

HFE85P-250

DIRECT CURRENT RELAY



File No.:E133481
RoHS compliant



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; the contact resistance is low and stable, and contact part can meet IP67 protection level.
- Carrying current 250A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 3.3kV, which meets the requirements of IEC 60664-1.

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≤0.3mΩ(at 200A)
Contact rating	250A
Mechanical endurance	2 x 10 ⁵ ops
Max. switching voltage	1000 VDC
Max. breaking current	2000A(320 VDC)1op
Max. switching power	400kW
Electrical endurance 2)	Breaking:6000ops(1500VDC, 60A) 3)
	Breaking:500ops(1000VDC, 250A) 3)
Current carrying 4) capacity	250A: Cont.
	320A: 10min
	500A: 1min
	2000A: 1s

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 UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 75mm² min. See Fig. Endurance Capacity Curve for more information.

COIL

23°C

Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≤9	≥4.5	Switch on:26W Holding:3W
24	≤9	≥4.5	

CHARACTERISTICS

Insulation resistance		1000MΩ (1000 VDC)
Dielectric strength	Between coil & contacts	3300 VAC 1min
	Between open contacts	3300 VAC 1min
	Between contacts & auxiliary contacts	3300 VAC 1min
Operate time (at rated volt.)		≤30ms
Release time (at rated volt.)		≤10ms
Shock resistance	Functional	196m/s ²
	Destructive	490m/s ²
Vibration resistance		10Hz~55Hz 1.5mm DA
Humidity		5%~85% RH
Ambient temperature		-40°C ~ 85°C
Load terminal structure		M6 screw terminal female
Unit weight		Approx. 400g
Outline Dimensions		80.4x62.3x72.8mm

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



HONGFA RELAY

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

2022 Rev. 1.00

ORDERING INFORMATION

Type	HFE85	P	-250/1000-12-	H	A	L	5	P	-5	(XXX)
Application	P: PV and energy storage									
Contact rating	250: 250A									
Load voltage	Nil: 450VDC 750: 750VDC 1000:1000VDC									
Coil voltage	12: 12VDC 24: 24VDC									
Contact arrangement	H: 1 Form A									
Aux. contact arrangement	A: 1 Form A									
Coil terminal structure	L: Lead wire									
Load terminal structure	5: Screw terminal female									
Coil power	P: Energy-saving type									
Coil characteristic	5: Single coil with PWM									
Special code ¹⁾	XXX: Customer special requirement Nil: Standard									

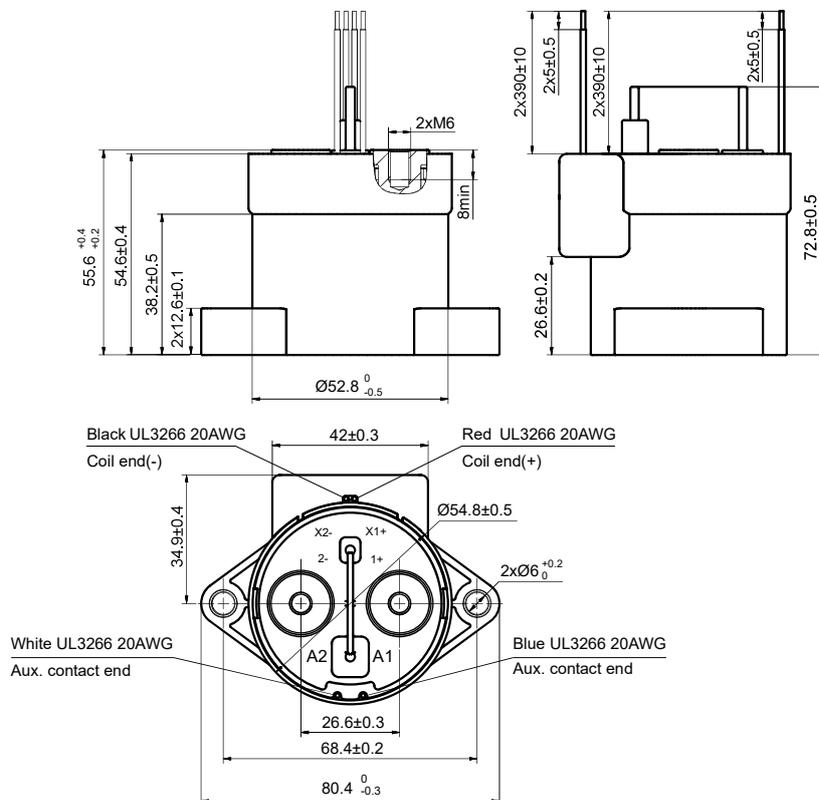
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

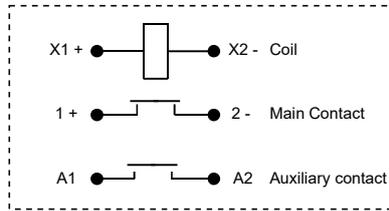
Unit: mm

Outline Dimensions

HFE85P-250/XXX-XX-HAL5P-5



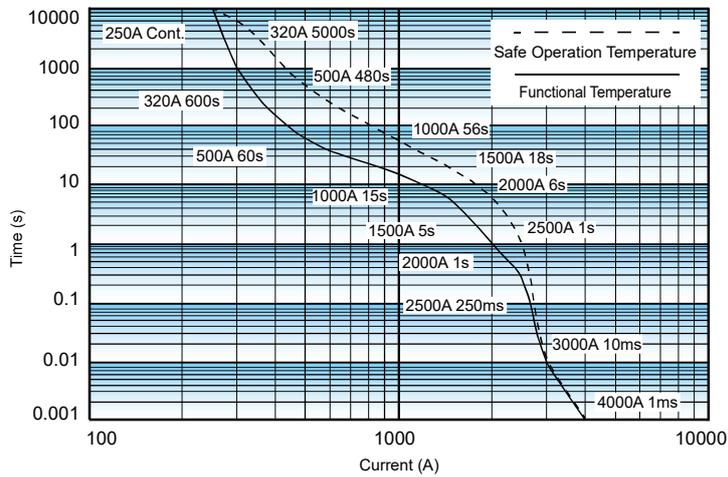
Terminal Arrangement



Note: Both the load and coil sides have polarity.
No polarity on the auxiliary contacts.

CHARACTERISTIC CURVES

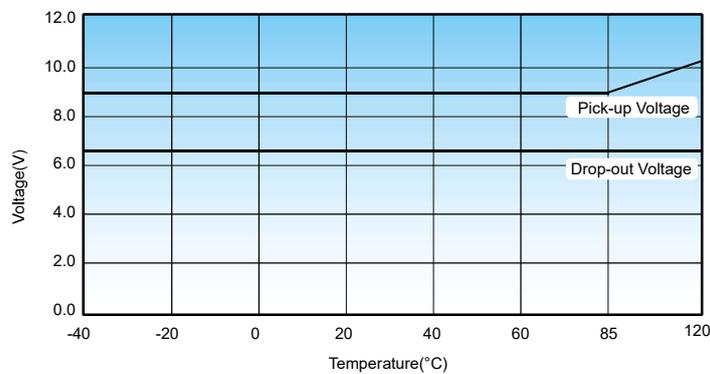
Endurance Capacity Curve



Notes:

1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
2. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
3. The data above is measured at the environment temperature 85°C with cross section area of wire $\geq 75\text{mm}^2$.
4. When the current is $\geq 2500\text{A}$, the relay is likely to be welded, but without any fire or explosion.

Pick-up Voltage / Drop-out Voltage Curve



CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m; The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

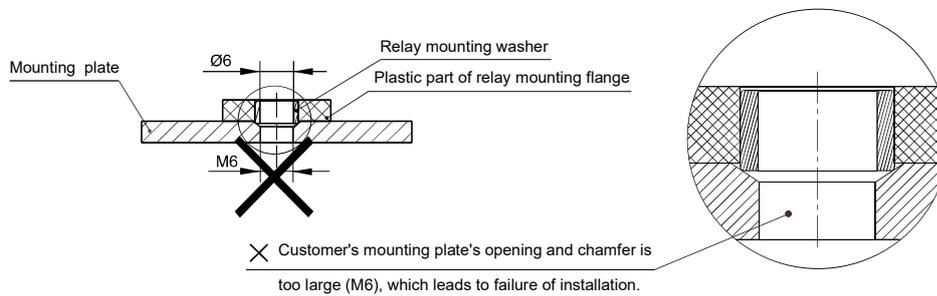
Mounting for load terminal				Mounting for relay body	
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m~8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m~4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing, repeat locking is not recommended.
3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.
4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 75mm², otherwise the terminal parts may have abnormal heating.
6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting.
7. Cautions of mounting for relay body:

Unrecommended method

The hole of mounting plate at customer-side is too large.

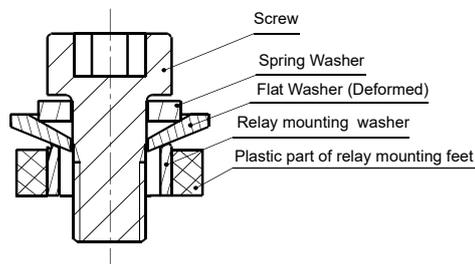
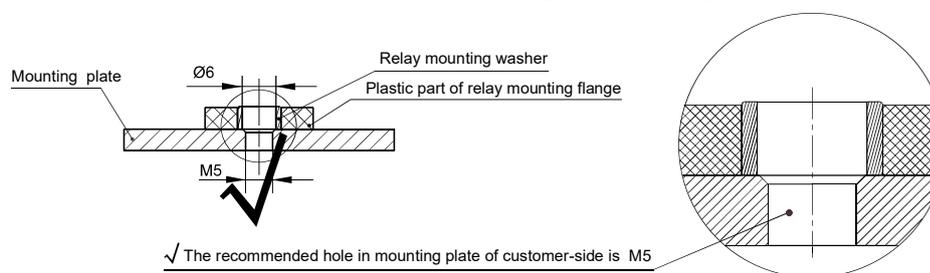
Enlarged Schematic Diagram:



Recommended method

The hole in mounting plate at customer-side is M5

Enlarged Schematic Diagram:



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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