


# HFV11

## AUTOMOTIVE RELAY



### Features

- Miniaturized package: (15.6 x 15.2 x 16.4) mm
- Extended temperature range: -40°C to 125°C
- 1 Form A contact arrangement
- 2.8mm QC terminals available
- RoHS & ELV compliant

### Typical Applications

Headlight control, Fuel pump control, Horn control, A/C compressor clutch

CHARACTERISTICS			
Contact arrangement	1A		
Voltage drop (initial)	Typ.: 30mV (at 10A) Max.: 250mV (at 10A)		
Max.continuous current <sup>1)</sup>	20A		
Max.switching current	Make (NO): 100A <sup>2)</sup> Break (NO): 30A (at 14VDC)		
Min. contact load	1A 6VDC		
Electrical endurance	See "CONTACT DATA"		
Mechanical endurance	1x10 <sup>6</sup> ops 300ops/min		
Initial insulation resistance	100MΩ (at 500VDC)		
Dielectric strength <sup>3)</sup>	between contacts: 500VAC between coil & contacts: 500VAC		
Operate time	Typ.: 5ms (at nomi. vol.) Max.: 10ms (at nomi. vol.)		
Release time <sup>4)</sup>	Typ.: 3ms Max.: 10ms		
Ambient temperature	-40°C to 125°C		

Vibration resistance <sup>5)</sup>	10Hz to 40Hz 1.27mm DA 40Hz to 70Hz 49m/s <sup>2</sup> 70Hz to 100Hz 0.5mm DA 100Hz to 500Hz 98m/s <sup>2</sup>
Shock resistance <sup>5)</sup>	196m/s <sup>2</sup>
Flammability <sup>6)</sup>	UL94-HB or better (meets FMVSS 302)
Termination	2.8mm QC
Construction	Plastic sealed, Flux proofed
Unit weight	Approx. 11g
Mechanical data	cover retention (pull & push): 200N min. terminal retention (pull & push): 100N min. terminal resistance to bending (front & side): 10N min. <sup>7)</sup>

1) For NO contacts, measured when applying 100% rated votage on coil.

2) Inrush peak current under lamp load, at 14VDC.

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 100μs.

6) FMVSS: Federal Motor Vehicle Safety Standard.

7) Test point is at 2mm away from teminal end, and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.

CONTACT DATA <sup>1)</sup>								
Load voltage	Load type		Load current A	On/Off ratio		Electrical endurance OPS	Contact material	Ambient temp.
			1A	On s	Off s			
			NO					
13.5VDC	Resistive	Make	20	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	See Ambient Temp. Curve
		Break	20					
	Inductive	Make	40	2	2	1.5×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	20					
	Lamp	Make	100	2	2	1.5×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	20					

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.

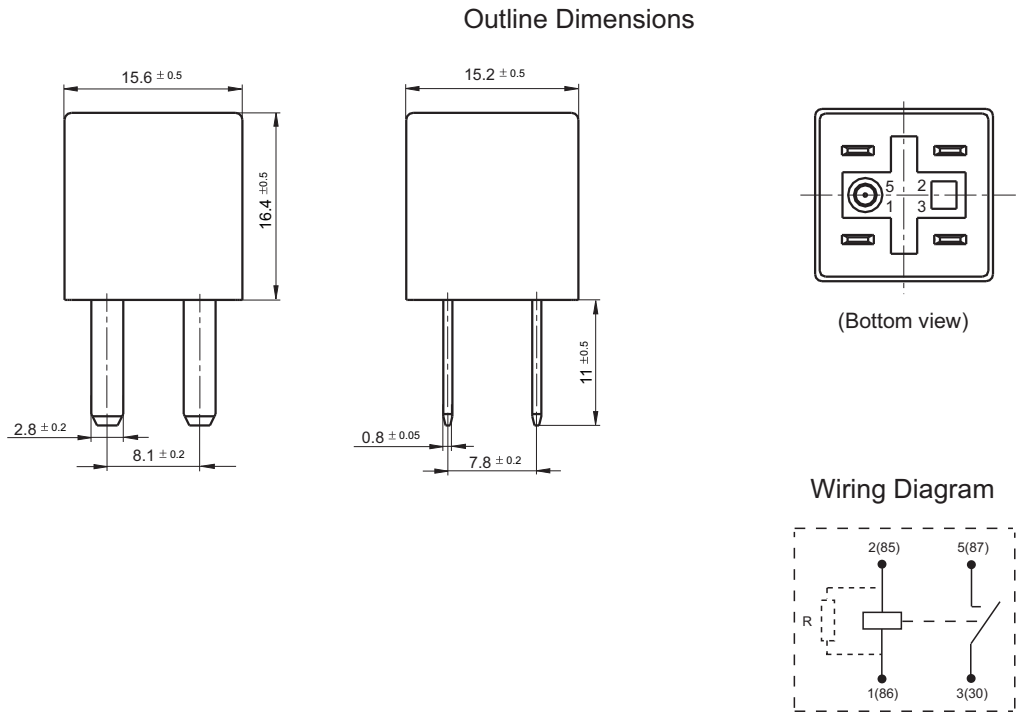
COIL DATA						at 23°C
Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance $\chi(1\pm10\%)\Omega$	Parallel resistance $\chi(1\pm5\%)\Omega$	Equivalent resistance $\Omega$	Power consumption W
12	7.2	1.2	155	---	---	0.95
12	7.2	1.2	155	1000	135	1.1

ORDERING INFORMATION						
Type	HFV11 /	12	-H	S	R	(XXX)
Coil voltage	12: 12VDC					
Contact arrangement	H: 1 Form A					
Construction	S: Plastic sealed <sup>1)</sup> Nil: Flux proofed					
Parallel coil components	R: Parallel transient supression resistors Nil: Without parallel components					
Customer special code						

1) If water cleaning is required, please contact us for suggestion about suitable parts.

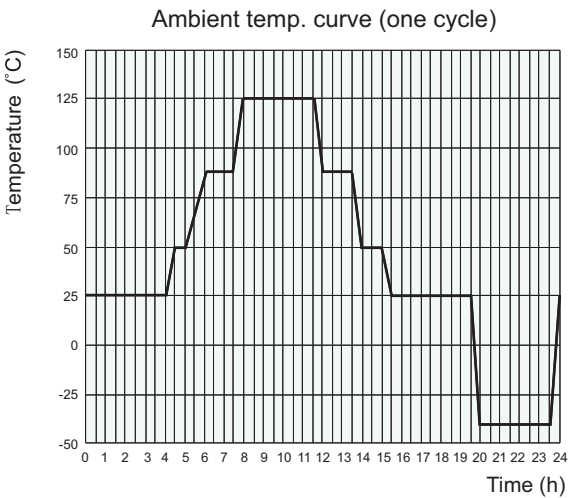
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm



CHARACTERISTIC CURVES

Ambient temperature curve of the electrical endurance test



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

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