# HF32FV-G SUBMINIATURE INTERMEDIATE POWER RELAY

c UL us
File No.:E134517

File No.:40012204

File No.:CQC14002120720


## Features

- 10A switching capability
- Dielectric strength 4kV (between coil and contacts)
- 1 Form A configurations
- Standard PCB layout
- Plastic sealed and flux proofed types available
- UL insulation system: Class F
- Product in accordance to IEC60335-1 available
- Meet reinforce insulation
- Relow soldering version available
- Halogen-free products are available

## CONTACT DATA

| | | | |
|---|---|---|---|
| Contact arrangement | | 1A | |
| Contact resistance 1) | | 100mΩ max.(at 1A 6VDC) | |
| Contact material | | $AgNi,AgSnO_2, AgCdO$ | |
| Contact rating (Res. load) | | Standard | Sensitive |
| | | 10A 250VAC<br>10A 30VDC | 8A 250VAC<br>8A 30VDC |
| Max. switching voltager | | 250VAC / 30VDC | |
| Max. switching current | | 10A | 8A |
| Max. switching power | | 2500VA/300W | 2000VA/240W |
| Mechanical endurance | | $1 \times 10^7$OPS | |
| Electrical endurance | Standard | $1 \times 10^5$OPS (10A 250VAC Resistive load, at room temp., 1s on 9s off)<br>$5 \times 10^4$OPS (10A 250VAC Resistive load, at 85°C, 1s on 9s off) | |
| | Sensitive | $1 \times 10^5$OPS (8A 250VAC Resistive load, at room temp., 1s on 9s off)<br>$5 \times 10^4$OPS (8A 250VAC Resistive load, at 85°C, 1s on 9s off) | |

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

## CHARACTERISTICS

| | | |
|---|---|---|
| Insulation resistance | | 1000MΩ (at 500VDC) |
| Dielectric strength | Between coil & contacts | 4000VAC 1min |
| | Between open contacts | 1000VAC 1min |
| Surge withstand voltage | | 6kV(1.2 / 50μs) |
| Operate time (at rated. volt.) | | 8ms max. |
| Release time (at rated. volt.) | | 5ms max. |
| Coil temperature rise(at rated. volt.) | | 70k max. |
| Shock * resistance | Functional | 294m/s² |
| | Destructive | 980m/s² |
| Vibration resistance * | Functional | 10Hz to 55Hz 1.5mm DA |
| Humidity | | 5% to 85% RH |
| Ambient oprating temperature | | -40°C to 85°C |
| Termination | | PCB |
| Unit weight | | Approx. 6g |
| Construction | | Plastic sealed, Flux proofed |

**Notes:** 1) The data shown above are initial values.
2) *Index is not in relay length direction.
3) In order to obtain better electrical endurance, it's better not use this product in the high temperature environment.

## COIL

| | |
|---|---|
| Coil power | Standard: Approx. 450mW;<br>Sensitive: Approx. 200mW |

## COIL DATA at 23°C

**Standard Type**

| Nominal Voltage VDC | Pick-up Voltage VDC max.1) | Drop-out Voltage VDC min.1) | Max. Voltage VDC*2) | Coil Resistance Ω |
|---|---|---|---|---|
| 3 | 2.25 | 0.15 | 3.9 | 20 x (1±10%) |
| 5 | 3.75 | 0.25 | 6.5 | 55 x (1±10%) |
| 6 | 4.50 | 0.30 | 7.8 | 80 x (1±10%) |
| 9 | 6.75 | 0.45 | 11.7 | 180 x (1±10%) |
| 12 | 9.00 | 0.60 | 15.6 | 320 x (1±10%) |
| 18 | 13.5 | 0.90 | 23.4 | 720 x (1±10%) |
| 24 | 18.0 | 1.20 | 31.2 | 1280 x (1±10%) |
| 48 | 36.0 | 2.40 | 62.4 | 5120 x (1±10%) |

**Sensitive Type**

| Nominal Voltage VDC | Pick-up Voltage VDC max.1) | Drop-out Voltage VDC min.1) | Max. Voltage VDC*2) | Coil Resistance Ω |
|---|---|---|---|---|
| 3 | 2.25 | 0.15 | 4.5 | 45 x (1±10%) |
| 5 | 3.75 | 0.25 | 7.5 | 125 x (1±10%) |
| 6 | 4.50 | 0.30 | 9.0 | 180 x (1±10%) |
| 9 | 6.75 | 0.45 | 13.5 | 400 x (1±10%) |
| 12 | 9.00 | 0.60 | 18.0 | 720 x (1±10%) |
| 18 | 13.5 | 0.90 | 27.0 | 1600 x (1±10%) |
| 24 | 18.0 | 1.20 | 36.0 | 2800 x (1±10%) |
| 48 | 36.0 | 2.40 | 72.0 | 11520 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 | $AgSnO_2$ | 10A 277VAC /250VAC Resistive at 85˚C<br>10A 277VAC/250VAC Resistive at 40˚C<br>8A 277VAC/250VAC General use (Sensitive ) at 85˚C<br>TV-5 120VAC at 40˚C<br>TV-3 120VAC(Sensitive ) at 40˚C |
| | AgCdO | 10A 277VAC/250VAC General use at 85˚C<br>10A 30VDC Resistive at at 85˚C<br>10A 277VAC/250VAC Resistive at 40˚C<br>8A 277VAC/250VAC Resistive Load(Sensitive) at 85˚C |
| | AgNi | 10A 277VAC/250VAC Resistive at 40˚C<br>8A 277VAC/250VAC Resistive Load（Sensitive）at 40˚C |
| VDE | $AgSnO_2$ | 10A 277VAC/250VAC Resistive at 85˚C<br>8A 277VAC/250VAC Resistive （Sensitive） at 85˚C |
| | AgCdO | 10A 277VAC/250VAC Resistive at 85˚C |
| | AgNi | 10A 277VAC/250VAC Resistive at 85˚C<br>8A 277VAC/250VAC Resistive（Sensitive） at 85˚C |
| CQC | $AgSnO_2$ | 10A 277VAC/250VAC Resistive at 85˚C<br>8A 277VAC/250VAC Resistive（Sensitive） at 85˚C |
| | AgCdO | 10A 277VAC/250VAC Resistive at 85˚C |
| | AgNi | 10A 277VAC/250VAC Resistive at 85˚C<br>10A 30VDC Resistive at 85˚C<br>8A 30VDC Resistive（Sensitive） at 85˚C<br>8A 277VAC/250VAC Resistive（Sensitive）at 85˚C |

**Notes:** 1) Opening the vent hole under contact material $AgSnO_2$ testing.
2) All values unspecified are at room temperature.
3) Only typical loads are listed above. Other load specifications can be available upon request.

## ORDERING INFORMATION

HF32FV-G / 12 -H S L T F (XXX)

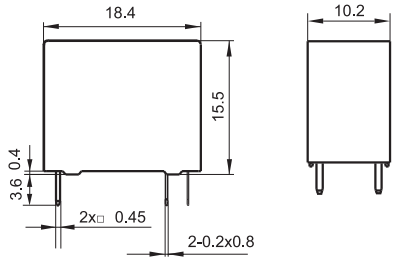
| | | | | |
|---|---|---|---|---|
| **Type** | | | | |
| **Coil voltage** | 3, 5, 6, 9, 12, 18, 24, 48VDC | | | |
| **Contact arrangement** | **H:** 1 Form A | | | |
| **Construction**[1)2)] | **S:** Plastic sealed | **Nil:** Flux proofed | | |
| **Coil power** | **L:** Sensitive[3)] | **Nil:** Standard | | |
| **Contact material** | **T:** $AgSnO_2$ | **3:** AgNi | **Nil:** AgCdO | |
| **Insulation standard** | **F:** Class F | | | |
| **Special code**[5)] | **XXX:** Customer special requirement | **Nil:** Standard | | |

**Notes:** 1) We recommend flux proofed types for a clean environment (free from contaminations like $H_2S$, $SO_2$, $NO_2$, 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) Sensitive loading: 8A.
4) 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); (590) stands for product in accordance to TV loading. For standard type is TV-5, for sentitive type is TV-3.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

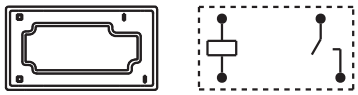
Unit: mm

Outline Dimensions




Wiring Diagram

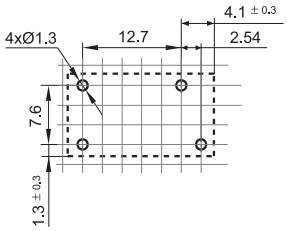
(Bottom view)



(Bottom view)

PCB Layout

(Bottom view)




Remark: 1) * The additional tin top is max. 1mm.

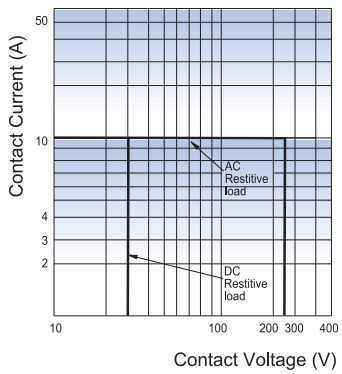
2) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

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

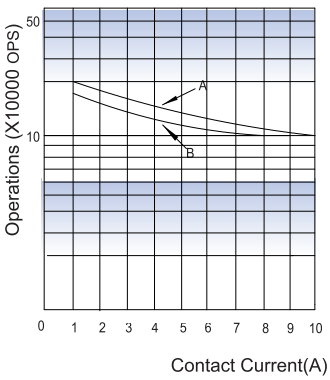
4) The width of the gridding is 2.54mm.

## CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



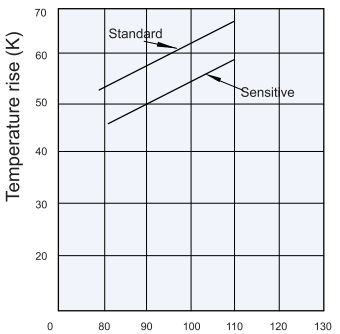

ENDURANCE CURVE




**Remark:**

1. Carve A: standard
   Carve B: sensitive
2. Testing conditions:
   Standard: flux proofed, resistive load,
   10A/250VAC, at room temp. 1s on 9s off.
   Sensitive: flux proofed, resistive load,
   8A/250VAC, at room temp. 1s on 9s off.

COIL TEMPERATURE RISE




**Testing conditions:**

Standard: 10A at 85°C.
Sensitive: 8A at 85°C
Mounting distance: 10mm