

# HFE 18V-40

# HIGH VOLTAGE DIRECT CURRENT RELAY



### Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas ( mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 40A continuously at 85° C.
- Insulation resistance is 1000mΩ ( 1000VDC), and dielectric strength between the coil and contacts is 4KV, which meets the requirements of IEC 60664-1.
- No specific polarity requirements for the connection

### CONTACT DATA

Contact arrangement	1H		
Contact resistance	≤10mΩ(20A)		
Rated load current	40A		
Mechanical endurance	2 x 10 <sup>5</sup> ops		
Outline Dimensions	67 x 32.6 x 47 mm		
	<b>450V type</b>	<b>750V type</b>	
Max. switching voltage	750V	750V	
Max. breaking current	400A (300V, 1op min.)	400A (300V, 1op min.)	
Max. switching power	18kW	30kW	
Electrical endurance <sup>1)</sup>	Res. load	Switching: 2 x 10 <sup>4</sup> ops (450Vd.c., 40A)	Switching: 1 x 10 <sup>3</sup> ops (750Vd.c., 40A)
		Making: 7.5 x 10 <sup>4</sup> ops (450Vd.c., 40A)	Making: 7.5 x 10 <sup>4</sup> ops (750Vd.c., 40A)
Current carrying capacity <sup>2)</sup>	40A: Cont. 60A: 60min 80A: 20min 160A: 30s 320A: 2s 400A: 0.6s		

**Notes:** 1) Until special statement, the temperature of electrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.  
2) Ambient temperature is room temperature and cross section area of wire is 10mm<sup>2</sup> min. See Pic Endurance Capacity Curve for more information.

### COIL

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Coil power W
12	9	1	3
24	18	2	3

**Notes:** The values above are conservative values within the temperature range(-40°C to 85°C), the pulling in voltage and releasing voltage are showed in the Pic Pulling in / Release Voltage Change Curve.

### CHARACTERISTICS

Insulation resistance	1000MΩ (at 1000VDC)	
Dielectric strength	Between coil & contacts	4000VAC 1min.
	Between open contacts	3000VAC 1min.
Operate time (at nomi. volt.)	30ms max.	
Release time (at nomi. volt.)	10ms max.	
Shock resistance	Functional	196m/s <sup>2</sup>
	Destructive	490m/s <sup>2</sup>
Vibration resistance	10Hz to 500Hz 49m/s <sup>2</sup>	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 85°C	
Termination	M4 screw thread	
Unit weight	Approx.180g	

**Notes:** The data shown above are initial values.



HONGFA RELAY

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

2016 Rev. 1.00

## ORDERING INFORMATION

	<b>HFE18V</b>	<b>-40 /</b>	<b>750-</b>	<b>12-</b>	<b>H</b>	<b>L</b>	<b>5</b>	<b>(XXX)</b>
<b>Type</b>	V: New energy vehicle							
<b>Contact rating</b>	40: 40A							
<b>Load voltage</b>	750: 750VDC Nil: 450 VDC							
<b>Coil voltage</b>	12:12VDC 24: 24 VDC 48: 48 VDC							
<b>Contact arrangement</b>	H: 1 Form A							
<b>Coil input terminal</b>	L: wire B: wire+connector							
<b>Load input terminal</b>	5: Bolt Terminal Female							

**Special code<sup>1)</sup>** 634: Double hole mounting boss XXX: Customer special requirement

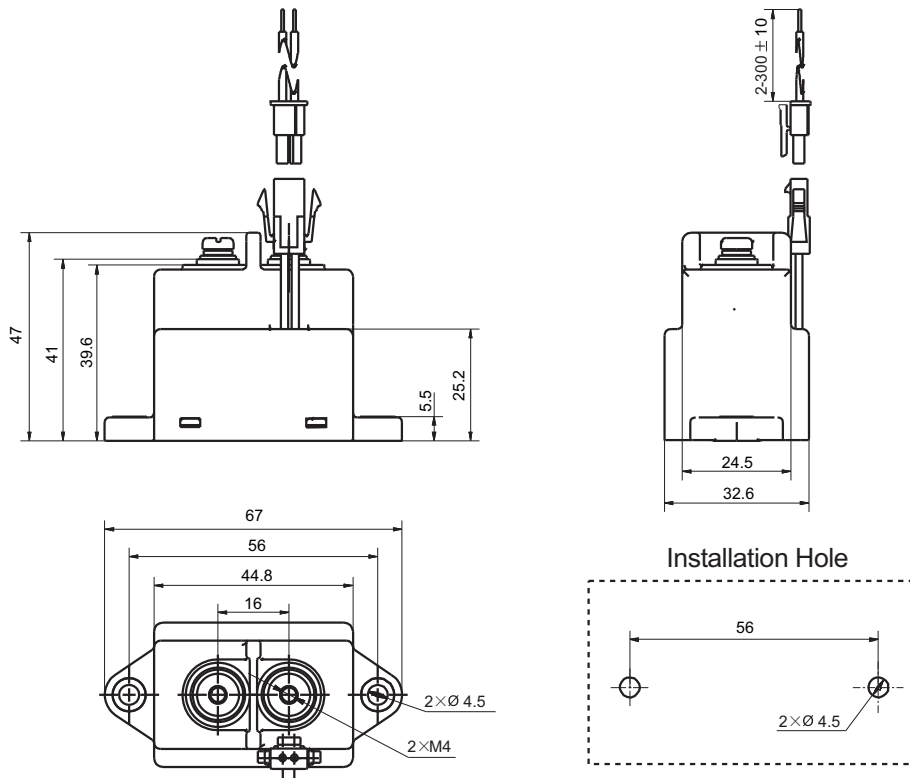
**Notes:** 1) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS,INSTALLATION HOLE

Unit: mm

### Outline Dimensions

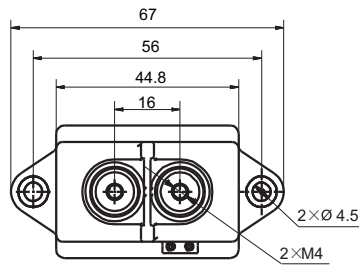
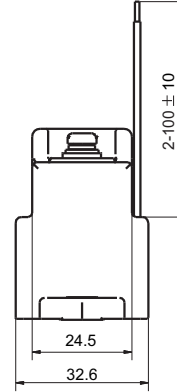
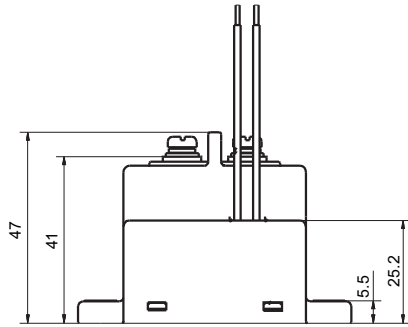
HFE18V-40/XX-HB5(634)



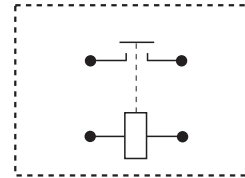
**Remark:** In case of no tolerance shown in outline dimension: outline dimension ≤10mm, tolerance should be ±0.3mm; outline dimension >10mm and ≤50mm, tolerance should be ±0.5mm; outline dimension >50mm, tolerance should be ±0.8mm.

# OUTLINE DIMENSIONS, INSTALLATION HOLE

HFE18V-40/XX-HL5(634)



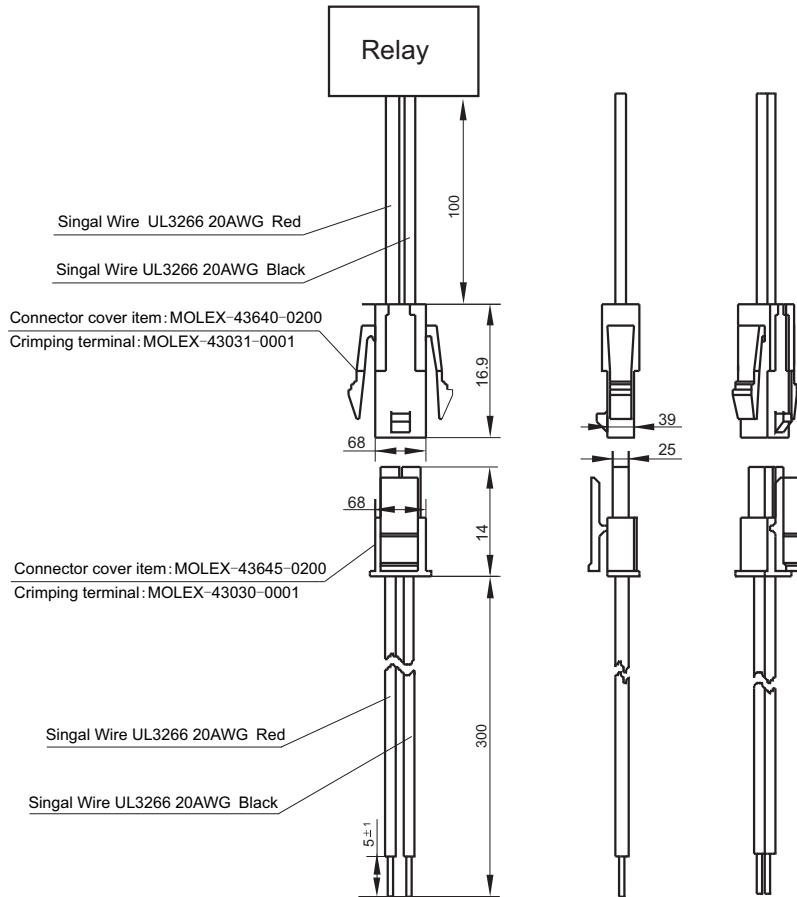
Coil Wiring Diagram



note: no polarity on the loads and coil.

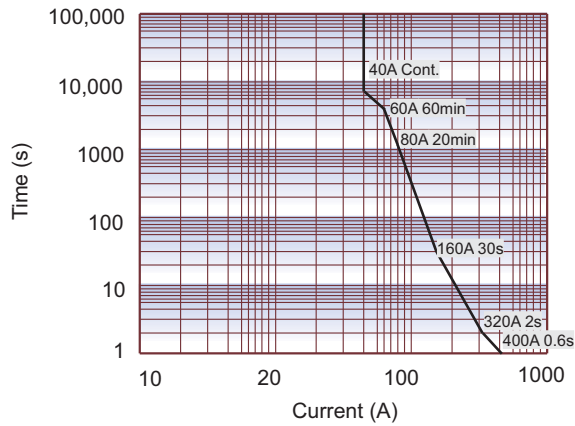
Wiring Diagram

B: Wire+Connector



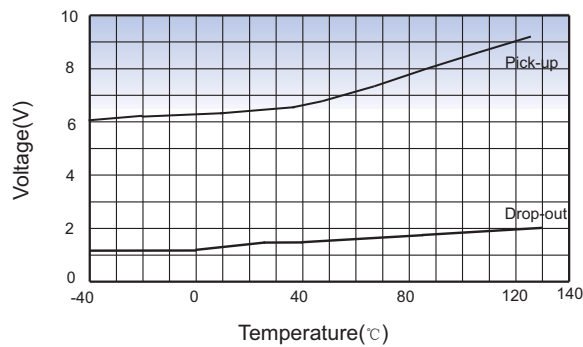
## CHARACTERISTIC CURVES

Endurance Capacity Curve



**Notes:** The data above is measured at the environment temperature 85°C with cross section area of wire  $\geq 10\text{mm}^2$ . This data is only for reference and please do not use it for fuse selection.

Pick-up Voltage / Drop-out Voltage Curve



**Notes:** When the coil voltage is at 12V, the data above is taken as sample value and only for reference ( Sample quantity: n=3)

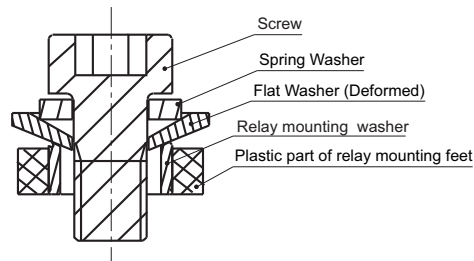
## Cautions

1. In case of loosening, please use washer when install the relay with M4 screw, and the torque within 2N·m to 3N·m, the torque of fixing screw at terminals shall be within 2N·m to 3N·m. The torque beyond the range may cause damage.

2. Please do not adhere foreign materials like oil on the terminals and please use the wire with cross section area  $10\text{mm}^2$  min., otherwise the terminal parts may have abnormal heating.

3. The thickness of copper bus-bar is recommended 0.5mm to 2mm, otherwise it may cause screwloose or can not guarantee a tight installation.

4. Cautions of Relay Installatio:



When use M4 screw, the thickness and strength of the washer needs to be guaranteed or it may stand deformation and burst the cover.

## Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications 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.