

# HFE 80V-20

# DIRECT CURRENT RELAY



## Features

- Direct current relay
- Carrying current 20A continuously at 85°C
- 3kV dielectric strength (between coil and contacts)
- Outline Dimensions: (30.1 x 30 x 29.2) mm

## CONTACT DATA

Contact arrangement	1A	
Contact resistance	10mΩ max.(20A)	
Rated load current	20A	
Mechanical endurance	2 x 10 <sup>5</sup> ops	
	<b>60V type</b>	<b>450V type</b>
Max. switching voltage	72VDC	450VDC
Max. breaking current	30A (72VDC, 1op min.)	35A (450VDC, 1op min.)
Max. switching power	1.44kW	9kW
Electrical endurance <sup>1)</sup>	Res. load	Switching: 1 x 10 <sup>5</sup> ops (72VDC, 20A)
		Switching: 3 x 10 <sup>3</sup> ops (450VDC, 20A)
		Switching: 3 x 10 <sup>4</sup> ops (450VDC, 10A)
Current carrying capacity <sup>2)</sup>	Making: 1 x 10 <sup>5</sup> ops (450VDC, 20A)	
	20A: Cont.	
	30A: 1h	
	40A: 20min	
	80A: 30s	
	120A: 10s	
200A: 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 2.5mm<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
48	28.8	4	3

**Notes:** The values above are conservative values within the temperature range(-40°C to 85°C), the pick-up voltage and drop-out voltage are showed in the Pic Pick-up Voltage / Drop-out Voltage Curve.

## CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	3000VDC 1min.
	Between open contacts	2000VDC 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		QC
Unit weight		Approx.55g
Outline Dimensions		30.1 x 30 x 29.2 mm

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



HONGFA RELAY

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

2016 Rev. 1.30

## ORDERING INFORMATION

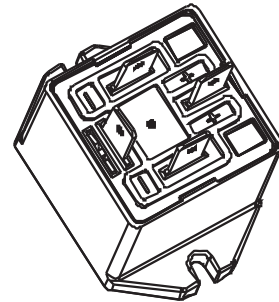
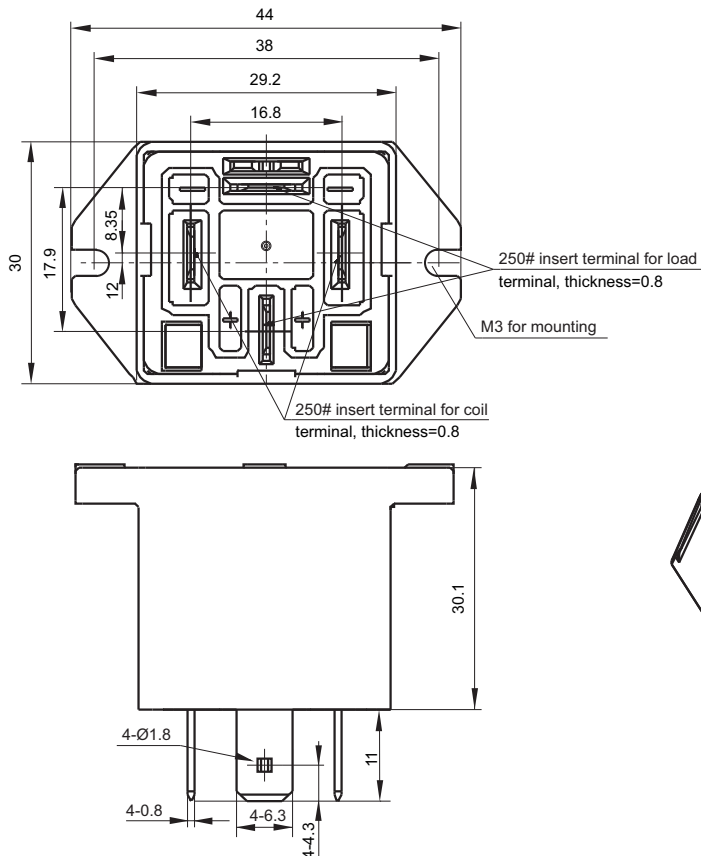
	<b>HFE80V</b>	<b>-20 /</b>	<b>450-</b>	<b>12-</b>	<b>H</b>	<b>T</b>	<b>Q</b>	<b>2</b>	<b>A</b>	<b>J</b>
<b>Type</b>	V: Vehicle									
<b>Contact rating</b>	20: 20A									
<b>Load voltage</b>	450: 450VDC									
<b>Coil voltage</b>	12:12VDC 24:24 VDC 48:48 VDC									
<b>Contact arrangement</b>	H: 1 Form A									
<b>Contact material</b>	T: AgSnO <sub>2</sub>									
<b>Coil input terminal</b>	Q: QC P: PCB									
<b>Load input terminal</b>	2: QC Nil: PCB									
<b>Shell structure</b>	Nil: Standard mounting boss A: No mounting boss									
<b>Base structure</b>	J: Layout base without mounting boss									

## OUTLINE DIMENSIONS, INSTALLATION HOLE

Unit: mm

### Outline Dimensions

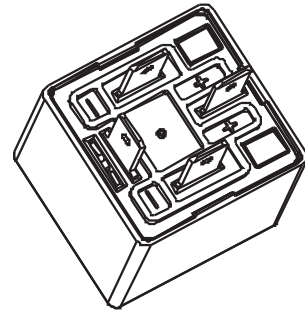
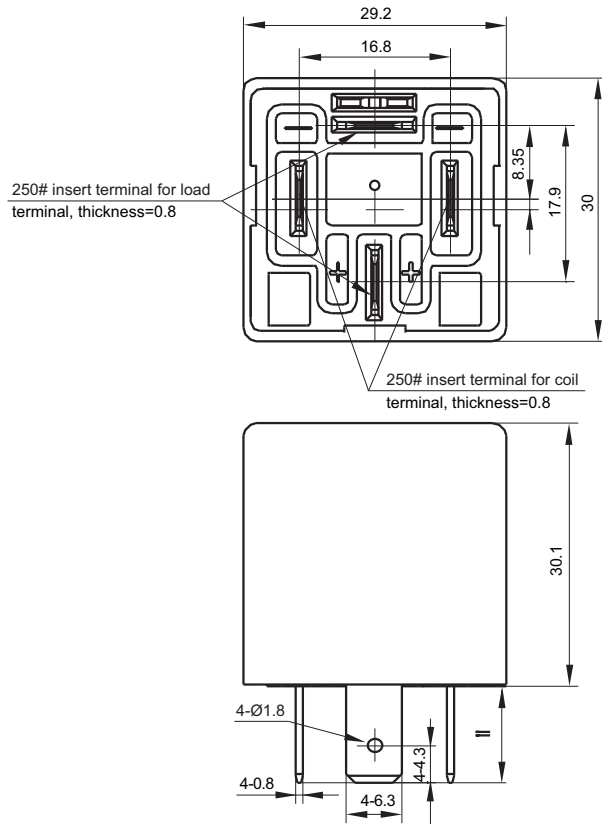
HFE80V-20/XXX-HTQ2J



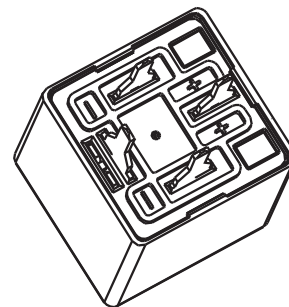
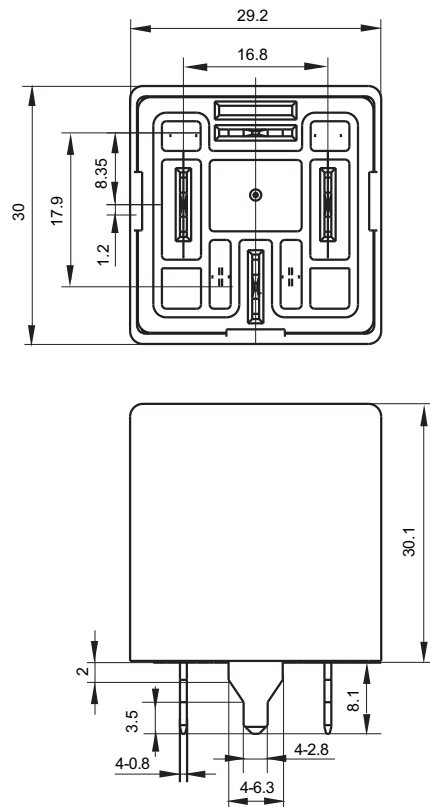
# OUTLINE DIMENSIONS, INSTALLATION HOLE

Unit: mm

## HFE80V-20/XXX-HTQ2AJ



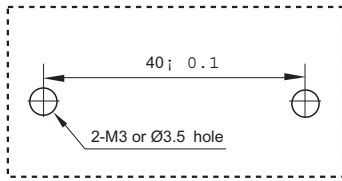
## HFE80V-20/XXX-HTPAJ



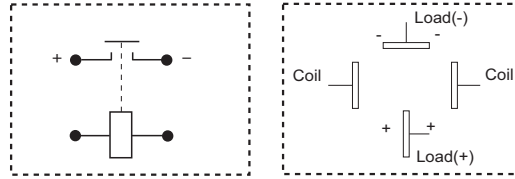
## OUTLINE DIMENSIONS, INSTALLATION HOLE

Unit: mm

Installation Hole



Coil Wiring Diagram

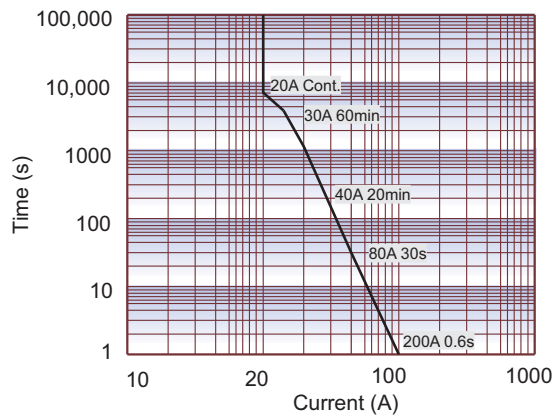


Note: polarity option on the loads; no polarity on coil.

**Remark:** In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should be  $\pm 0.4\text{mm}$ .

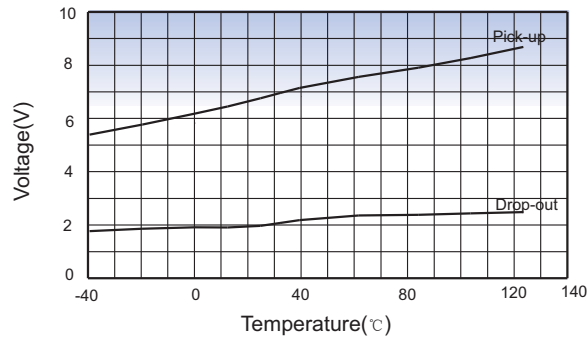
## CHARACTERISTIC CURVES

Endurance Capacity Curve



**Notes:** The data above is measured at the environment temperature  $85^{\circ}\text{C}$  with cross section area of wire  $\geq 2.5\text{mm}^2$ . 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 12V, the data above is taken as sample value and only for reference ( Sample quantity:  $n=3$ )

## Cautions

- In case of loosening, please use washer when install the relay with M3 screw, and the torque within  $1.4\text{N}\cdot\text{m} \sim 2.2\text{N}\cdot\text{m}$ . The push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.
- Please do not adhere foreign materials like oil on the terminals and please use the wire with cross section area  $4\text{mm}^2$  min, otherwise the terminal parts may have abnormal heating.

## 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.