# HF181F MINIATURE HIGH POWER RELAY

File No.: E133481

File No.: R50433434

File No.: CQC19002215718


## Features

- 2 form A configurations
- 6.5 mm contact gap
- Withstand 10kV impulse voltage between contacts, contact groups and coil-contact
- 5KV dielectric between open contacts
- Meeting reinforce insulation
- Class F insulation
- Outline Dimensions：(32.6 x 14 x 30.5) mm

## CONTACT DATA

| | |
|---|---|
| Contact arrangement | 2A |
| Contact resistance | 100mΩ max (1A 6VDC) |
| Contact material | AgNi+Au, AgNi |
| Contact rating (Res. load) | 0.1A 250VAC<br>1A 30VDC |
| Max. switching voltage | 30VDC/277VAC |
| Max. switching current | 1A |
| Max. switching power | 30W/277VA |
| Mechanical endurance | 1 x $10^5$OPS |
| Electrical endurance | 1 x $10^4$OPS<br>(30VDC, 1A,<br>Resistive load, room temp, 1s on 9s off) |

## CHARACTERISTICS

| | | |
|---|---|---|
| Insulation resistance | | 1000MΩ (at 500VDC) |
| Dielectric strength | Between open contacts | 5000VAC 1min |
| | Between contact sets | 5000VAC 1min |
| | Between coil & contacts | 5000VAC 1min |
| Surge Voltage | Between open contacts | 10kV(1.2 X 50μs) |
| | Between contact sets | 10kV(1.2 X 50μs) |
| | Between coil & contacts | 10kV(1.2 X 50μs) |
| Operate time (at rated. volt.) | | 30ms max. |
| Release time (at rated. volt.) | | 10ms max |
| Shock resistance | Functional | 98m/s$^2$ |
| | Destructive | 980m/s$^2$ |
| Vibration resistance* | | 10Hz to 55Hz 1.0mm DA |
| Humidity | | 5% to 85% RH |
| Ambient temperature | | -40˚C to 85˚C |
| Termination | | PCB |
| Unit weight | | Approx. 25g |
| Construction | | Plastic sealed<br>Flux proofed |

**Notes:** The data shown above are initial values.

## COIL

| | |
|---|---|
| Coil power | Approx. 4.6W |
| Holding voltage | 40% to 50% $U_N$ (at 25˚C)<br>50% to 60%$U_N$ (at 85˚C) |

**Notes:** 1)The coil holding voltage is the voltage applied to coil 200ms after the rated voltage.
2)To avoid overheating and burning, the coil can not be consistently applied to with voltage larger than holding voltage.

## 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 | 3.5 | 0.25 | 5 | 5.6 x (1±10%) |
| 6 | 4.2 | 0.30 | 6 | 8.0 x (1±10%) |
| 9 | 6.3 | 0.45 | 9 | 18 x (1±10%) |
| 12 | 8.4 | 0.60 | 12 | 32 x (1±10%) |
| 15 | 10.5 | 0.75 | 15 | 50 x (1±10%) |
| 18 | 12.6 | 0.90 | 18 | 70 x (1±10%) |
| 24 | 16.8 | 1.20 | 24 | 125 x (1±10%) |
| 36 | 25.2 | 1.80 | 36 | 280 x (1±10%) |
| 48 | 33.6 | 2.40 | 48 | 500 x (1±10%) |
| 60 | 42 | 3.00 | 60 | 800 x (1±10%) |
| 110 | 77 | 5.50 | 110 | 2660 x (1±10%) |

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

## SAFETY APPROVAL RATINGS

| | | |
|---|---|---|
| UL/TUV | 2NO | 0.1A 250VAC Resistive 85˚C<br>0.3A 50VAC Resistive 85˚C<br>1.0A 30VAC Resistive 85˚C |
| | 0.3A 1500VDC（2 NO series connected） | |

**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

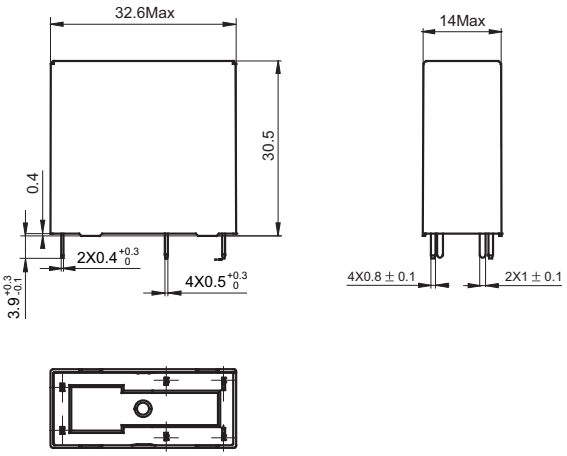
| | HF181F/ | 12 | -2H | S | 3 | F | G | (XXX) |
|---|---|---|---|---|---|---|---|---|
| **Type** | | | | | | | | |
| **Coil voltage** | 5, 6, 9, 12, 15, 18, 24, 36, 48, 60, 110VDC | | | | | | | |
| **Contact arrangement** | **2H:** 2 Form A | | | | | | | |
| **Construction** | **S:** Plastic sealed | **Nil:** Flux proofed | | | | | | |
| **Contact material** | **3:** AgNi | | | | | | | |
| **Insulation standard** | **F:** Class F | | | | | | | |
| **Contact plating** | **G:** Gold plated | **Nil:** No gold plated | | | | | | |
| **Special code** 3) | **XXX:** Customer special requirement | **Nil:** Standard | | | | | | |

**Notes:** 1) Flux-proofed relays can not be used in the environment with pollutants like $H_2S$, $SO_2$, $NO_2$, dust, etc.
2) Water clearing 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.

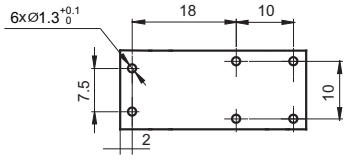
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

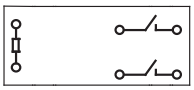
Outline Dimensions




PCB 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.