HFV15-L AUTOMOTIVE RELAY

Features

- 40A switching capability
- Extended temp. range up to 125˚C
- Max. continous current 60A
- Max. making current 150A
- Plastic sealed and dust protected types available
- QC terminal and PCB terminal available
- RoHS & ELV compliant
- Pin assignment similar to ISO 7588 part 1

Typical Applications

Power Management,Fog lamp & headlight control, Rear window defogger, Air-conditioning, Fuel pump control, Cooling fan control, Battery disconnection device, Start / stop control

CHARACTERISTICS

Contact arrangement	1A
Voltage drop	Typ.: 20mV (at 10A) Max.initial:100mV (at 10A) Max.after test: 250mV(at 10A)
Max. continuous current 1) 10)	60A (at 23˚C), 45A(at 85˚C), 25A(at 125˚C)
Max. switching current 10)	Make (NO): 150A 2) Break (NO): 40A (Resistive, 13.5VDC)
Min. contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1 x 10^6OPS (60OPS/min)
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength 3)	500VAC
Operate time 10)	Typ:1.5ms, Max.: 10ms (at nomi. vol.)
Release time 4)10)	Typ:1ms, Max.: 10ms
Ambient temperature	-40˚C to 125˚C
Vibration resistance 5) 10)	5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s^2
Shock resistance 5) 10)	294m/s^2
Flammability 6)	UL94-HB or better (meets FMVSS 302)
Termination	QC, PCB 7)
Construction	Plastic sealed, Dust protected
Unit weight	Approx. 35g
Mechanical data 8)	housing retention (pull & push): 200N min. terminal retention (pull & push): 100N min. terminal resisitance to bending (front & side): 10N min. 9)

1) For NO contacts, measured when applying 100% rated votage 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) Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature and time is (250±3)˚C , (5±0.3)s.
8) Only valid for QC version.
9) Test point is at 2mm away from teminal end, and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.
10) Only for the 12VDC coil voltage type.

CONTACT DATA 1)

Load voltage	Load type		Load current A	On/Off ratio On s	On/Off ratio Off s	Electrical endurance OPS	Contact material	Load wiring diagram 3)	Ambient temp.
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 (L=0.25mH)	Make	80	2	2	1×10^5	$AgSnO_2$	See diagram 3	
		Break	33						

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 diffrent from what mentioned aboved.
2) Corresponds to the peak inrush current on initial actuation (cold filament).
3) The load wiring diagrams are listed below (Ratings of NO, NC are tested based on different samples seperately) :

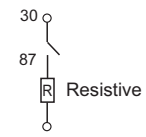


diagram 1

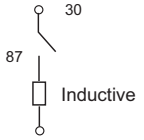


diagram 2

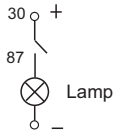


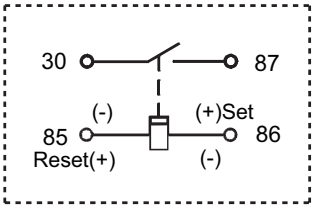
diagram 3

COIL DATA

at 23°C

Nominal voltage VDC	Set voltage[1] VDC max.	Reset voltage[1] VDC max.	Coil resistance x(1±10%) Ω	Max. allowable overdrive voltage[2] VDC
12	7.2	7.2	25	18

1) The impulse width should be 10ms to 100ms.Energizing voltage mode should be acted as per the diagram below.



Polarity for set/reset	Set	Reset
energization	Pin85(-), Pin86(+)	Pin85(+),Pin86(-)

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

ORDERING INFORMATION

HFV15-L / 12 -H 1 S T J (XXX)

Type	**HFV15-L**:Latching
Coil voltage	**12**: 12VDC
Contact arrangement	**H**: 1 Form A
Version	**1**: QC Terminal **2**: PCB type
Construction [1]	**S**: Plastic sealed [2] **Nil**: Dust protected
Contact material	**T**: $AgSnO_2$
Terminal	**J**: QC Terminal without hole **Nil**: QC Terminal with hole, or PCB type
Special code [3]	**XXX:** Customer special requirement **Nil:** Standard

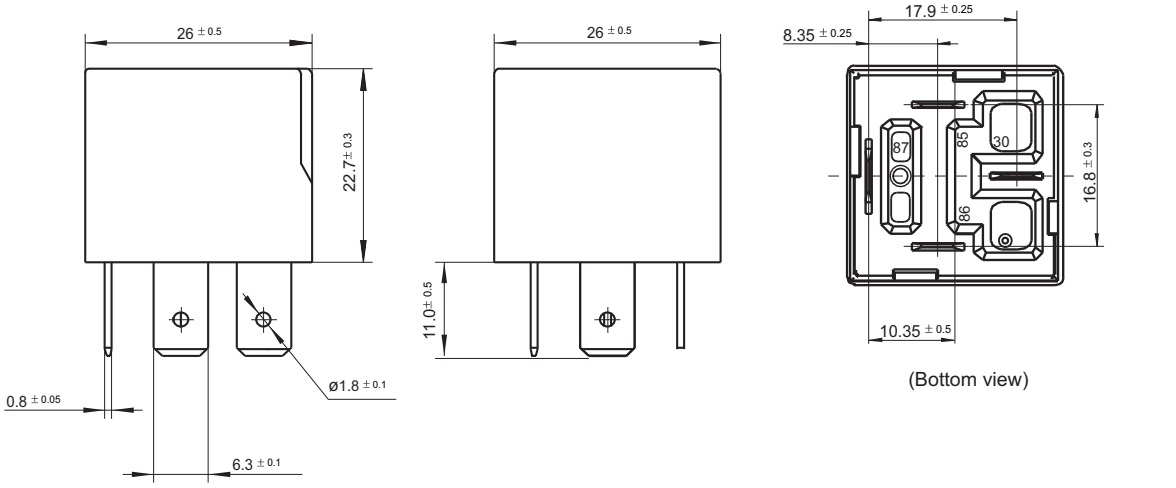
Notes: 1) Dust protected version is recommended.
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
3) The customer special requirement express as special code after evaluating by Hongfa. e.g. (170) stands for flasher load.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

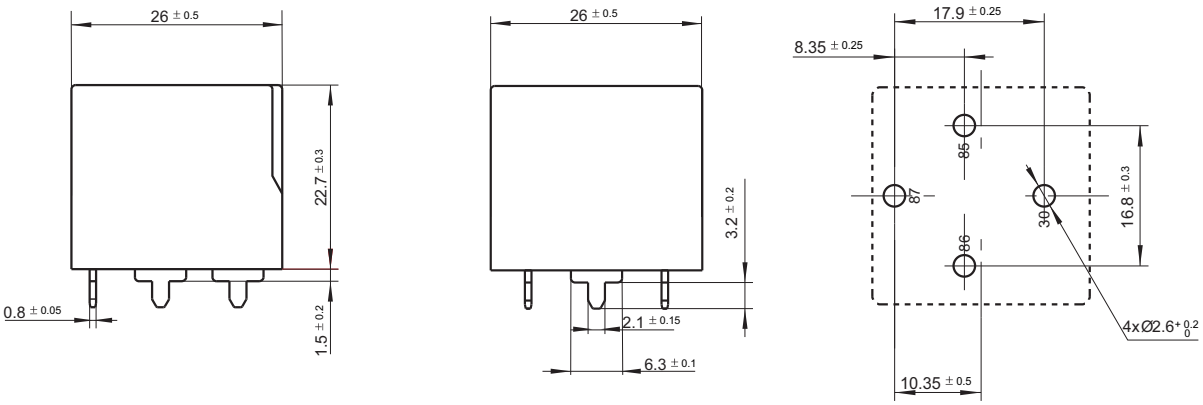
HFV15-L/12-H1□T□(XXX)



(Bottom view)

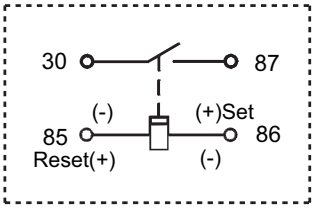
HFV15-L/12-H2□T□(XXX)

PCB Layout (Bottom view)



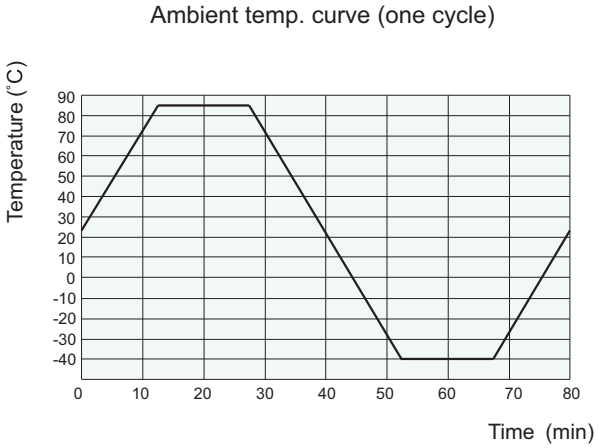
Wiring Diagram

HFV15-L/12-H□□T□(XXX)



CHARACTERISTIC CURVES

Ambient temperature curve of the electrical endurance test



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