

HFV15N

AUTOMOTIVE RELAY



Typical Applications

Horn control, Motor control

Features

- 40A switching capability
- Various mounting terminations available
- 1 Form A (2 x 87) contact arrangement
- RoHS & ELV compliant

CHARACTERISTICS

| | | | |
|---|--|----------------------------------|--|
| Contact arrangement | 1A | Shock resistance ⁵⁾⁸⁾ | 294m/s ² |
| Voltage drop | Typ.40mV(at 10A) Max. initial:100mV (at 10A) Max.after test:250mV (at 10A) | Flammability ⁶⁾ | UL94-HB or better (meets FMVSS 302) |
| Max. continuous current ¹⁾⁸⁾ | 60A continuous(at 23°C), 40A continuous(at 85°C), 17A continuous(at 125°C) | Termination | QC |
| Max. switching current ⁸⁾ | Make: 150A ²⁾ Break : 40A (Resistive, 13.5VDC) | Construction | Plastic sealed, Dust protected |
| Min. contact load | 1A 12VDC | Unit weight | Approx. 35g |
| Electrical endurance | See "CONTACT DATA" | Mechanical data | housing retention (pull & push): 200N min. terminal retention (pull & push): 100N min. terminal resistance to bending (front & side): 10N min. ⁷⁾ |
| Mechanical endurance | 1 x 10 ⁶ OPS (300OPS/min) | | |
| Initial insulation resistance | 100MΩ (at 500VDC) | | |
| Dielectric strength ³⁾ | 500VAC | | |
| Operate time ⁸⁾ | Max.: 10ms (at nomi. vol.) | | |
| Release time ⁸⁾ | Max.: 10ms ⁴⁾ | | |
| Ambient temperature | -40°C to 125°C | | |
| Vibration resistance ⁵⁾⁸⁾ | 5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s ² | | |

- 1) Measured when applying 100% rated voltage on coil.
- 2) Inrush peak current under lamp load, at 13.5VDC.
- 3) 1min, leakage current less than 1mA.
- 4) The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.
- 5) When energized, opening time of NO contacts shall not exceed 100us.
- 6) FMVSS: Federal Motor Vehicle Safety Standard.
- 7) Test point is at 2mm away from terminal end, and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.
- 8) Only for the 12VDC coil voltage type.
- 9) Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

CONTACT DATA ¹⁾

| Load voltage | Load type | | Load current A | On/Off ratio | | Electrical endurance ³⁾ OPS | Contact material | Load wiring diagram ⁴⁾ | Ambient temp. |
|--------------|-----------|-------|-------------------|--------------|-------|---|--------------------|-----------------------------------|-------------------------|
| | | | | On s | Off s | | | | |
| 13.5VDC | Resistive | Make | 40 | 2 | 2 | 1×10 ⁵ | AgSnO ₂ | See diagram 1 | See Ambient Temp. Curve |
| | | Break | 40 | | | | | | |
| | Lamp | Make | 150 ²⁾ | 2 | 2 | 1×10 ⁵ | AgSnO ₂ | See diagram 2 | |
| | | Break | 30 | | | | | | |
| | Inductive | Make | 80 | 2 | 2 | 1×10 ⁵ | AgSnO ₂ | See diagram 3 | |
| | | Break | 33 | | | | | | |
| 27VDC | Resistive | Make | 20 | 2 | 2 | 1×10 ⁵ | AgSnO ₂ | See diagram 1 | 23°C |
| | | Break | 20 | | | | | | |

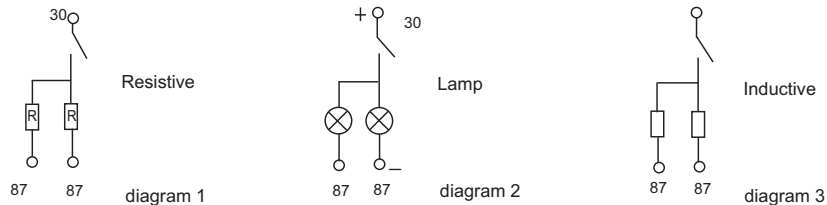


HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2025 Rev. 1.00

- 1) Loads mentioned in this chart is for relays with no parallel diode or Zener Diode. For those with parallel diode, Zener Diode or other components, please contact Hongfa for more technical supports.
Please also contact Hongfa if the actual application load is different from what mentioned above.
- 2) Corresponds to the peak inrush current on initial actuation (cold filament).
- 3) A low resistive or diode suppression device in parallel to the relay coil increases the release time and reduces the life time caused by increased erosion and / or higher risk of contact welding.
- 4) The contact connection diagrams are listed below :



COIL DATA

at 23°C

| Nominal voltage VDC | Pick-up voltage VDC | Drop-out voltage VDC | Coil resistance | Parallel resistance ¹⁾ | Equivalent resistance x(1±10%)Ω | Power consumption W | Max. allowable overdrive voltage ⁽²⁾ VDC | |
|---------------------|---------------------|----------------------|-----------------|-----------------------------------|---------------------------------|---------------------|---|------|
| | | | | | | | 23°C | 85°C |
| 12 | ≤8 | ≥1.2 | 90 | — | — | 1.6 | 20.2 | 15.7 |
| 12 | ≤8 | ≥1.2 | 90 | 680 | 79.5 | 1.8 | 20.2 | 15.7 |
| 24 | ≤16 | ≥2.4 | 320 | — | — | 1.8 | 40.5 | 31.5 |
| 24 | ≤16 | ≥2.4 | 320 | 2700 | 286 | 2.0 | 40.5 | 31.5 |

1) Illustrated with the type with parallel resistor (680Ω, 12V) ,(2700Ω,24V);

2) Max. allowable overdrive voltage is stated with no load applied

ORDERING INFORMATION

| | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| Type | HFV15N / 12 -H 1 S T J -R (XXX) | | | | | | | |
| Coil voltage | 12: 12VDC 24: 24VDC | | | | | | | |
| Contact arrangement | H: 1 Form A | | | | | | | |
| Version | 1: QC Terminal 4: Plastic Bracket | | | | | | | |
| Construction ¹⁾ | S: Plastic sealed Nil: Dust protected | | | | | | | |
| Contact material | T: AgSnO ₂ | | | | | | | |
| Terminal | J: QC Terminal without hole Nil: QC Terminal with hole, or PCB type | | | | | | | |
| Parallel coil ²⁾ components | R: Parallel transient suppression resistors(680Ω, 12V) (2700Ω,24V) R1: Parallel transient suppression resistors(560Ω, 12V) (1200Ω,24V) D: Parallel transient suppression diode, with anode connected to terminal#85 D1: Parallel transient suppression diode, with anode connected to terminal#86 Nil: Without parallel components | | | | | | | |
| Special code ³⁾ | XXX: Customer special requirement Nil: Standard | | | | | | | |

Notes: 1) In environments with high humidity, moisture, or even condensation, and dust, such as relays used in engineering, mining, agriculture and other fields, or relays with mounting brackets installed outside of electrical boxes,
It is recommended to use plastic-encapsulated products; in environments containing phosphorus, H₂S, SO₂, NO₂ and other harmful gases, plastic-encapsulated types must be used and tested and confirmed in actual use; in environments containing organic silicon, please avoid using dust-proof covers ;

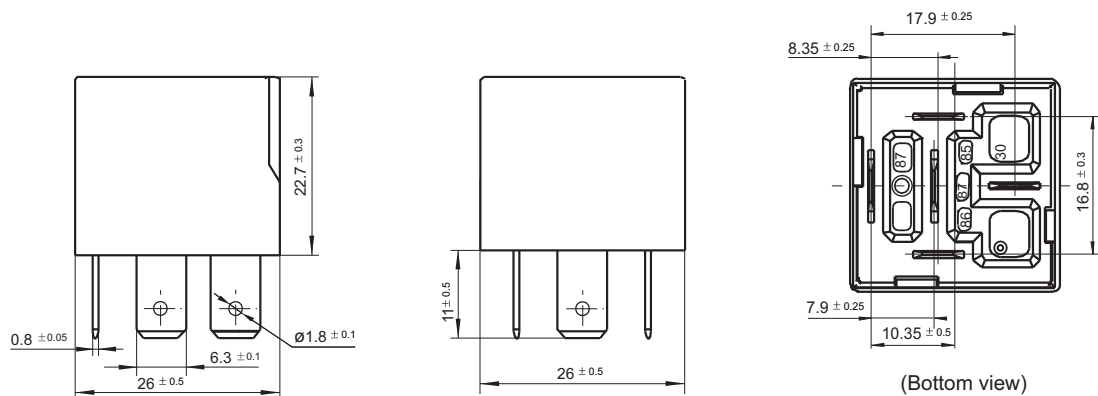
2) If the switch-off peak voltage of coil is required to be smaller than 100V, R1 shall be used (measured voltage of 12V is 13.5V);

If parallel diode, Zener Diode or other components are required, please contact Hongfa for more technical supports.

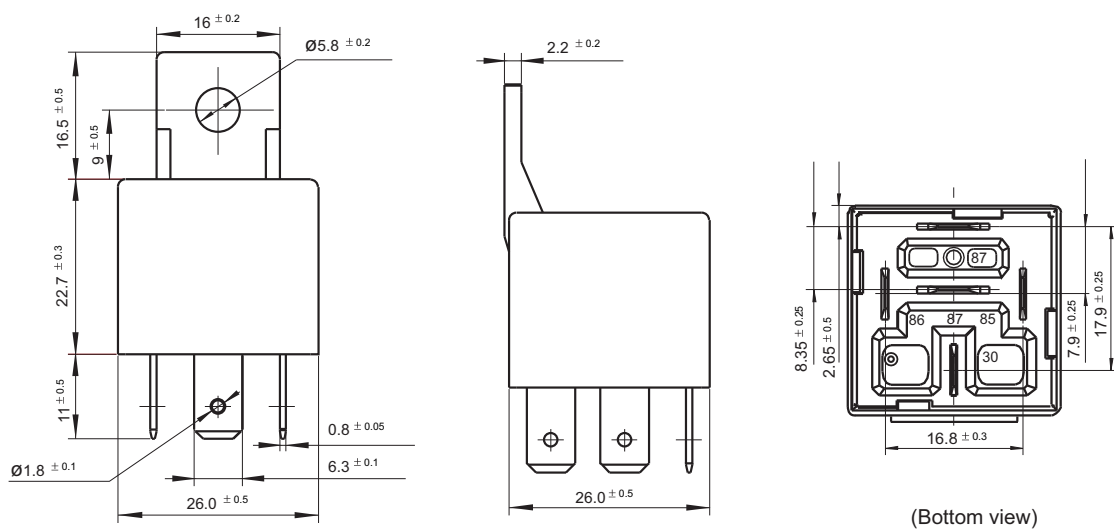
3) The performance parameters of products with characteristic numbers shall be subject to the specific specifications provided by Hongfa.

Unit: mm

HFV15N/□□-H1□T□-□(XXX)



HFV15N/□□-H4□T□-□(XXX)

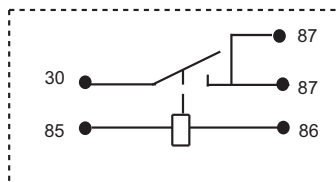


OUTLINE DIMENSIONS AND WIRING DIAGRAM

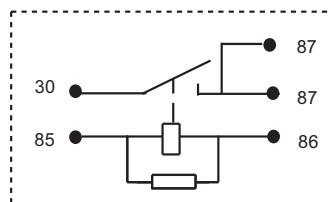
Unit: mm

Wiring Diagram

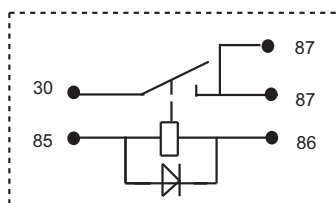
HFV15N/□□-H□□T□(XXX)



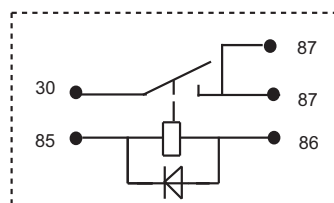
HFV15N/□□-H□□T□-R(XXX)



HFV15N/□□-H□□T□-D(XXX)

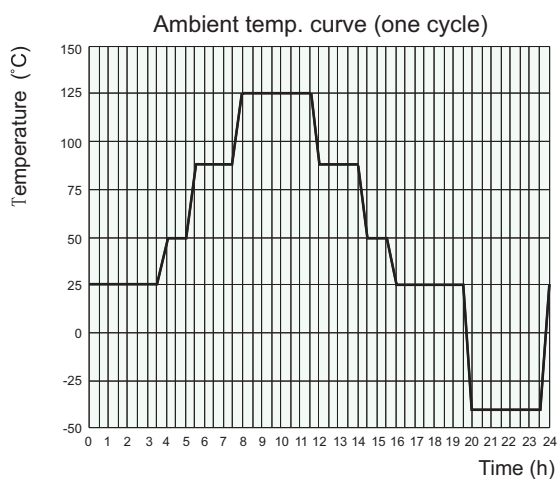


HFV15N/□□-H□□T□-D1(XXX)



CHARACTERISTIC CURVES

1. Ambient temperature curve of the electrical endurance test



- 1) The minimum temperature is -40°C.
- 2) The maximum temperature is 125°C.

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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