

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 eletrical 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 | | | | | | | | | | |

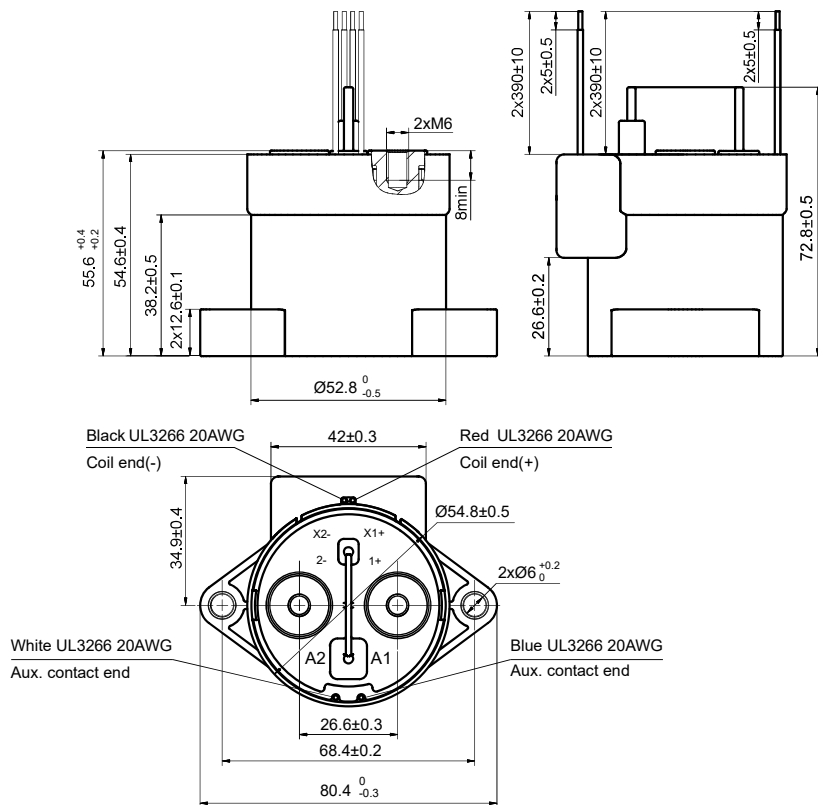
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

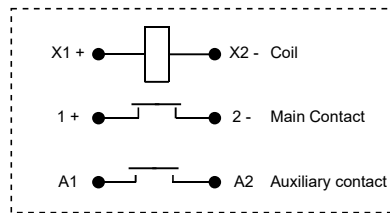
HFE85P-250/XXX-XX-HAL5P-5



OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

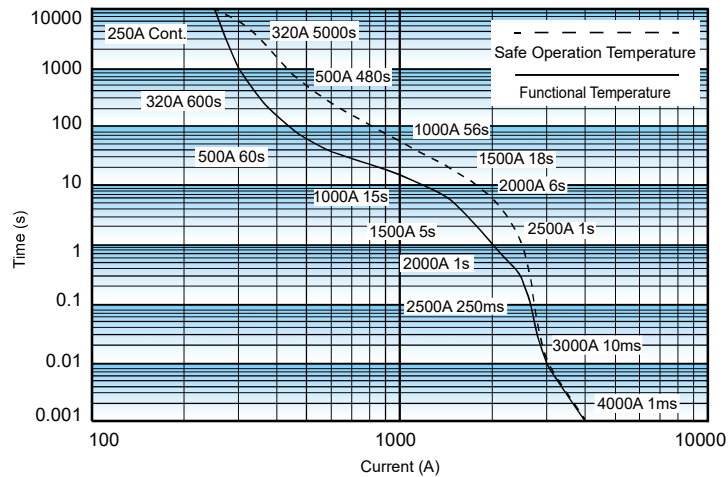
Terminal Arrangement



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

CHARACTERISTIC CURVES

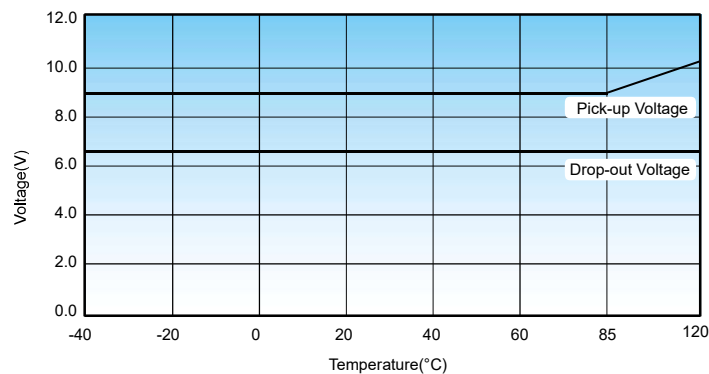
Endurance Capacity Curve



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.

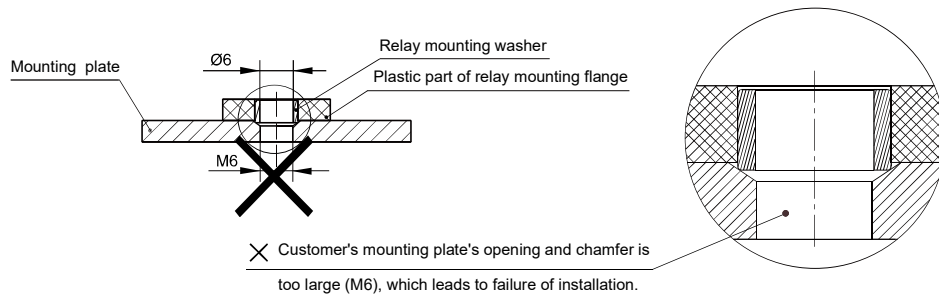
| Mounting for load terminal | | | | Mounting for relay body | |
|----------------------------|--------------------|-----------------------------|-----------------------------|-------------------------|--------------------|
| Mounting way | Torque requirement | Hole dia. of copper bus bar | Thickness 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.

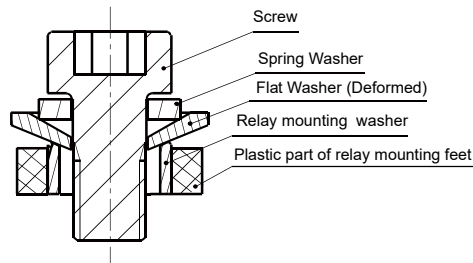
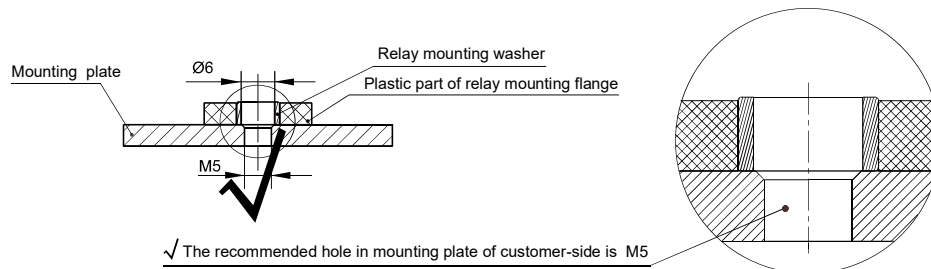
Enlarged Schematic Diagram:



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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