

# HFZ16V-100P

## EPOXY SEALED POLARITY SERIES DC RELAY



### Features

- Rated 100A switching capability
- Coil does not require polarity, contact load has polarity
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Small size, light weight

RoHS compliant

### CONTACT DATA

Contact arrangement	1SH
Contact resistance	30mΩ max.(typ.0.5m)(6VDC,20A)
Nominal current	100A
Rated load voltage	12~900VDC
Max. Breaking Current	1000A 320VDC (more than 1 time)
Max.switching power	320kW
Min. load of main contact	1A 12VDC
Standard continuous charged current	100A(35mm <sup>2</sup> )
Short time overload current	150A 15min (35mm <sup>2</sup> ) 200A 3min (35mm <sup>2</sup> ) 300A 30s (35mm <sup>2</sup> )
Mechanical endurance	1x10 <sup>6</sup> OPS
Electrical endurance	1 x 10 <sup>4</sup> OPS (100A 450VDC) 1 x 10 <sup>3</sup> OPS (100A 750VDC) Resistive load, 23°C, 1s on 9s off

### CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)	
	Between contact and coil	1000MΩ (1000VDC)	
Dielectric strength	Between open contacts	2200Vrms	
	Between coil & contacts	2200Vrms	
Nominal Voltage (VDC)		12	24
Operate time (ms)		≤30	≤30
Release time (ms)		≤10	≤10
Bounce time(ms)		≤5	≤5
Shock resistance		196 m/s <sup>2</sup>	
Vibration resistance		10Hz to 500Hz 98m/s <sup>2</sup>	
Ambient temperature		-40°C to 85°C	
Humidity		5% to 95%RH	
Protection grade		IP67	
Termination		The M5 internal thread	
Outline Dimensions		54x40.3x60.3/5 3.3x41.1x60.1	
Weight		220g	

Notes: 1) The above values are the initial values at room temperature.  
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

### COIL DATA

Nominal Voltage (VDC)	12	24
Operating Voltage (VDC)	9~16	18~32
Max. Voltage (VDC)	16	32
Pick-up Voltage (VDC)	≤9	≤18
Drop-out Voltage (VDC)	≥1	≥2
Coil Resistance x (1±7%)	26	96
Minimum Starting Current (A)	0.46	0.25
Transient Surge Current (A)	--	--
Average Holding Current (A)	0.46	0.25
Steady-state Power Consumption (W)	Approx. 5.5	Approx. 6

Notes: Other rated voltages can be specially ordered.

### AUXILIARY CONTACT PARAMETERS

Auxiliary contact form	1T/1D/1Z
Max. current	30VDC 2A; 125VAC 3A
Min. current	8VDC 100mA
Contact resistance	<0.1Ω



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

## ORDERING INFORMATION

Type	HFZ16	<input type="checkbox"/>	-100/	P/-	900-	12-	SH	S	A	L	5	Y	E	-1	(XXX)
Application	<b>Nil:</b> New Energy Power Control <b>V :</b> Vehicle														
Version	100: 100A														
Load polarity	P: polar														
Nominal voltage	900: 12~900VDC														
Coil voltage	12: 12VDC    24: 24VDC														
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)														
Contact material	S: Silver plated														
Auxiliary Contact Form	<b>Nil:</b> Without auxiliary contact <b>A:</b> Normally open auxiliary contact <b>B:</b> Normally closed auxiliary contact														
Coil terminal	L: Lead wire    B: Lead wire with connector														
Load terminal	5: Internal thread mounting														
Installation method	Nil: Vertical    Y: Horizontal														
Appearance and ttructure	E: Simplified shell structure														
Sort	1: 1 coil														
Special code <sup>1)</sup>	XXX: Customer special requirement      Nil: Standard														

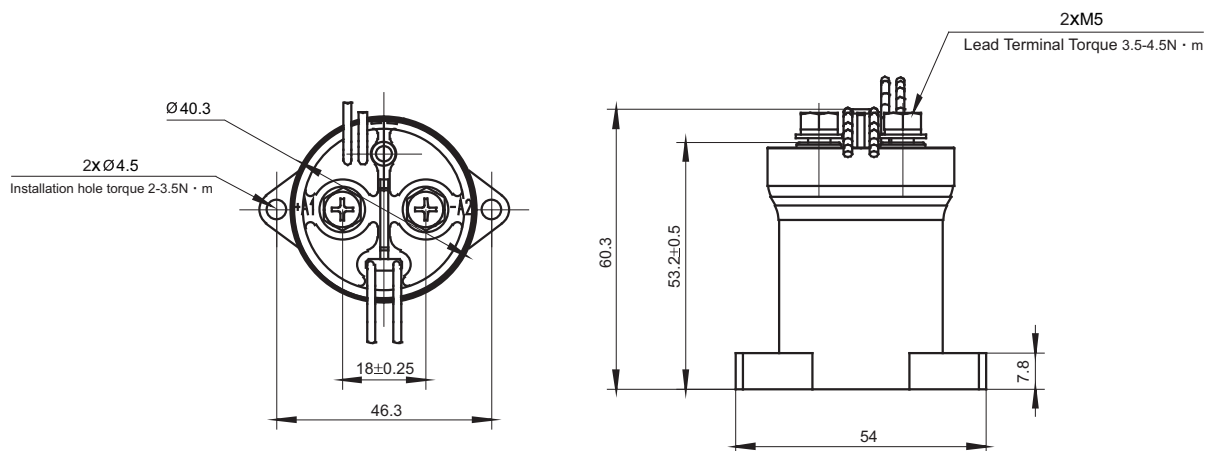
**Notes:** 1) The customer special requirement express as special code after evaluating by Hongfa.

**OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT** Unit: mm

Unit: mm

## Outline Dimensions

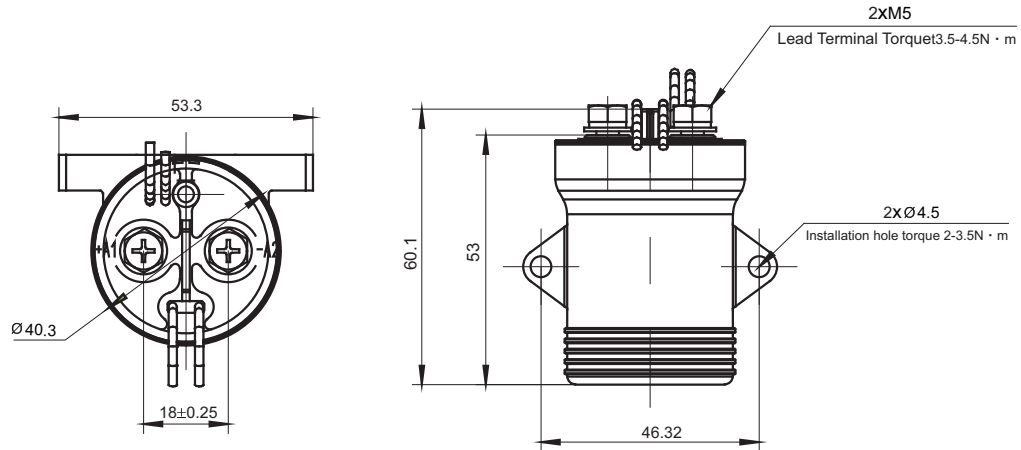
Vertical



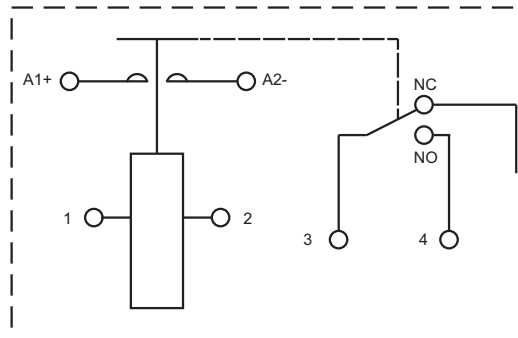
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Horizontal



PCB Layout (Bottom view)



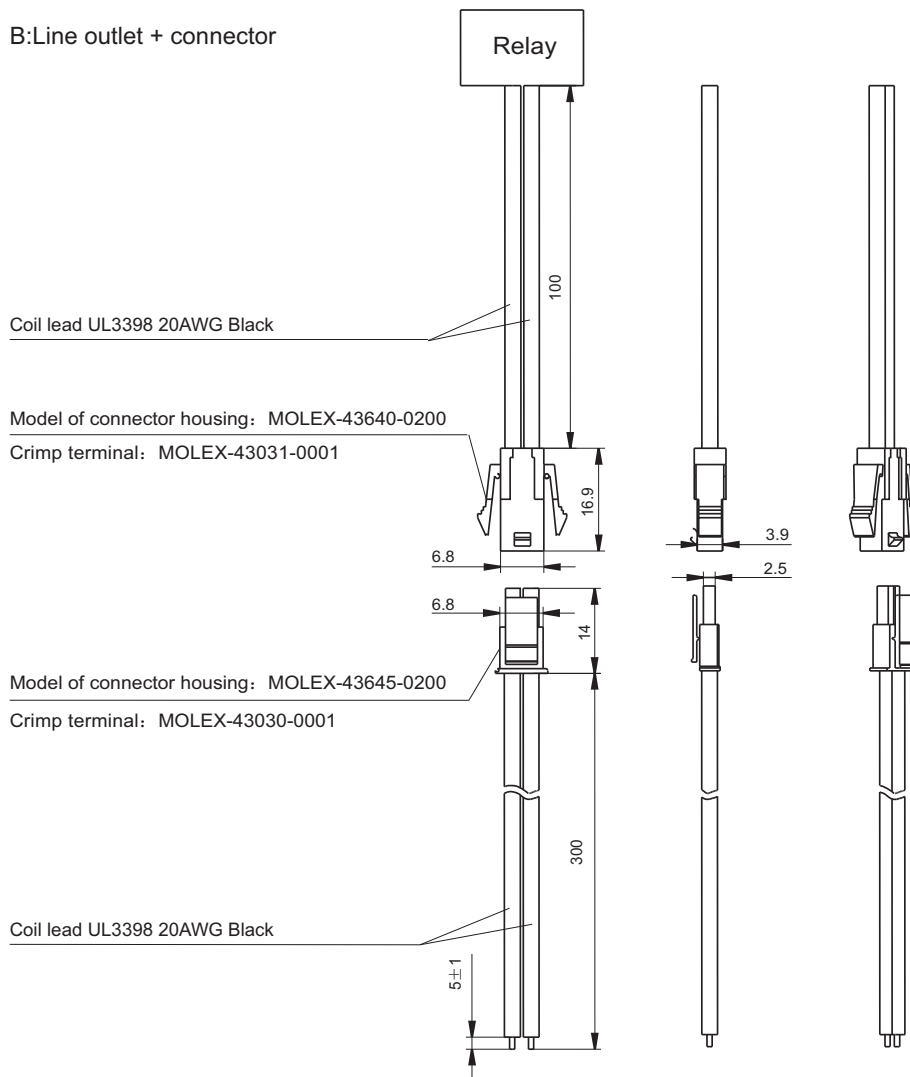
A1, A2 are the load terminals; 1 and 2 are the coil terminals; polarity on the load terminal and no polarity the coil terminal.

- Notes:**
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is  $\pm 0.3$  mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is  $\pm 0.5$  mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is  $\pm 0.8$  mm.
  - 2) L: Coil lead specifications: UL3398, 20AWG, black; Line length 300mm.
  - 3) B: Line outlet + connector (See Figure).

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

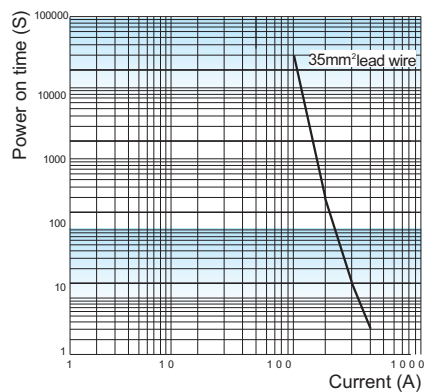
Unit: mm

B:Line outlet + connector



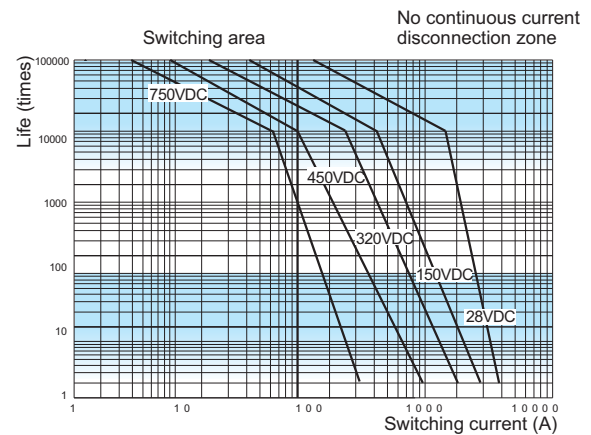
## CHARACTERISTIC CURVES

Current carrying capacity



**Notes:** The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

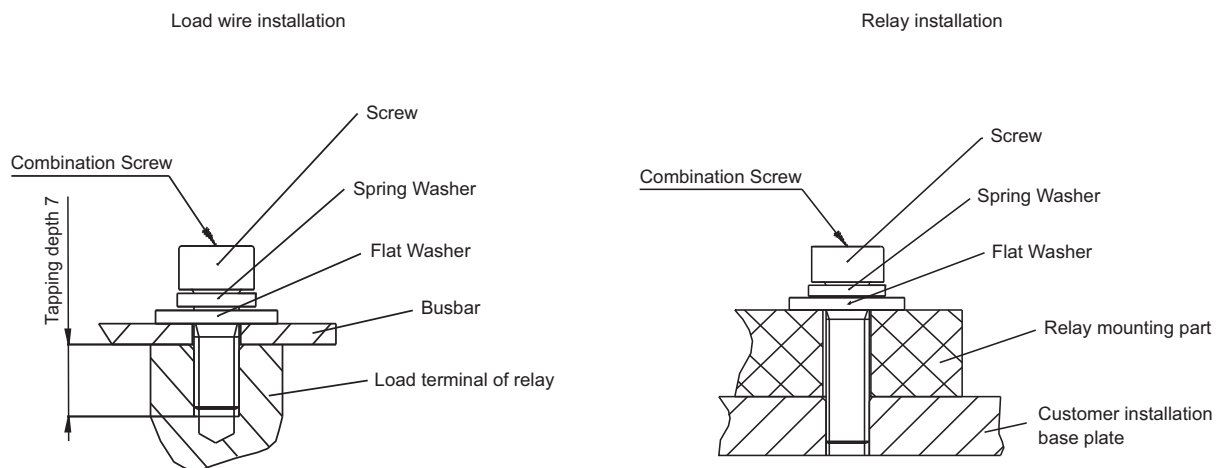
Load switching capability



**Notes:** Resistive load  
Insulation after electrical life test  $\geq 50\text{M}\Omega$  (500VDC)  
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

## Precautions for use

1. In order to suppress the relay coil reverse electromotive force, suggest to connect the coil with nonlinear resistor parallelly (variable resistance is recommended to use, maximum energy tolerance  $> 1 \text{ J}$ , voltage in 1.5-2 times of the rated voltage, if use diode, the release time will greatly lengthen and degrade the cutting performance. (Energy-saving products have built-in suppression reverse electromotive force circuit, surge suppression devices are not required)
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with  $L/R > 1 \text{ ms}$ , please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of  $16 \text{ mm}^2$  or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



**Notes:** Tapping depth of load internal thread M5 is 7mm.

## 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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