

# HFV11

# AUTOMOTIVE RELAY



### Typical Applications

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

### 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

## CHARACTERISTICS

Contact arrangement	1A	Vibration	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>
Voltage drop (initial)	Typ.: 30mV (at 10A) Max.: 250mV (at 10A)	Shock resistance <sup>5)</sup>	196m/s <sup>2</sup>
Max.continuous current <sup>1)</sup>	20A(at 125°C, 1h)	Flammability <sup>6)</sup>	UL94-HB or better (meets FMVSS 302)
Max.switching current	Make (NO): 100A <sup>2)</sup> Break (NO): 30A (at 13.5VDC)	Termination	2.8mm QC
Min. contact load	1A 6VDC	Construction	Plastic sealed, Dust protected
Electrical endurance	See "CONTACT DATA"	Unit weight	Approx. 11g
Mechanical endurance	1x10 <sup>6</sup> OPS 300OPS/min	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>
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		

- 1) For NO contacts, 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 100μs.
- 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.

## CONTACT DATA <sup>1)</sup>

Load voltage	Load type		Load current A		On/Off ratio		Electrical endurance OPS	Contact material	Ambient temp.	
			1A	NO	On s	Off s				
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					
		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 different from what mentioned above.



HONGFA RELAY

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

2015 Rev. 1.00

## COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance $\times(1\pm 10\%)\Omega$	Parallel resistance $\times(1\pm 5\%)\Omega$	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

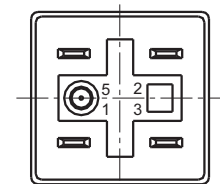
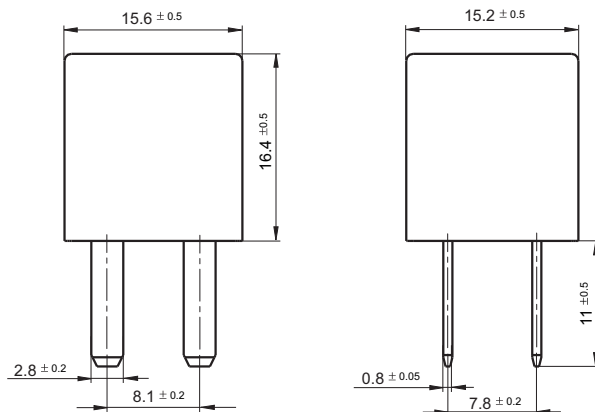
Type	HFV11 /	12	-H	S	-R	(XXX)
Coil voltage	12: 12VDC					
Contact arrangement	H: 1 Form A					
Construction	S: Plastic sealed		Nil: Dust protected			
Parallel coil components	R: Parallel transient suppression resistors		Nil: Without parallel components			
Special code <sup>1)</sup>	XXX: Customer special requirement		Nil: Standard			

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS AND WIRING DIAGRAM

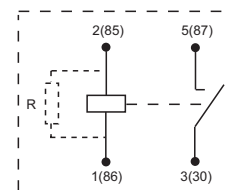
Unit: mm

### Outline Dimensions



(Bottom view)

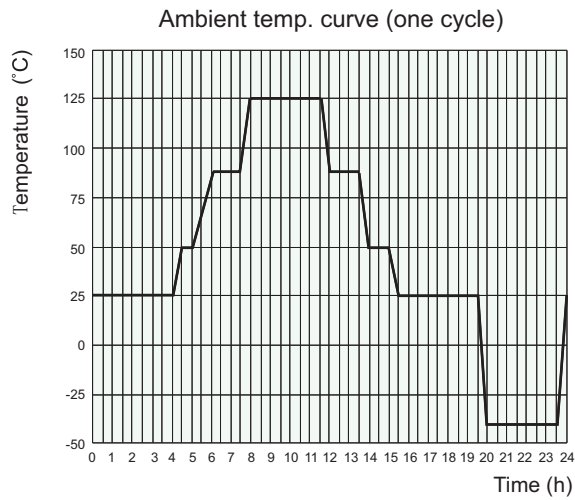
### Wiring Diagram



Remark: Terminal vertical deviation tolerance is 0.3mm.

## CHARACTERISTIC CURVES

Ambient temperature curve of the electrical endurance test



- 1) The minimum temperature is  $-40^{\circ}\text{C}$ .
- 2) The maximum temperature is  $125^{\circ}\text{C}$ .

### 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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