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
Min. contact load	1A 12VDC
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 10^5OPS (30OPS/min)
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength [3]	500VAC (1min, leakage current less than1mA)
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		

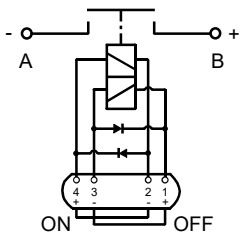
COIL DATA

at 23˚C

Nominal Voltage VDC	Ambient temperature	Pick-up Voltage VDC max.	Drop-out voltage VDC[1] max.	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	—	—	—

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

Wiring Diagram



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 infiction time is 1s.

ORDERING INFORMATION

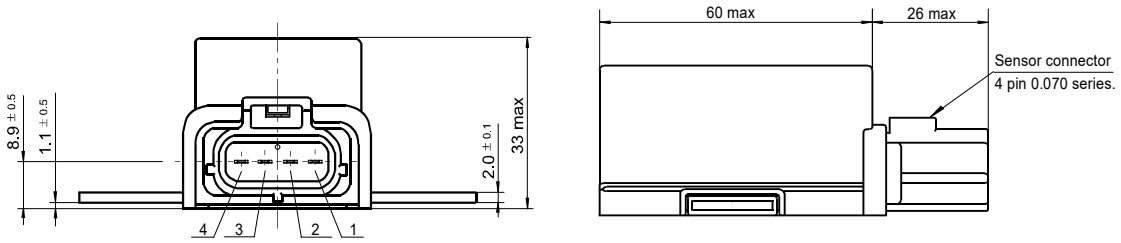
	HFV12 /	12	-H	-D	(XXX)
Type					
Coil voltage	**12**: 12VDC				
Contact arrangement	**H**: 1 Form A				
Instantaneous suppression	**D**: Diode paralleled to coil				
Special code[1)]	**XXX:** Customer special requirement		**Nil:** Standard		

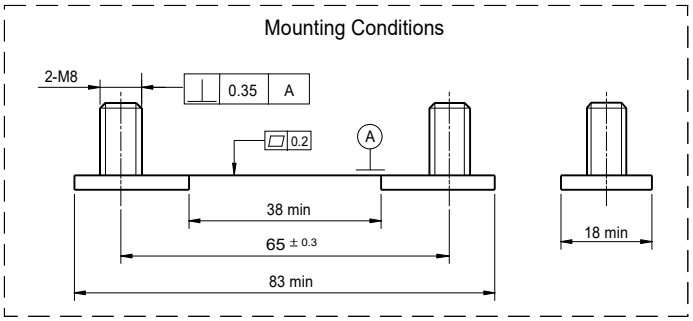
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa. e.g. (170) stands for flasher load.The performance parameters of products with characteristic numbers shall be subject to the specific specifications provided by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

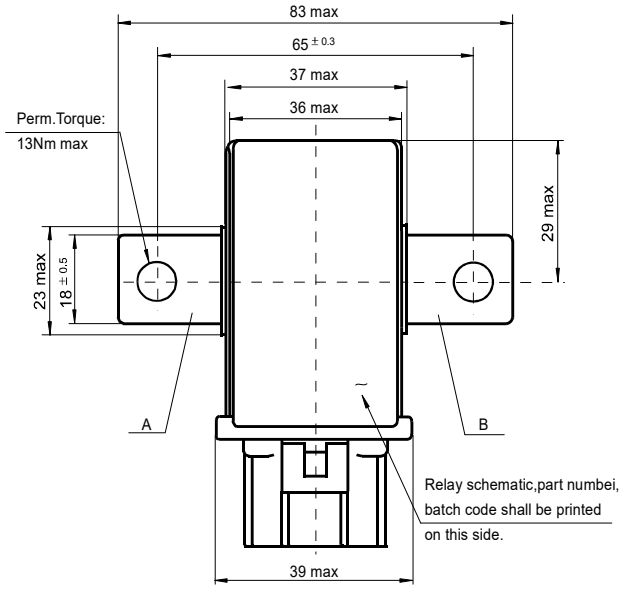


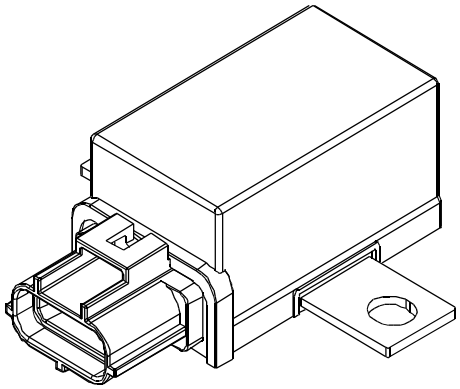


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

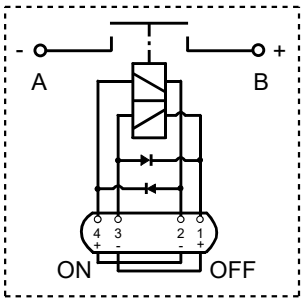
Layout (Bottom view)





Wiring Diagram

(Bottom view)



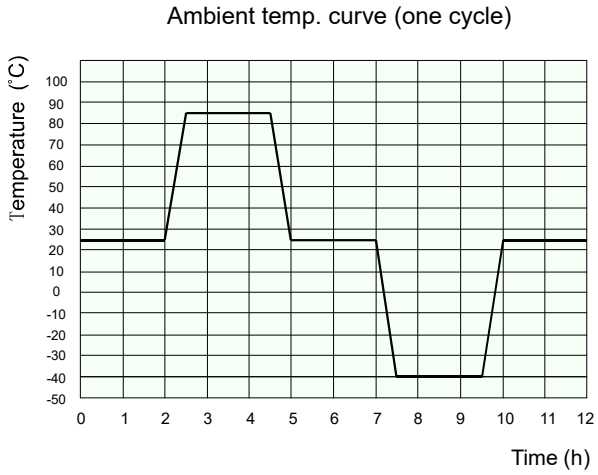
Remark: 1) Relay is on the “reset” status when being released from stock, with the consideration of shock risen from transit and relay mounting, it should be changed to the “set” status when application(connecting to the power supply). Please reset the relay to “set” or “reset” status on request.

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



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

Disclaimer
The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice.
In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.
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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