

HFV12

AUTOMOTIVE RELAY



Typical Applications

Battery disconnection in order to prevent fire caused by short circuits during an accident, Energy-management

Features

- Battery Disconnect Relay (Energy-management)
- 2 coils latching automotive relay
- Continuous current of 190 A at 85°C
- Load terminal connection: screw connection (M8 bolt)
- Coil terminal connection: 4-pin connector (AMP 0.070 series)
- Weight: Approx.210g

CHARACTERISTICS

| | |
|---------------------------------------|---|
| Contact arrangement | 1A |
| Voltage drop (initial) | Typ.: 50mV (at 100A) Max.: 250mV (at 100A) |
| Max. continuous current ¹⁾ | NO: 190A (at 70°C, 48h) |
| Max. switching current ²⁾ | 180A |
| Max. switching voltage | 16VDC |
| Non operate voltage | 2V (at 23°C) |
| Limited current | 1500A (0.2s, at 70°C) 1000A (1s, at 70°C) |
| Electrical endurance | See "CONTACT DATA" |
| Mechanical endurance | 2 x 10 ⁶ OPS (30OPS/min) |
| Initial insulation resistance | 100MΩ (at 500VDC) |
| Dielectric strength ³⁾ | 500VAC (1min, leakage current less than 1mA) |
| Operate time | Typ.: 5ms (at nomi. vol.) Max.: 20ms (at nomi. vol.) |
| Release time | Typ.: 5ms (at nomi. vol.) Max.: 20ms (at nomi. vol.) |

| | |
|------------------------------------|----------------------------------|
| Noise level | Typ.: 86dB |
| Protection class | IP54 |
| Ambient temperature | -40°C to 120°C |
| Vibration resistance ⁴⁾ | 22HZ to 500Hz 98m/s ² |
| Shock resistance ⁴⁾ | 392m/s ² |
| Termination | QC, Screw |
| Construction | Plastic sealed |
| Unit weight | Approx.210g |

- 1) To energize an impulse for 50ms to 100ms at coil terminals so that contacts switch.
- 2) At 23°C, 13.5VDC, on & off rate at 1s:5s, resistive load (100 cycles).
- 3) 1min, leakage current less than 1mA.
- 4) When energized, opening time of NO contacts shall not exceed 100μs, when non-energized, opening time of NCcontacts shall not exceed 100μs, meantime, NO contacts shall not be closed.

CONTACT DATA

| Load voltage | Load type | Load current A | On/Off ratio | | Electrical endurance OPS | Contact material | Ambient temp. |
|--------------|-----------------|-------------------|--------------|----------|--------------------------------|---------------------|----------------------------|
| | | | On s | Off s | | | |
| 14VDC | Inductive 0.1mH | 100 | 1 | 5 | 5 × 10 ⁴ | AgSnO ₂ | See Ambient temp. curve |
| | Inductive 0.1mH | 180 | 1 | 5 | 1.5 × 10 ⁴ | | |

COIL DATA

at 23°C

| Nominal Voltage VDC | Ambient temperature | Pick-up Voltage VDC | Drop-out voltage VDC ¹⁾ | Set Coil resistance (between pin2 & pin4) x(1±10%)Ω | Reset Coil resistance (between pin1 & pin3) x(1±10%)Ω | Max. Allowable Voltage VDC |
|---------------------------|------------------------|---------------------------|--|--|--|----------------------------------|
| 12 | -40°C | ≤4.3 | ≤7.0 | --- | --- | --- |
| | 23°C | ≤6.0 | ≤7.0 | 5 | 5 | 28 |
| | 85°C | ≤9.0 | ≤7.0 | --- | --- | 16 |
| | 120°C | ≤10.5 | ≤7.0 | --- | --- | --- |

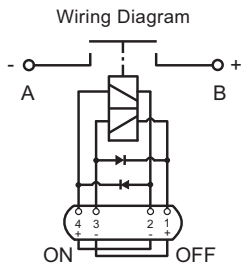


HONGFA RELAY

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

2012 Rev. 1.01

1) The impulse width should be 50ms to 100 ms. Energizing voltage mode should be acted as per the diagram below:



| Coil terminal | Function |
|---------------|----------------|
| 4 | Set Coil (+) |
| 3 | Reset Coil (-) |
| 2 | Set Coil (-) |
| 1 | Reset Coil (+) |
| A | Load terminal |
| B | Load terminal |

2) Max. allowable overdrive voltage is stated with no load applied and minimum coil resistance. Max. allowed in fiction time is 1s.

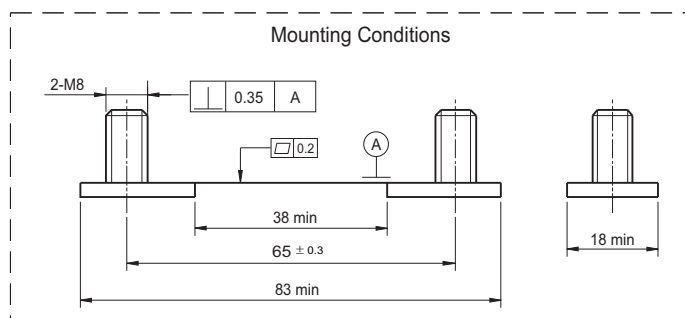
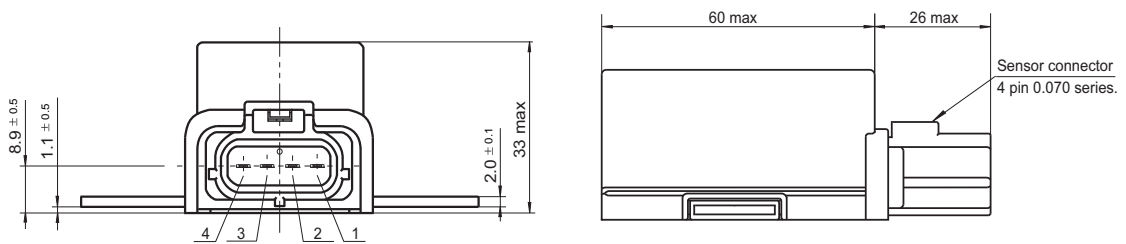
ORDERING INFORMATION

| | | | | | |
|---------------------------|-----------------------------|----|----|----|-------|
| Type | HFV12 / | 12 | -H | -D | (XXX) |
| Coil voltage | 12: 12VDC | | | | |
| Contact arrangement | 1H: 1 Form A | | | | |
| Instantaneous suppression | D: Diode paralleled to coil | | | | |
| Customer special code | | | | | |

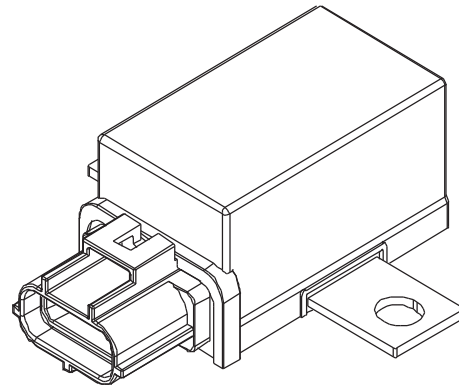
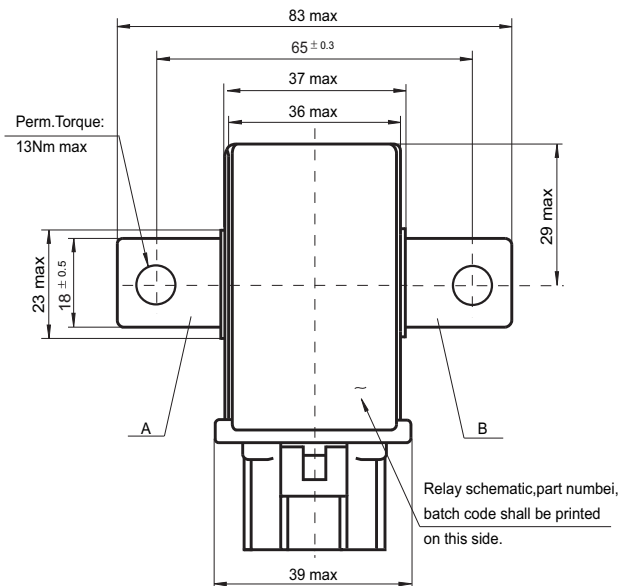
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

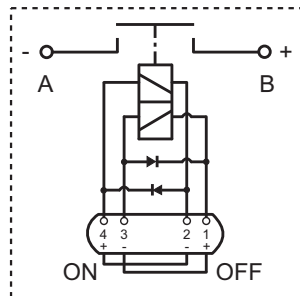
Outline Dimensions



Layout (Bottom view)



Wiring Diagram
(Bottom view)

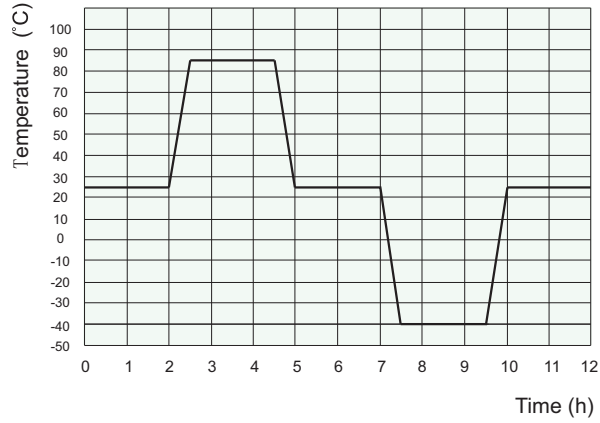


- Remark: 1) Relay is on the "reset" status when being released from stock, with the consideration of shock risen from transit and relay mounting, it should be changed to the "set" status when application(connecting to the power supply). Please reset the relay to "set" or "reset" status on request.
- 2) In order to maintain the "set" or "reset" status, energized voltage to coil should reach the rated voltage, impulse width should be 50ms to 100ms. Do not energize voltage to "set" coil and "reset" coil simultaneously. And also long energized time (more than 1 min) should be avoided.
- 3) To avoid using relays under strong magnetic field which will change the parameters of relays such as pick-up voltage and drop-out voltage.

CHARACTERISTIC CURVES

Ambient temperature curve of the electrical endurance test

Ambient temp. curve (one cycle)



- 1) The minimum temperature is -40°C.
- 2) The maximum temperature is 85°C.

Disclaimer

This datasheet is for the customers' reference. All the specifications are 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.

© Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.