HFE82V-1000 DIRECT CURRENT RELAY

Features

- Hermetically sealed with ceramic brazing technology, without risk of arc leaking, no fire or explosion.
- Filled with hydrogen gas to prevent the oxidation and burnout of contacts; Low and stable contact resistance, with IP67 compliant.
- 1000A continuous carry current capability at 85°C.
- Max. insulation resistance up to 1000MΩ (@1000 VDC), dielectric strength (coil-contact) up to 5kV, IEC 60664-1 compliant.
- Coil with energy-saving devices

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≤0.1mΩ(1000A)
Contact rating	1000A
Mechanical endurance	2x10^5 ops
Max. switching voltage	1200 VDC
Max. breaking current	2000A(1200 VDC) 1 op
Max. switching power	1500kW
Electrical endurance 2)	Making:3×10^4 ops(1200 VDC 60A)
	Breaking:1 op(1200 VDC 2000A)
	Breaking:50 ops(1200 VDC 1000A)
	Breaking:50 ops(1500 VDC 800A)
	Switching:1×10^4 ops(1200 VDC 60A)
Current carrying 3) capacity	1000A:Cont.
	1500A:140s
	2000A:82s
	3000A:30s
	4000A:18s
	10000A:8ms
	12000A:4ms

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 0.3s:20s.
The energy-saving board is built in the relay. The coil will switch after 0.2 seconds of driving. However, repeated on-off operations within 0.2 seconds may cause failure. Products with built-in circuit boards cannot be driven by slow rising voltage. Please use fast rising edge (step power supply method) to drive the coil, otherwise it will not work!

3) Ambient temperature is at 85°C and cross section area of wire is 400mm^2 min. See Fig. Endurance Capacity Curve for more information.

4) 10000A 2ms is short circuit carrying test，relay contact may be welded,but will not burn or exploded.

COIL

23°C

Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≤9	1 ~ 9	Switch on:50(time:0.2s) Holding:10
24	≤18	2 ~ 18	Switch on:50(time:0.2s) Holding:10

CHARACTERISTICS

Insulation resistance		1000MΩ (1000 VDC)
Dielectric strength	Between coil & contacts	5000 VAC 1min
	Between open contacts	5000 VAC 1min
Operate time (at rated volt.)		≤100ms
Release time (at rated volt.)		≤30ms
Shock resistance	Functional	Deenergized: 98m/s^2 Energized: 196m/s^2
	Destructive	490m/s^2
Vibration resistance		10Hz ~ 55Hz 49m/s^2
Humidity		5% ~ 85% RH
Ambient temperature		-40°C ~ 85°C
Load terminal structure		M10 screw terminal female
Unit weight		Approx.3500g
Outline Dimensions		165.9 x 104.6 x 132.8mm

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

ORDERING INFORMATION

	HFE82	V	-1000	/1000	-24	-H	-C	6	-6	(XXX)

Type	
Application	**V:** Vehicle
Contact rating	**1000:** 1000A
Load voltage	**1000:** 1000 VDC **1200:** 1200 VDC
Coil voltage	**12:** 12 VDC **24:** 24 VDC
Contact arrangement	**H:** 1 Form A
Coil terminal structure	**C:** Connector
Load terminal structure	**6:** Screw terminal female and copper bus bar terminal
Coil characteristic	**6:** Double coil with PCBA
Special code[1)]	**XXX:** Customer special requirement

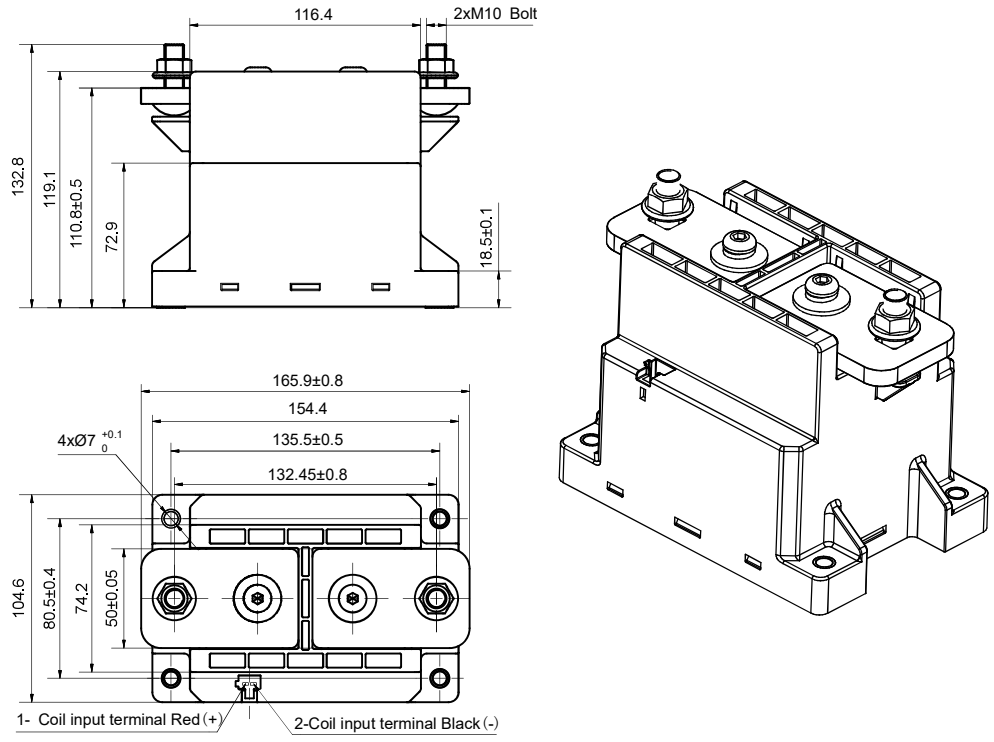
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

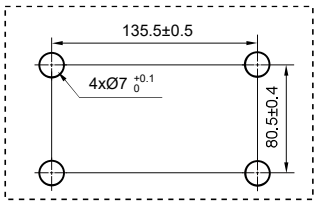
HFE82V-1000/XXX-XX-H-C6-6



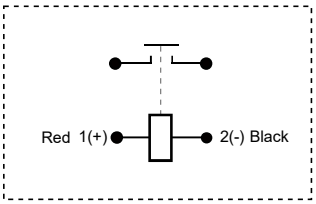
OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Mounting Hole



Terminal Arrangement



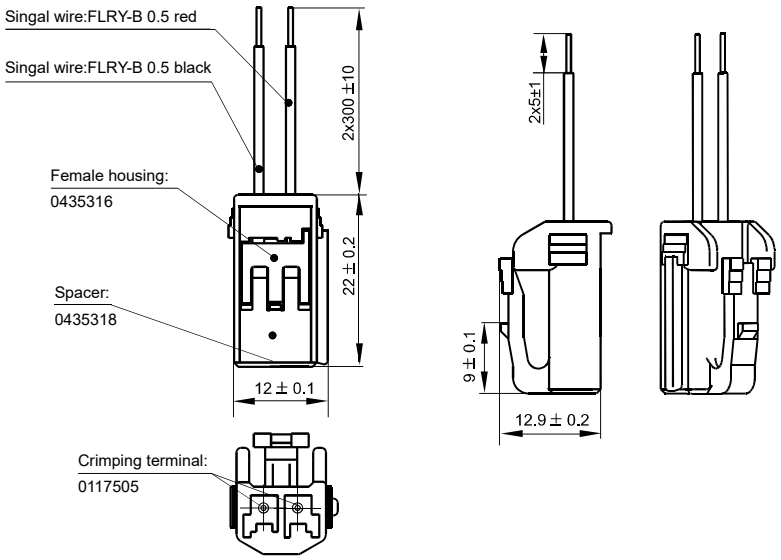
Notes: No polarity on the load,with polarity on the coil.

WIRING DIAGRAM

Unit: mm

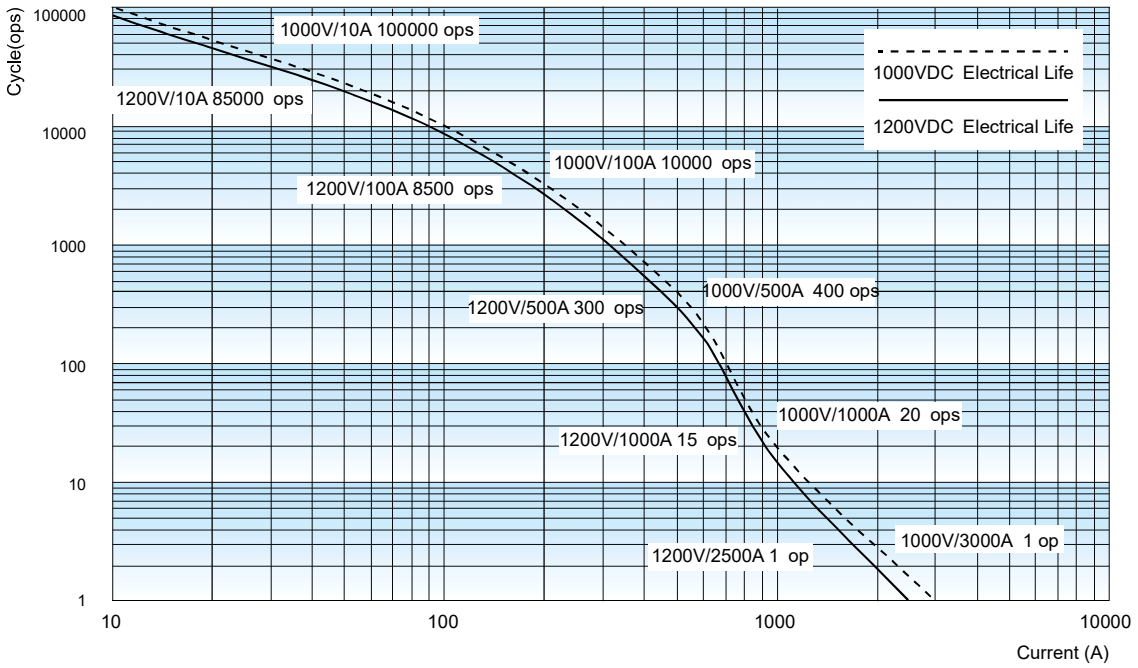
C:Connector

(Configured by customers:THB 0435 series, Yazaki 7283-1020)



CHARACTERISTIC CURVES

Breaking Capability Curve (Resistive Load)



Notes:

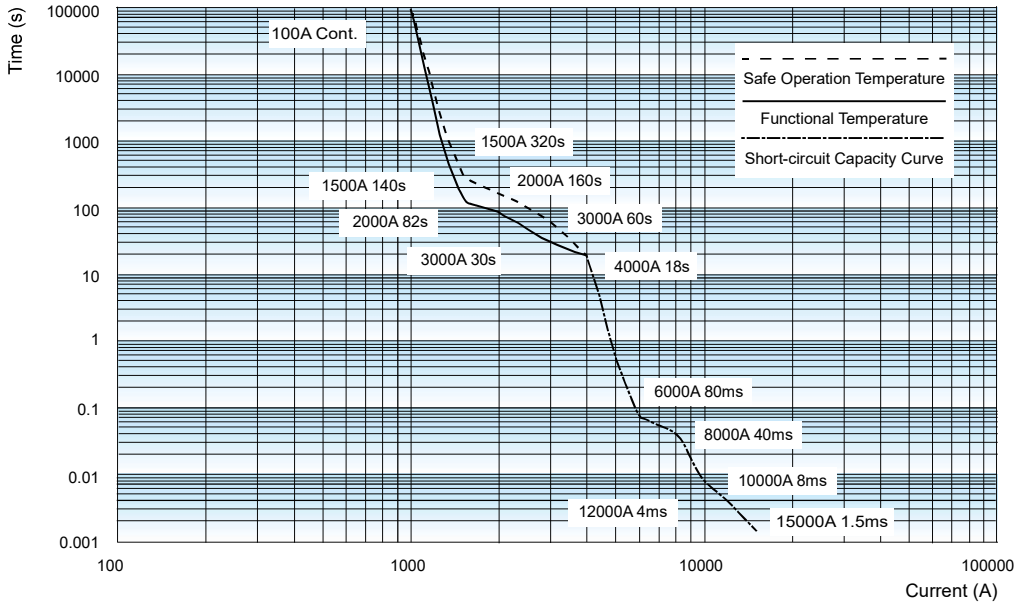
1) The data is for reference only.

2) Cable cross section: ≥400mm².

3) The data is measured under the resistive load (L/R≤1ms), the duty cycle:0.6s on:5.4s off, ambient temperature:23℃;
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.

CHARACTERISTIC CURVES

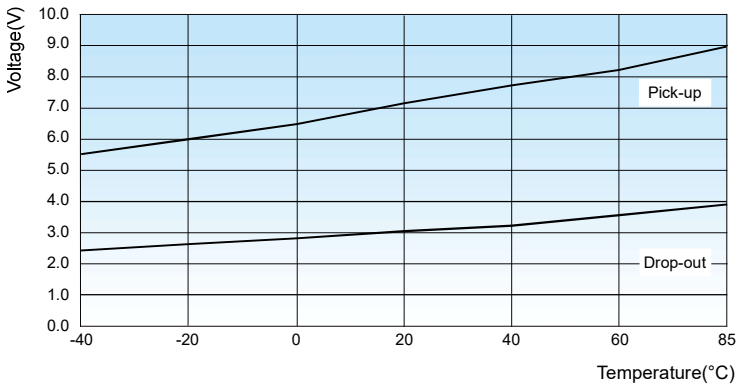
Endurance Capacity Curve



Notes:

1) The data is for design reference, it shall be verifed as actual for model selection and fuse mating of short-circuit current test.
2) The upper temperature limit of safe operation and function are set for 180℃ and 140℃ respectively.
3) It is recommended that the upper temperature limit shall not exceed 140℃ when long time operation. The relay may also fail, if the safe temperature limit of 180℃ is exceeded.
4) Risks of fire and explosion may exist when the working condition beyond the safe circuit curve. in case of similar working condition,the relay shall be replaced in time.
5) The ambient temperature is 85℃ for safe operation and function, and for current above 2000A, the temperature is room temperature with cross-sectional area≥400mm².
6) Even if it is below the safety curve when the current≥2000A, the relay is likely to be bonded during current carrying. If there is a break beyond the specification, fire and explosion may occur.
7) The contact is likely to bounce off when the current≥10000A 20ms. If the fuse cannot be fused in time, the relay may explode and may be iqnited if the arc continues to burn after the explosion.
8) The contact will severely bounce off when the current≥15000A 6ms, which may cause the circuit current cannot continue to rise. If the fuse cannot be fused in time, the relay may explode and the arc may ignite the relay after the explosion.

Pick-up Voltage / Drop-out Voltage Curve



Notes: 1) The above values are sampling values for reference only;
2) The rated voltage of the sample coil is 12VDC;
3) The sampling ambient temperature is -40℃ ~ 85℃.

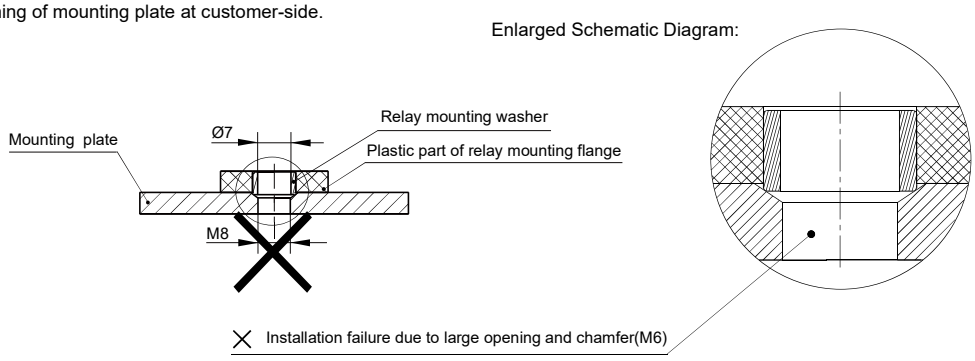
CAUTIONS

1. In case of looseness, please use washer when install the relay with M6 screw, and the torque within 6N.m to 8N.m, The screw tightening torque at terminals shall be within 20N.m to 25N.m. The torque beyond the range may cause damage.

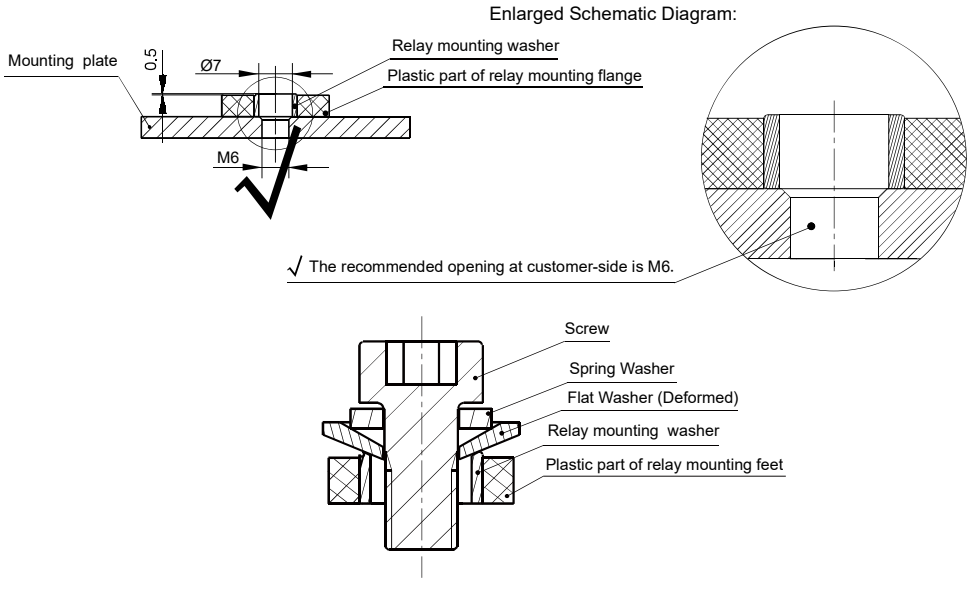
Mounting for load terminal				Mounting for relay body	
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M10 Bolt	20N·m ~ 25N·m	Ø10mm ~ Ø10.5mm	≥8mm	M6 Screw	6N·m ~ 8N·m

2. Please tighten the load terminal of relay vertically with preloading first when installing. Repeat locking is not recommended.
3. If any special screws and nuts, such as nylok, are used when installing, it is recommended to contact and confirm with Hongfa.
4. If any special installation requirements,such as downward direction,multi busbar connection, are involved, it is recommended to contact and confirm with Hongfa.
5. Please avoid adhering to foreign matter such as grease on the terminal lead end and please use the conductor with min. cross section area of 400mm^2, otherwise it may cause the abnormal heating of the terminal part.
6. The product has energy-saving board inside and the coil will switch automatically after 0.2s drive, but repeated switching within 0.2s may cause failure of relay.
7. The product with PCB inside cannot be driven by ramp up voltage, please drive the coil by step type power ,otherwise the relay may fail to work.
8. Cautions of mounting for relay body

Unrecommended method
Large opening of mounting plate at customer-side.



Recommended method
Appropriate opening (M6) of mounting plate at customer-side.



When use M6 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.