

# HFE82P-20

# DIRECT CURRENT RELAY



File No.: E133481



File No.:R5059937



File No.:AN50645822

**RoHS compliant**



## Features

- Hermetically sealed with ceramic brazing technology, without risk of arc leaking, no fire or explosion.
- Filled with hydrogen gas to prevent oxidation and burn out of contacts; Low and stable contact resistance, contact block with IP67 compliant
- 20A continuous carry current capability at 85°C.
- Max. insulation resistance up to 1000MΩ (@1000 VDC), dielectric strength (betweencontact and coil) up to 4.5kV, IEC60664-1 compliant.
- No polarity requirement for the load and coil drive.
- Applied to the energy storage, safety conformity of ≤1500V

## CONTACT DATA

Contact arrangement	1 Form A	
Contact resistance <sup>1)</sup>	≤4.5mΩ(at 20A)	
Contact rating	20A	
Mechanical endurance	2 x 10 <sup>5</sup> ops	
Max. switching voltage	1500 VDC	
Max. breaking current	200A(1000 VDC) 1op	
Max. switching power	45kW	
	<b>1000VDC</b>	<b>1500VDC</b>
Electrical <sup>2)</sup> endurance	Switching: <sup>4)</sup> 1×10 <sup>4</sup> ops (15A 1000VDC)	Switching:1×10 <sup>4</sup> ops <sup>4)</sup> (15A 1500VDC)
		Making:1.5×10 <sup>4</sup> ops <sup>3) 4)</sup> (40A 1500VDC)
Current carrying <sup>5)</sup> endurance	20A: Cont.	
	30A: 1h	
	40A: 20min	
	80A: 30s	
	120A:10s	
	200A:0.6s	

Notes:1) The above values are the initial values.

2) Unless otherwise specified, the temperature of electrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for CE/TUV certified.

4) Load condition for UL certified.

5) Ambient temperature is at 85°C and cross-sectional area of conductor is 4mm<sup>2</sup> min. See Fig. Endurance Capacity Curve for more information.

## COIL DATA

23°C

Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≤9.6	≥1	2.6
24	≤19.2	≥2	2.6

## CHARACTERISTICS

Insulation resistance		1000MΩ(1000 VDC)
Dielectric strength	Between open contacts	4500 VAC 1min
	Between contact and coil	4500 VAC 1min
Operate time (at rated volt.)		≤30ms
Release time (at rated volt.)		≤10ms
Shock resistance	Functional	196m/s <sup>2</sup>
	Destructive	490m/s <sup>2</sup>
Vibration resistance		10Hz ~ 55Hz 49m/s <sup>2</sup>
Humidity		5% ~ 85% RH
Ambient temperature		-40°C ~ 85°C
Load terminal structure		QC terminal
Unit weight		Approx.160g
Outline Dimensions		78.0x 39.8 x 46.1mm

Note:The above values are the initial values measured at room temperature.



HONGFA RELAY

ISO9001、IATF16949、ISO14001、ISO45001、IECQ QC 080000、ISO/EC 27001

2026 Rev.1.00

## ORDERING INFORMATION

Type	HFE82	P	-20/	XXX-	XX-	H-	Q	2	M	-1	(XXX)
Application	P: PV and energy storage										
Contact rating	20: 20A										
Load voltage	1000: 1000 VDC 1500: 1500 VDC										
Coil voltage	12: 12 VDC 24: 24 VDC										
Contact arrangement	H: 1 Form A										
Coil terminal structure	Q: QC terminal										
Load terminal structure	2: QC terminal										
Base structure	M: Layout base with mounting boss										
Coil character	1: Single coil										
Special code <sup>1)</sup>	XXX: Customer requirement(used when customers have special requirements)										

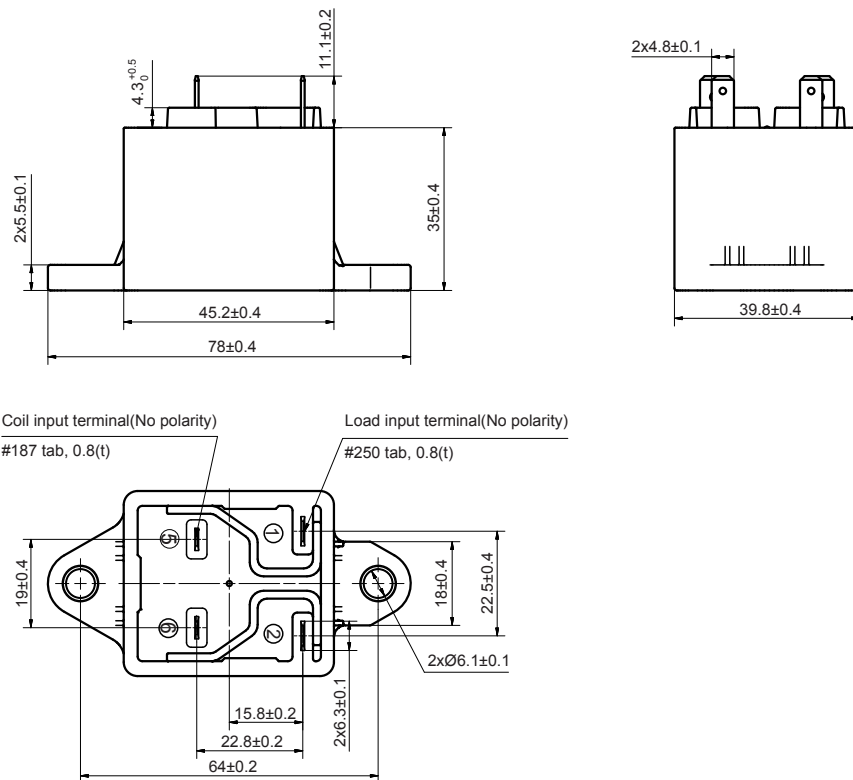
Note: 1) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

### Outline Dimensions

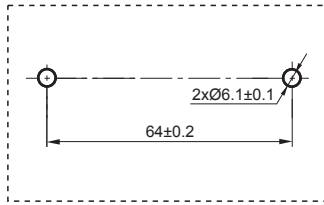
HFE82P-20/XXX-XX-H-Q2M-1



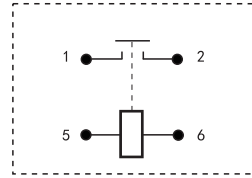
## OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Mounting Hole



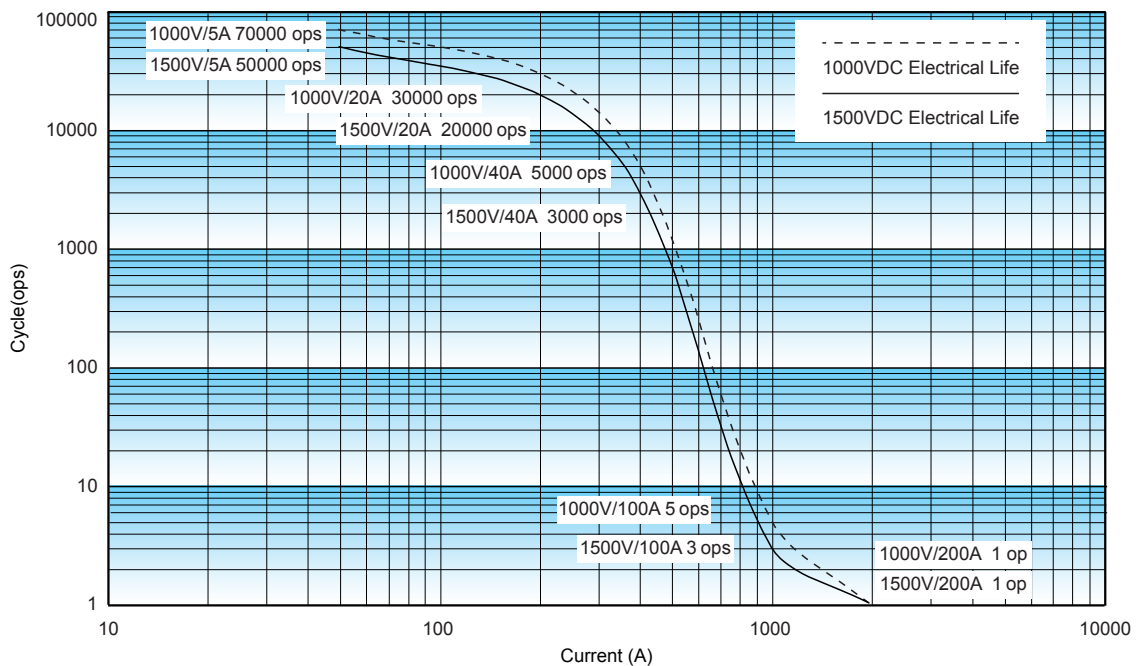
Terminal Arrangement



Note: No polarity on the load and coil sides.

## CHARACTERISTIC CURVES

Breaking Capability Curve (Resistive Load)

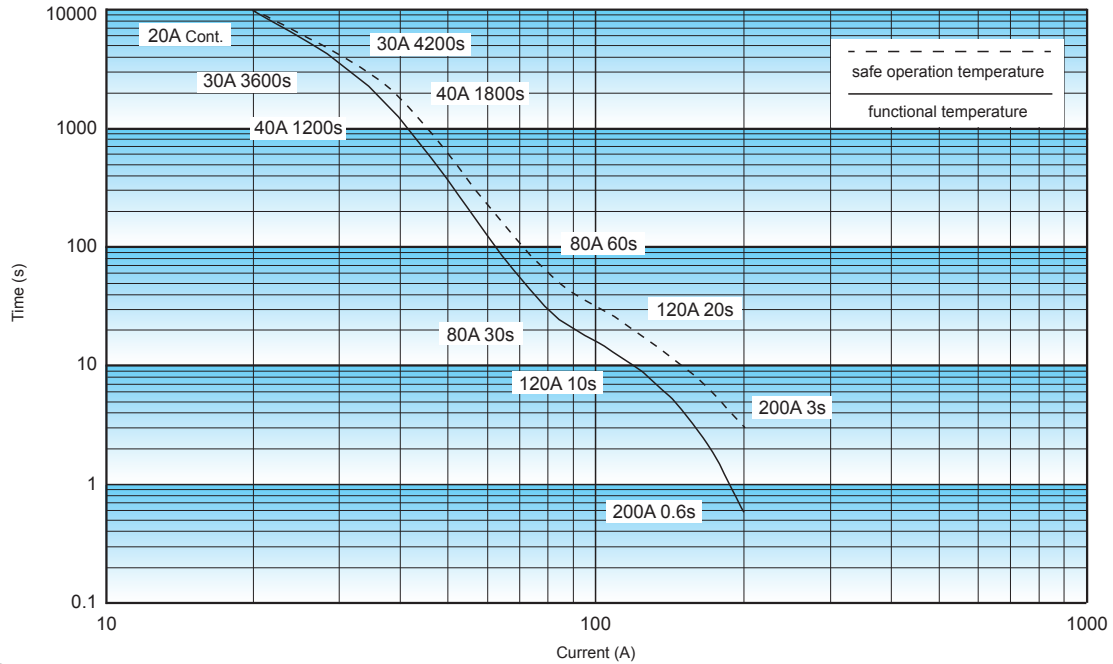


**Notes:**

- The data is for reference only.
- Conductor cross-sectional area  $\geq 4\text{mm}^2$ .
- The data is measured under the resistive load ( $L/R \leq 1\text{ms}$ ), the duty cycle: 0.6s on: 5.4s off, ambient temperature:  $23^\circ\text{C}$ .  
The values may change according to the load type, duty cycle, and environmental conditions. therefore, it is recommended to confirm the values under actual load.
- The curve is based on the standard relay measurement data. It is necessary to consider system voltage, electromagnetic compatibility of the copper busbar, the influence of installation stress when designing the system. If you have any questions, please contact hongfa technology team.

## CHARACTERISTIC CURVES

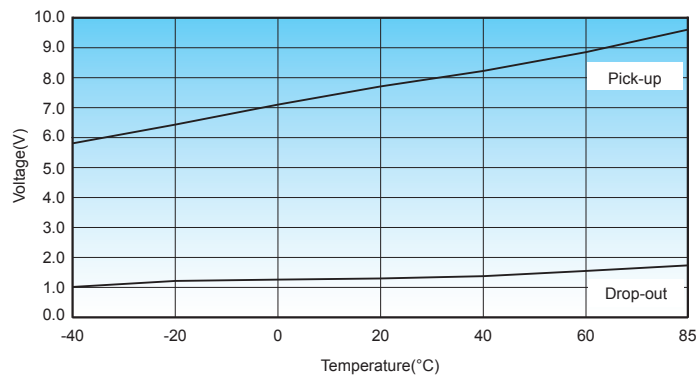
Endurance Capacity Curve



**Notes:**

- The data is for design reference, it shall be verified as actual for model selection and fuse mating of short-circuit current test.
- 1.The upper limit of the safe operation temperature set by this curve is 180 °C, and the upper limit of the functional temperature is 130 °C; The long-term service temperature of the material is 130 °C, the short-term service temperature of the material after aging is 180 °C;
- 2.2.It is recommended that the upper temperature limit shall not exceed 130 °C when long time operation. It may also cause relay failure, if the safe temperature limit of 180 °C is exceeded;
- 2.3.There is a risk of fire and explosion in conditions beyond the safety curve. In case of similar conditions, the relay shall be replaced in time;
- 2.4.The ambient temperature is 85 °C for safe operation and function, the temperature is room temperature with cross-sectional area  $\geq 4\text{mm}^2$ .
- 3.The curve is the measured data of standard relays.System voltage,electromagnetic compatibility and installation stress of copper busbar should be taken into consideration in system design. If any questions, please contact with our technical support for further consultation.

Pick-up Voltage / Drop-out Voltage Curve



**Notes:**

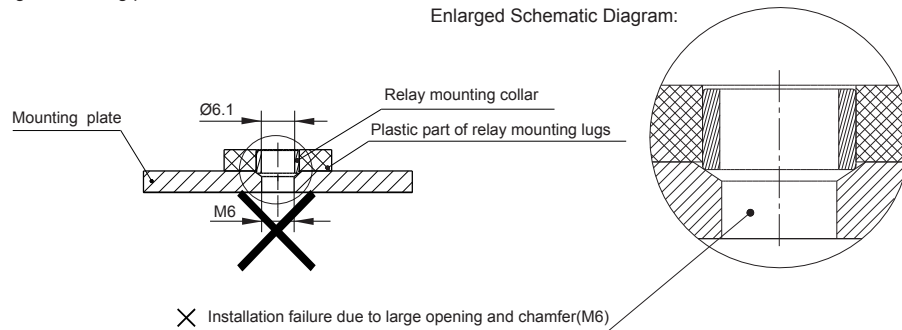
- The above values are sampling values for reference only.
- The rated voltage of the sample coil is 12VDC.
- The sampling ambient temperature is -40°C~85°C.
- The curve is based on the standard relay measurement data. It is necessary to consider system voltage,electromagnetic compatibility of the copper busbar, the influence of installation stress when designing the system. If you have any questions, please contact hongfa technology team.

## CAUTIONS

1. Please use the collar when installing the relay to prevent looseness. Please use M5 screws within 3N.m ~ 4N.m. The allowable insertion and drawing force for both load terminal and coil terminal are 49N. Otherwise, it may cause damage.
2. Please avoid adhering to foreign matter such as grease on the terminal lead end and please use the conductor with min. cross-sectional area of 4mm<sup>2</sup>, otherwise it may cause the abnormal heating of the terminal part.
3. Cautions of mounting for relay body:

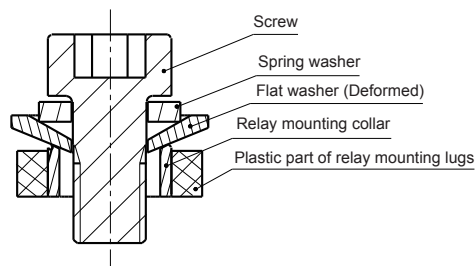
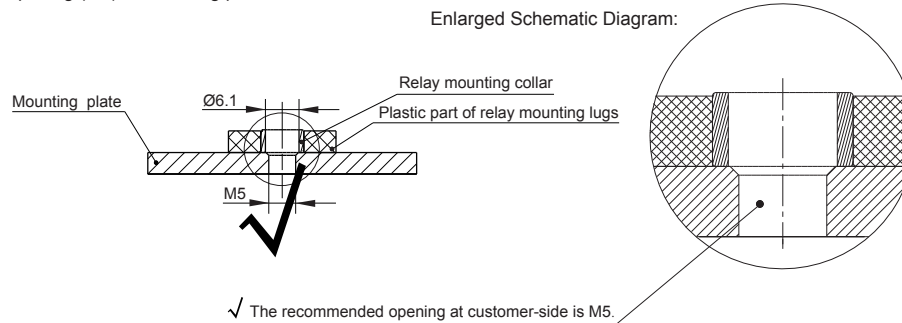
### Unrecommended method

Large opening of mounting plate at customer-side.



### Recommended method

Appropriate opening (M5) of mounting plate at customer-side.



When use M5 screw, the thickness and strength of the washer needs to be guaranteed or it may deform 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.

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