

HF186F

MINIATURE HIGH POWER RELAY



File No.: E133481



File No.: R 50476790



File No.: CQC20002260253



Features

- 55A 277VAC loading current capability
- 3.0 mm contact gap
- Contact Type: CC2
- Low coil holding voltage contributes to saving energy of equipment.
- 10kV surge voltage(Between coil and contact)
- PCB Push-In & SMT available
- UL insulation system: Class F
- outline dimensions:(30×20×31)mm

RoHS compliant

CONTACT DATA

| | |
|-------------------------------|---|
| Contact arrangement | 1A |
| Contact resistance | 10mΩ max. (20 A 6VDC) |
| Contact material | AgSnO ₂ |
| Contact rating (Res. load) | Making 20A Loading 55A, Breaking 20A 277VAC |
| Max.switching voltage | 600VAC |
| Max.switching current | 50A |
| Max.continuous current | 66A at 85°C 55A at 105°C |
| Max.switching power | 13850VAC |
| Mechanical endurance | 1 x 10 ⁶ OPS |
| Electrical endurance | ≥5×10 ⁴ OPS (105°C, 1s on 9s off, Making 20 A Loading 55 A breaking 20A, 277VAC, Resistive load) ≥1×10 ⁴ OPS (85°C, 1s on 9s off, 50A 277VAC, Resistive load) |

Notes: 1) The data shown above are initial values.
2) For plastic sealed type, the venting-hole should be excised in electrical endurance test.

COIL

| | |
|-----------------|---|
| Coil power | Approx. 2.5W |
| Holding voltage | 40% to 70%U _N (at 23°C) 45% to 55%U _N (at 105°C) |

Notes: 1) The coil holding voltage is the voltage applied to coil 100ms after the rated voltage.
2) To avoid overheating and burning,the coil can not be consistently applied to with voltage larger than maximum holding voltage.

COIL DATA

23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max ⁽¹⁾ | Drop-out Voltage VDC min ⁽¹⁾ | Max. Voltage VDC ⁽²⁾ | Coil Resistance Ω |
|---------------------|--|---|---------------------------------|-------------------|
| 6 | 4.2 | 0.3 | 6.6 | 14.4 x (1±10%) |
| 9 | 6.3 | 0.45 | 9.9 | 32.4 x (1±10%) |
| 12 | 8.4 | 0.6 | 13.2 | 57.6 x (1±10%) |
| 24 | 16.8 | 1.2 | 26.4 | 230.4 x (1±10%) |
| 48 | 33.6 | 2.4 | 52.8 | 921.6 x (1±10%) |

Notes:1)The data shown above are initial values.
2)Maximun voltage refers to the maximum voltage which relay coil could endure in a short period of time.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2024 Rev. 1.01

CHARACTERISTICS

| | | |
|--------------------------------|--|---------------------|
| Insulation resistance | 1000MΩ (500VDC) | |
| Dielectric strength | Between open contacts | 2500VAC 1min |
| | Between coil & contacts | 5000VAC 1min |
| Surge voltage | Between coil & contacts | 10kV(1.2 / 50μs) |
| Operate time (at rated. volt.) | 20ms max | |
| Release time (at rated. volt.) | 10ms max | |
| Coil temperature rise | 50K max (Contact load current 55A, Applied voltage of coil 100% rated voltage for 100ms holding voltage of coil 50% rated voltage,at 105°C) | |
| Shock resistance | Functional | 196m/s ² |
| | Destructive | 980m/s ² |
| Vibration resistance | 10Hz to 55Hz 1.5mm DA | |
| Humidity | 5% to 85%RH(Coil applied holding voltage) | |
| Ambient temperature | -40°C to 105°C | |
| Termination | PCB & SMT | |
| Unit weight | Approx. 55g | |
| Construction | Flux proofed Plastic sealed | |

Notes: The data shown above are initial values.

SAFETY APPROVAL RATINGS

| | |
|----------------------|---|
| CQC UL/CUL TÜV | Making 20A,loading 66 A breaking 20 A, 600 VAC ,85°C |
| | Making 20A,loading 55 A breaking 20 A, 277 VAC 105°C |
| | 50 A,277 VAC. 85°C |
| TÜV | Making 20A,loading 60 A breaking 20 A, 277 VAC ,85°C |
| TÜV | 40A 60VDC 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.

ORDERING INFORMATION

| | | | | | | | |
|----------------------------|-----------------------|----|------------------|---|---|---|-------|
| Type | HF186F/ | 12 | -H | C | T | F | (XXX) |
| Coil voltage | 6, 9, 12, 24,48 VDC | | | | | | |
| Contact arrangement | 1H: 1 Form A | | | | | | |
| Termination | C: SMT | | Nil: PCB Push-In | | | | |
| Contact material | T: AgSnO ₂ | | | | | | |
| Insulation standard | F: Class F | | | | | | |
| Special code ³⁾ | (600): Flux proofed | | | | | | |

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 meet the requirements for actual use.

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

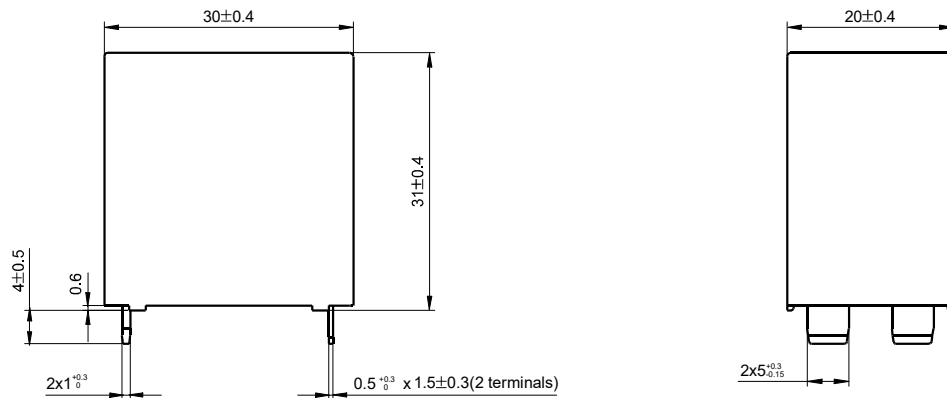
3) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

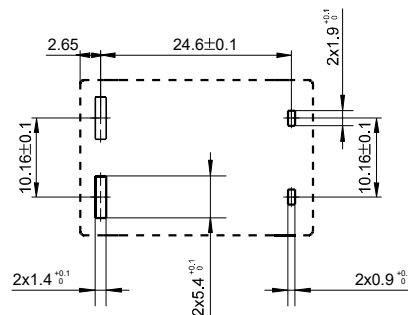
Unit: mm

Outline Dimensions

PCB Push-In

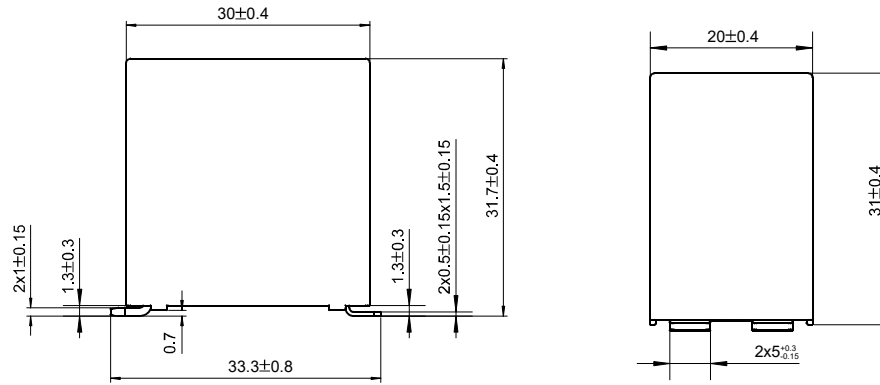


PCB Layout (Bottom view)

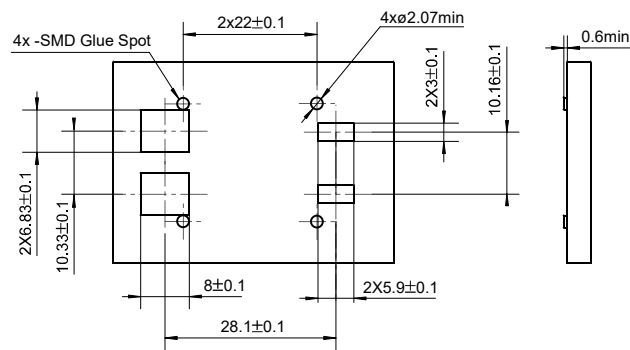


Outline Dimensions

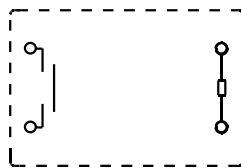
SMT



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 ± 0.2 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 tolerance without indicating for PCB layout is always ± 0.1 mm.

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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