

# HFE82V-400M

# DIRECT CURRENT RELAY



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 when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 400A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 3kV, which meets the requirements of IEC 60664-1.

### CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≤0.25mΩ, Typ.:0.15mΩ(at 400 A)
Contact rating	400A
Mechanical endurance	2 x 10 <sup>5</sup> ops
Max. switching voltage	800 VDC
Max. breaking current	2000A(450VDC)1op
Max. switching power	360kW
Electrical endurance 2)	Making:7.5×10 <sup>4</sup> ops (22.5VDC 140A C=110μF)
	Breaking:7.5×10 <sup>4</sup> ops(450 VDC 5A)
	Breaking:2.5×10 <sup>4</sup> ops(450 VDC 10A)
	Breaking:3×10 <sup>3</sup> ops(450 VDC 200A)
	Breaking:1×10 <sup>3</sup> ops(450 VDC 400A)
	Breaking:100ops(800 VDC 400A)
	Breaking:100ops(1000 VDC 200A)
Current carrying 3) capacity	400A:Cont.
	500A:2000s
	1350A:15s
	2000A:10s
	3000A:5s

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) Ambient temperature is at 85°C and cross section area of wire is 200mm<sup>2</sup> 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	≥1	6
24	≤18	≥2	6

### CHARACTERISTICS

Insulation resistance		1000MΩ(1000 VDC)
Dielectric strength	Between coil & contacts	3000 VAC 1min
	Between open contacts	3000 VAC 1min
Operate time (at rated volt.)		≤50ms
Release time (at rated volt.)		≤10ms
Shock resistance	Functional	Close:98m/s <sup>2</sup> Open:196m/s <sup>2</sup>
	Destructive	490m/s <sup>2</sup>
vibration resistance		10Hz ~ 500Hz 49m/s <sup>2</sup>
Humidity		5% ~ 85% RH
Ambient temperature		-40°C ~ 85°C
Load terminal structure		M6 screw terminal female
Unit weight		Approx.740g
Outline Dimensions		95.8 x 49.0 x 93mm

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



HONGFA RELAY

ISO9001、IATF/TS16949、ISO14001、OHSAS18001、IECQ QC 080000 CERTIFIED

2022 Rev. 1.00

## ORDERING INFORMATION

Type	HFE82 V -400 M/ 750- 12- H -C 5 -1 (XXX)									
Application	V: Vehicle									
Contact rating	400: 400A									
Series breakdown	M: M series									
Load voltage	Nil: 450 VDC 750: 750 VDC									
Coil voltage	12: 12 VDC 24: 24 VDC									
Contact arrangement	H: 1 Form A									
Coil terminal structure	C: Connector									
Load terminal structure	5: Screw terminal female									
Coil characteristic	1: Single coil									
Special code <sup>1)</sup>	XXX: Customer special requirement			Nil: Standard						

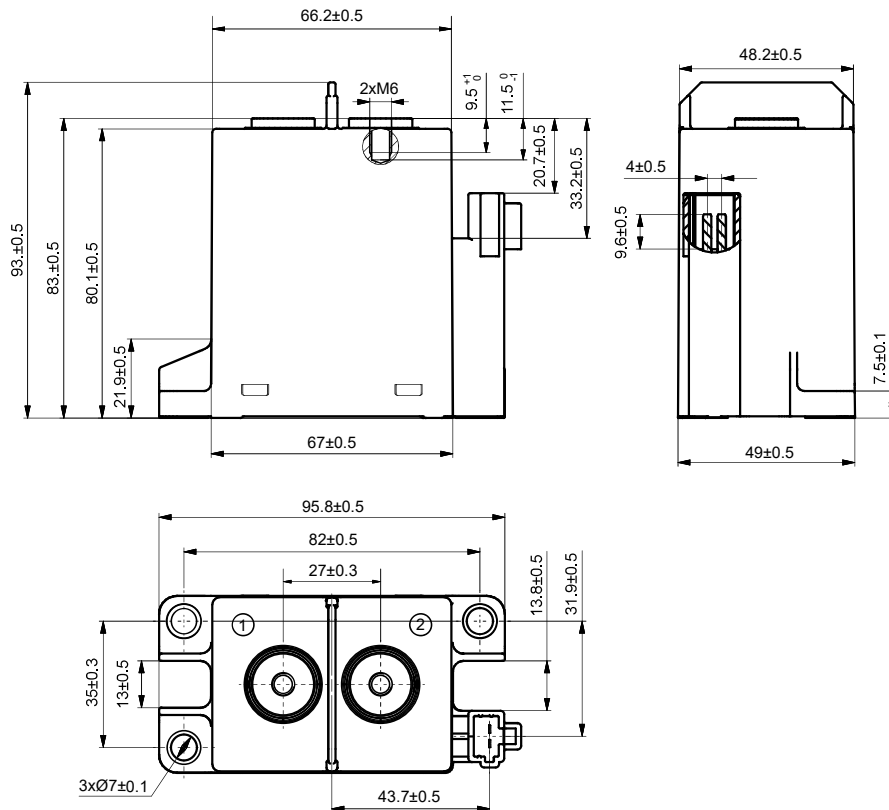
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

### Outline Dimensions

HFE82-400M/XXX-XX-H-C5-1(901)

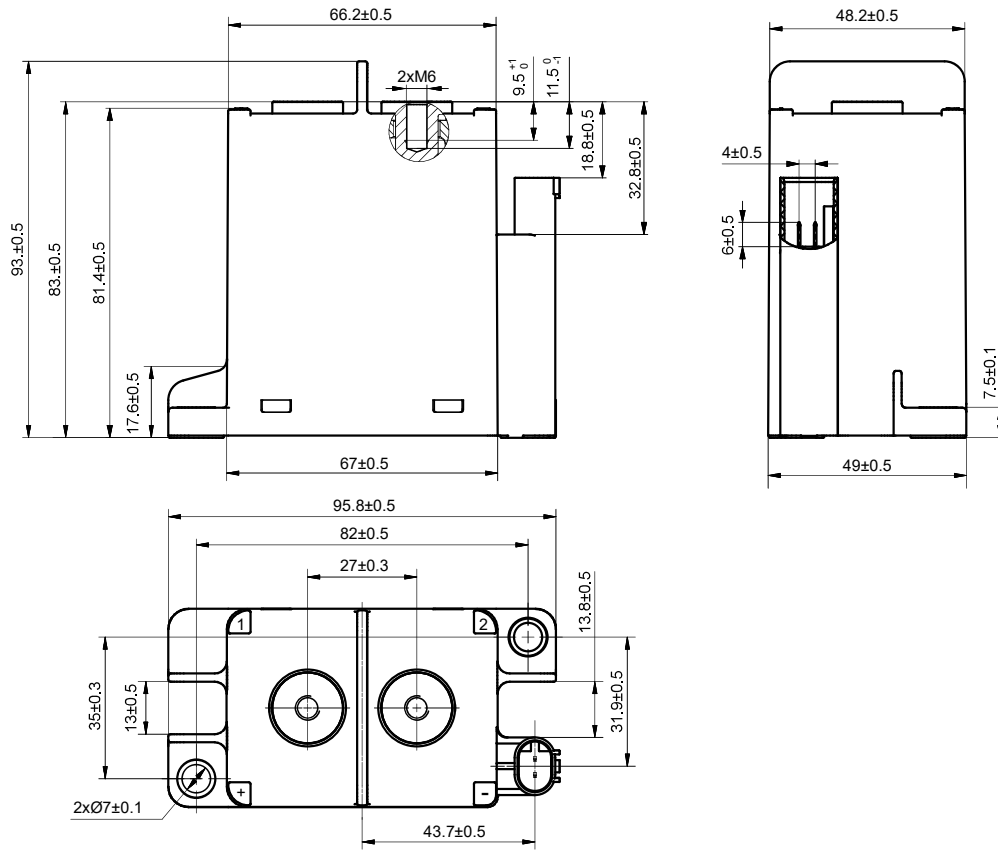


# OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

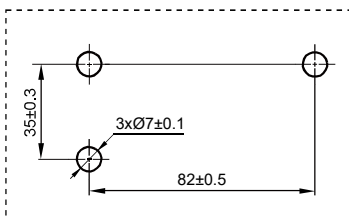
## Outline Dimensions

HFE82-400M/XXX-XX-H-C5-1

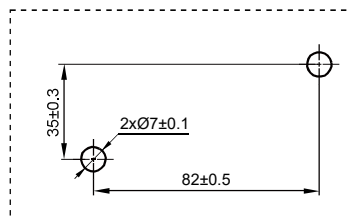


## Mounting Hole

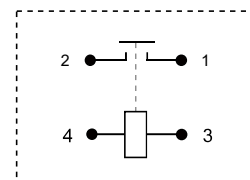
HFE82-400M/XXX-XX-H-C5-1(901)



HFE82-400M/XXX-XX-H-C5-1



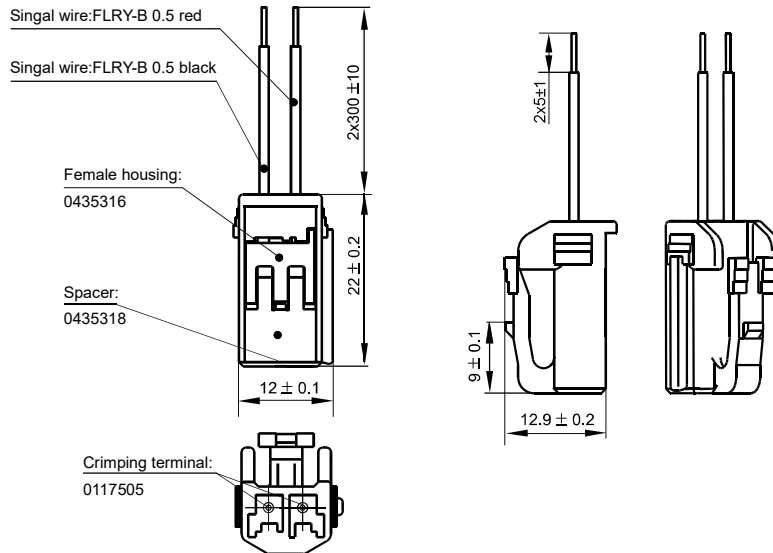
## Terminal Arrangement



Note: No polarity on the load and coil sides.

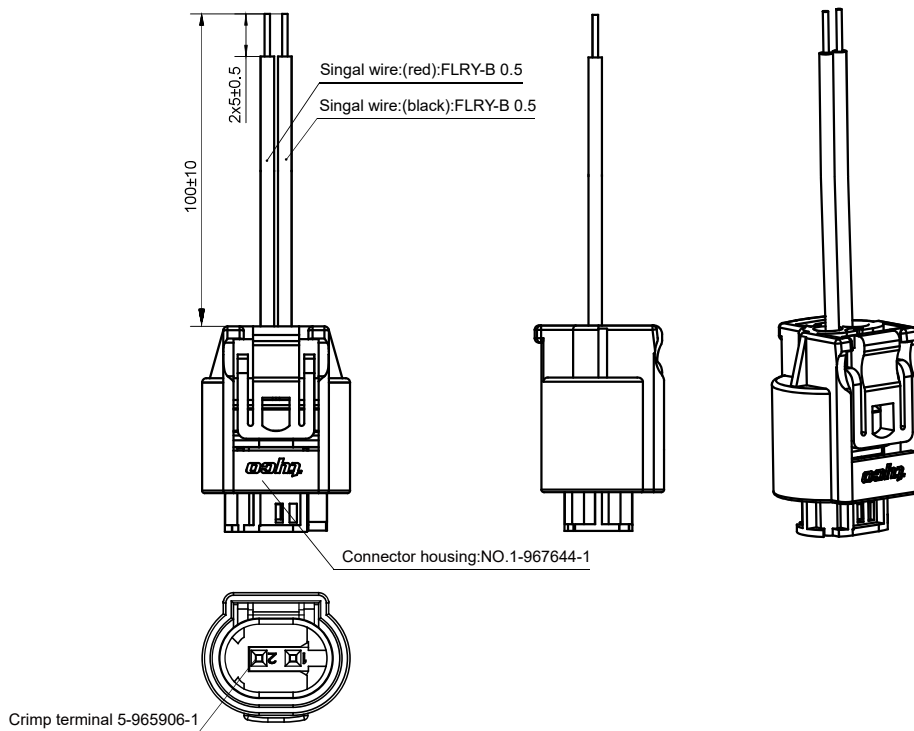
C:Connector

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



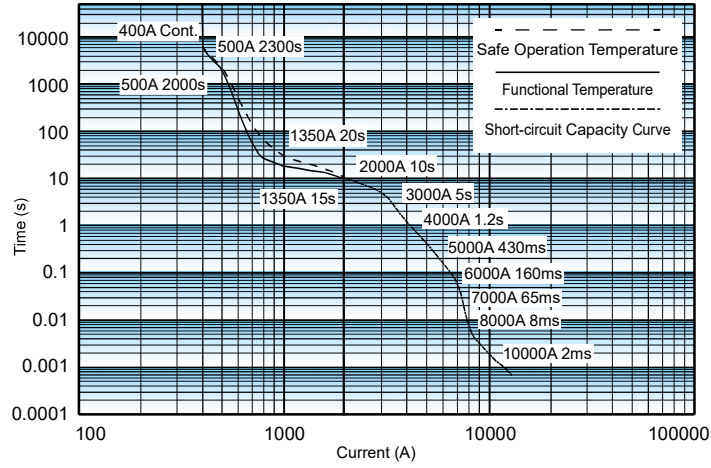
Mating connector for HFE82-400M/XXX-XX-H-C5-1

(Applicable to 2 position MQS connector of TE. Housing for female terminals is NO.1-967644-1)



# CHARACTERISTIC CURVES

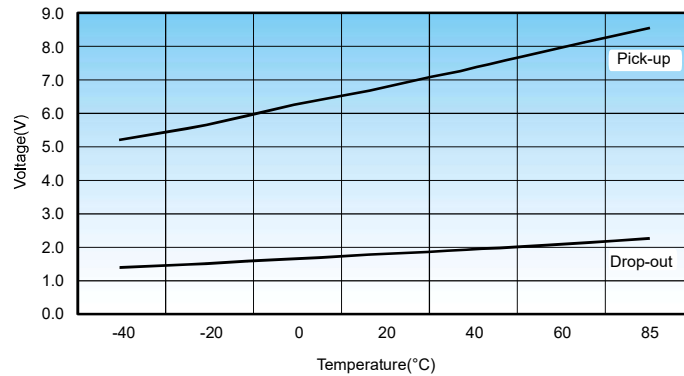
## Endurance Capacity Curve



**Notes:**

- 1.The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
- 2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire;
- 3.The ambient temperature is 85°C, and the cross section area of the wire is  $\geq 200\text{mm}^2$ .
- 4.When the relay is operated under current  $\geq 2000\text{A}$  for a long-term, it may weld without fire or explosion.
- 5.When the current is  $\geq 8000\text{A}$  for 8ms, the contact may open. If the fuse fails to open in time, the relay may explode, and the arc burning continuously after the explosion may cause the relay on fire.
- 6.When the current is  $\geq 10000\text{A}$ , the contact will open seriously, and the circuit current cannot get rise anymore. If the fuse fails to open in time, the relay will explode, and the arc may cause the relay on fire after explosion.

## Pick-up Voltage / Drop-out Voltage Curve



## CAUTIONS

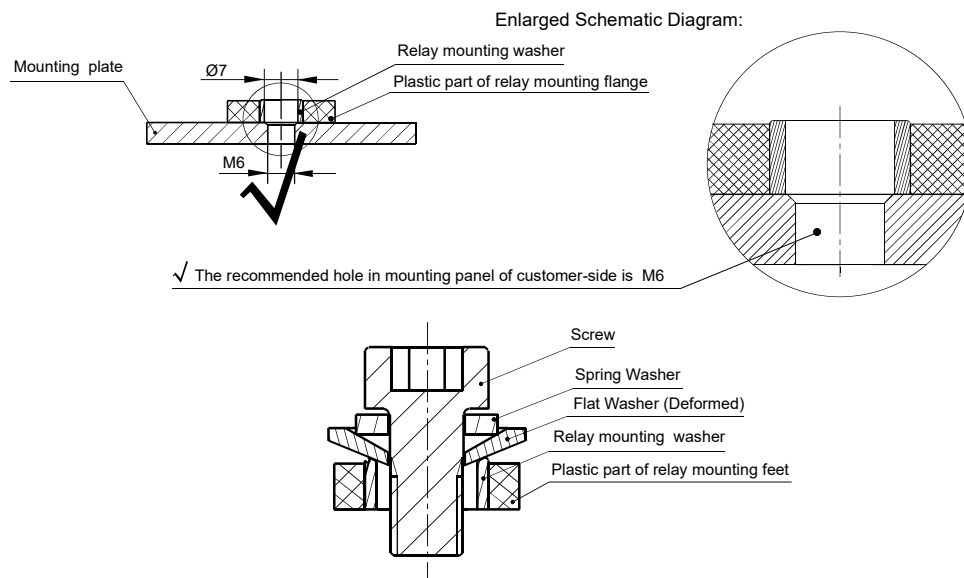
1. In case of loosening, please use washer when mount the relay with M6 screw, and the torque within 6N·m to 8N·m, The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

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	M6 Screw	6N·m ~ 8N·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 200mm<sup>2</sup>, otherwise the terminal parts may have abnormal heating.
6. Cautions of mounting for relay body:

### Recommended method

The hole in mounting plate at customer-side is M6



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.

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