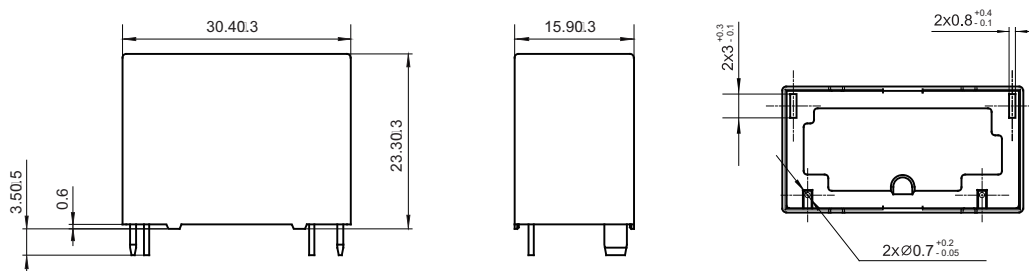
2) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB.

3) The customer special requirement express as special code after evaluating by Hongfa. e.g. (335) stands for product in accordance to IEC 60335-1(GWT).

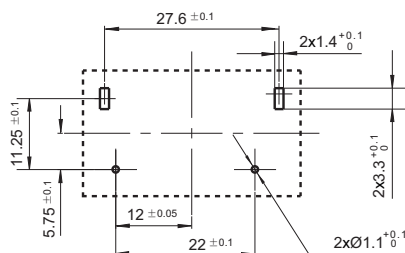
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

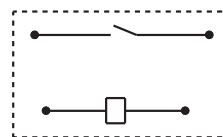
Outline Dimensions



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.

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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