

# HFV15A

# AUTOMOTIVE RELAY



### Typical Applications

Fog lamp & headlight control, Sunroof motor control, Air-conditioning, Mirror adjustment, Horn control, Cooling fan control.

### Features

- ISO 7588-1 (1998) standard foot position
- Lower height
- 40A switching capability
- Operating temperature -40°C to +125°C
- 1 Form A and 1 Form C configurations
- Unit weight: ≤28g
- RoHS & ELV compliant

## CHARACTERISTICS

Contact arrangement	1 Form A(1H), 1 Form C (1Z)	Vibration resistance <sup>6)</sup>	10Hz to 2000Hz 27.8m/s <sup>2</sup>
Voltage drop	NO:Typ.15mV,Max.250mV(at 10A) NC:Typ.25mV,Max.250mV(at 10A)	Shock resistance <sup>6)</sup>	294 m/s <sup>2</sup>
Max. continuous current <sup>1)</sup>	NO:60A @23°C,40A @85°C, 17 A @125°C NC:45A @23°C,30A @85°C, 12A @125°C	Flammability <sup>7)</sup>	UL94-HB or better (meets FMVSS 302)
Max. switching current	NO:Make(Lamp150A2),14V/28V) Break(Resistive40A,14V, Resistive20A,28V) NC:Make(Inductive40A2),14V, Resistive15A,28V) Break(Resistive30A,14V, Resistive15A,28V)	Termination	QC <sup>8)</sup>
Min. contact load	1A 12VDC	Construction	Dust protected
Electrical endurance	See "CONTACT DATA"	Unit weight	Approx. 28g
Mechanical endurance	1×10 <sup>6</sup> ops(300ops/min)	Mechanical data	housing retention (pull & push): 200N min. terminal retention (pull & push): 100N min. terminal resistance to bending (front & side): 10N min. <sup>9)</sup>
Insulation resistance	100MΩ(500VDC)		
Withstand voltage <sup>3)</sup>	500VAC		
Operate time <sup>4)</sup>	12V:Max.10ms 24V:Max.15ms		
Release time <sup>5)</sup>	12V:Max.10ms 24V:Max.15ms		
Ambient temperature	-40°C to 125°C		

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

## COIL DATA

Nominal Voltage VDC	Pick-up Nominal Voltage VDC max.	Drop-out Nominal Voltage VDC min.	Coil Resistance ×(1±10%)Ω	Parallel Resistance ×(1±5%)Ω	Equivalent Resistance ×(1±10%)Ω	Power Consumption W	Max. allowable overdrive voltage <sup>1)</sup> VDC	
							23°C	85°C
12	8.0	1.0	85	—	—	1.7	20.2	15.7
12	8.0	1.0	85	680	75.6	1.9	20.2	15.7
24	16.0	2.0	320	—	—	1.8	40.5	31.5
24	16.0	2.0	320	2700	286	2.0	40.5	31.5

Notes:1) Max. allowable overdrive voltage is stated with no load applied and minimum coil resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2026 Rev. 1.00

## CONTACT DATA<sup>3)4)</sup>

Load voltage	Load type		Load current A			On/Off ratio		Electrical endurance <sup>3)</sup> OPS	Contact material	Ambient temperature
			1C		1A	On s	Off s			
			NO	DB	NO					
14 VDC	Resistive	Make	40	30	40	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	See Ambient temp. curve
		Break	40	30	40					
	Inductive	Make	80 <sup>1)</sup>	40 <sup>1)</sup>	80 <sup>1)</sup>	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	33	20	33					
	Lamp	Make	150 <sup>1)</sup>	—	150 <sup>1)</sup>	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	30	—	30					
28 VDC	Resistive	Make	20	15	20	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	20	15	20	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
	Inductive	Make	45 <sup>1)</sup>	—	45 <sup>1)</sup>	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	15	—	15	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
	Lamp	Make	150 <sup>1)</sup>	—	150 <sup>1)</sup>	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	15	—	15	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	

Notes:1) Inrush peak current;

2) 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.

3) 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.

4) The 24V motor control for wipers, windows and door locks is a special application with highly dynamic inductive loads. To ensure reliability, please confirm key details with our technical support before product selection.

## ORDERING INFORMATION

Type	HFV15A /	12	-H	1	T	J	-R	(XXX)
Coil voltage	12: 12VDC 24: 24VDC							
Contact arrangement	H: 1 Form A Z: 1 Form C							
Construction	1: QC Terminal 9: Quadrilateral card holder							
Contact material	T : AgSnO <sub>2</sub>							
Terminal	J: QC Terminal without hole Nil: QC Terminal with hole							
Parallel coil components <sup>1)</sup>	R: Parallel transient suppression resistors(680Ω, 12V)(2700Ω, 24V) R1: Parallel transient suppression resistors(560Ω, 12V)(1200Ω, 24V) R2: Parallel transient suppression resistors(470Ω, 12V)(1000Ω, 24V) D: Parallel transient suppression diode,with anode connected to terminal#2 D1: Parallel transient suppression diode,with anode connected to terminal#1 Nil: Without parallel components							
Special code <sup>1)</sup>	XXX: Customer special requirement Nil: Standard							

Notes:1) If the switch-off peak voltage of coil is required to be smaller than 100V, R1 or R2 shall be used (measured voltage of 12V is 14V, measured voltage of 24V is 28V);

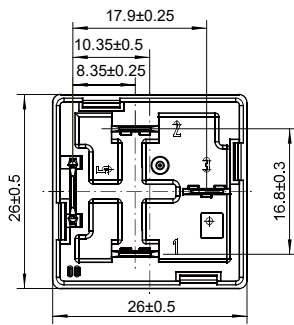
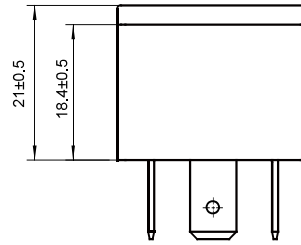
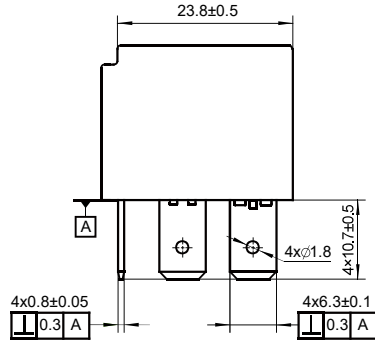
2) The performance parameters of products with characteristic numbers shall be subject to the specific specifications provided by hongfa.

# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

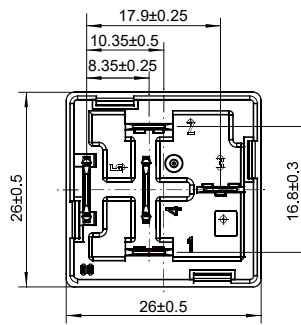
Unit: mm

HFV15A/□□-□1□T□-□(XXX)

## Outline Dimensions

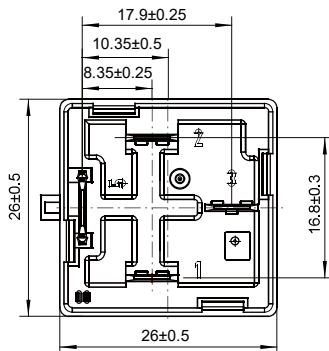
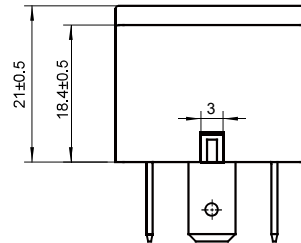
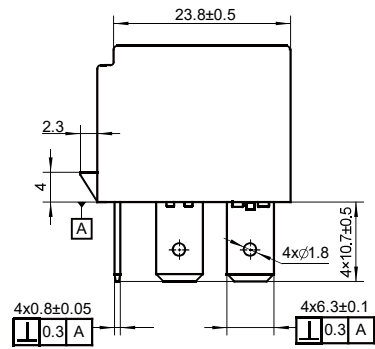


From A (Bottom view)

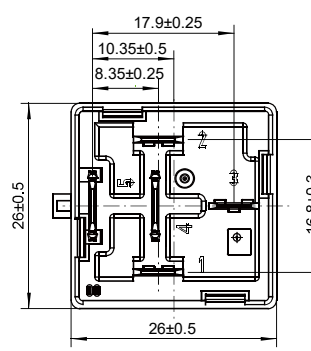


From C (Bottom view)

HFV15A/□□-□9□T□-□(XXX)



From A (Bottom view)



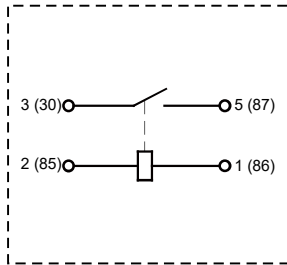
From C (Bottom view)

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

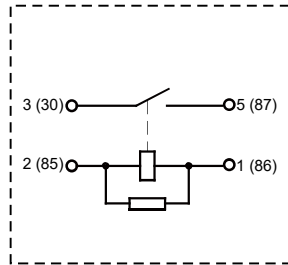
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### Wiring Diagram

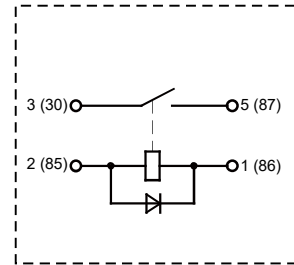
HFV15A/□□-H□□□(XXX)



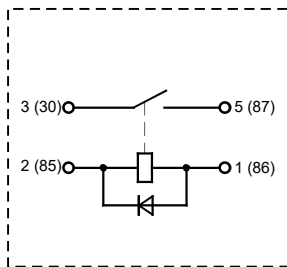
HFV15A/□□-H□□□-R(XXX)



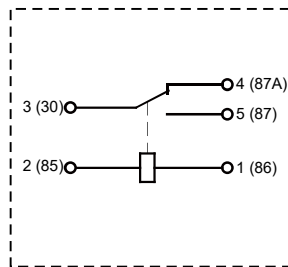
HFV15A/□□-H□□□-D(XXX)



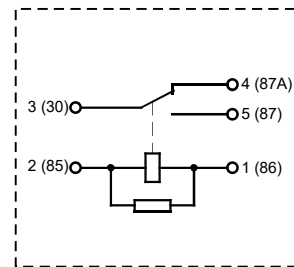
HFV15A/□□-H□□□-D1(XXX)



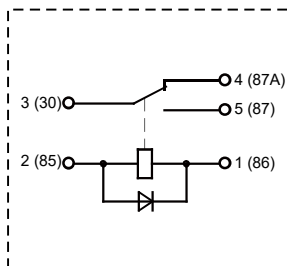
HFV15A/□□-Z□□□(XXX)



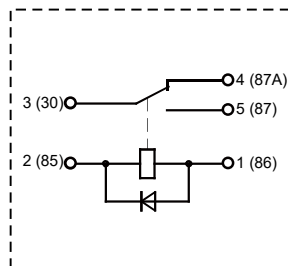
HFV15A/□□-Z□□□-R(XXX)



HFV15A/□□-Z□□□-D(XXX)



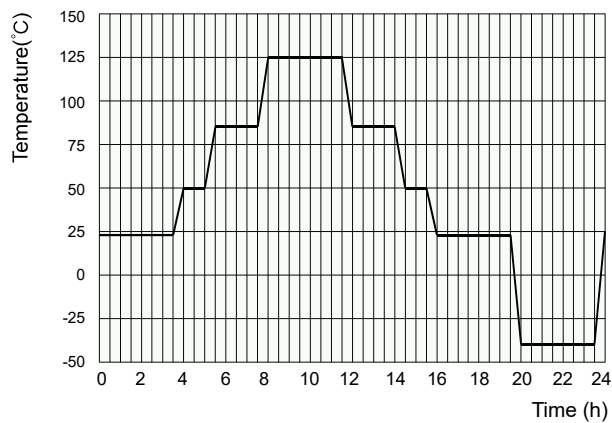
HFV15A/□□-Z□□□-D1(XXX)



## CHARACTERISTIC CURVES

### 1. Ambient temperature curve of the electrical endurance test

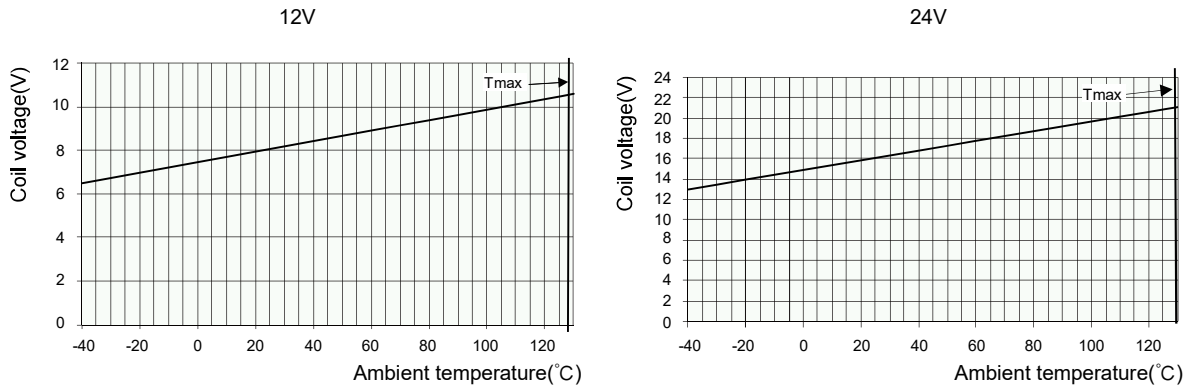
Ambient temp. curve (one cycle)



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

## CHARACTERISTIC CURVES

### 2. Coil operating voltage range



1) Temperature rise due to coil excitation and contact current is not included.

#### 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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