

HFE80V-20D

DIRECT CURRENT RELAY



Features

- Pre-charging relay for new energy vehicles.
- 20A continuous carry current capability at 85°C.
- Safety certification comply with IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	$\leq 5\text{m}\Omega$ (at 20A)
Contact rating	20A
Mechanical endurance	2×10^5 ops
Max. switching voltage	750 VDC(at 2A)
Max. breaking current	20A(450 VDC) 5 ops
Max. switching power	9kW
Electrical endurance 2)	Making: 7.5×10^4 ops(450 VDC 20A)
	Switching:1000 ops(450 VDC 15A)
Current carrying 3) capacity	15A:Cont.
	20A:1h
	30A:20min
	60A:10s
	90A:3s
	150A: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) Ambient temperature is at 85°C and cross section area of wire is 4mm² 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	1.8
24	≤ 18	≥ 2	1.8

CHARACTERISTICS

Insulation resistance		1000MΩ(500 VDC)
Dielectric strength	Between coil & contacts	3000 VAC 1min
	Between open contacts	2500 VAC 1min
Operate time (at rated volt.)		$\leq 30\text{ms}$
Release time (at rated volt.)		$\leq 10\text{ms}$
Shock resistance	Functional	196m/s ²
	Destructive	490m/s ²
Vibration resistance		10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient temperature		-40°C ~ 85°C
Load terminal structure		QC terminal
Unit weight		Approx.45g
Outline Dimensions		29.0 x 25.0 x 28.9mm

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



HONGFA RELAY

ISO9001, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/EC 27001 CERTIFIED

2024 Rev.1.00

ORDERING INFORMATION

	HFE80	V	-20	D/	450-	12-	H	T-	Q	2	D	J	(XXX)
Type													
Application	V: Vehicle												
Contact rating	20: 20A												
Series breakdown	D: D series												
Load voltage	450: 450 VDC												
Coil voltage	12: 12 VDC 24: 24 VDC												
Contact arrangement	H: 1 Form A												
Contact material	T: AgSnO ₂												
Coil terminal structure	Q: QC terminal												
Load terminal structure	2: QC terminal												
Shell structure	A: Without mounting flange D: D type mounting flange												
Base structure	J: Layout base without mounting boss												
Special code ¹⁾	XXX: Customer special requirement Nil: Standard												

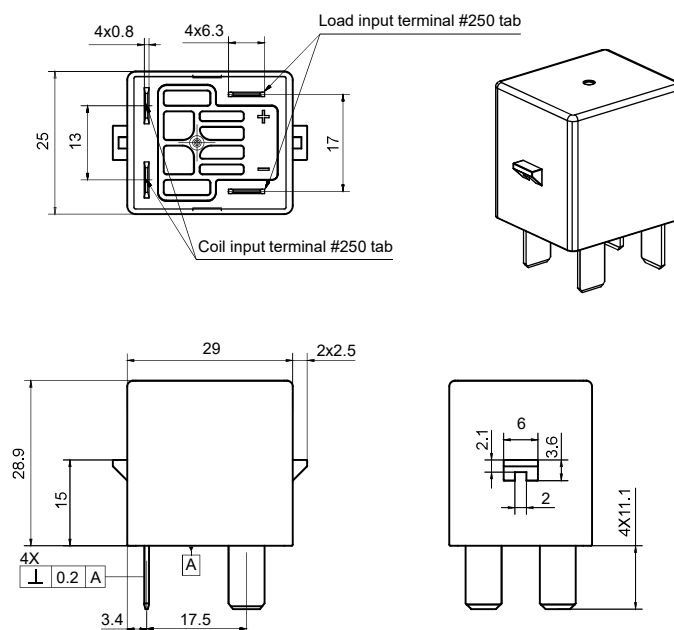
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE80V-20D/450-XX-HT-Q2AJ



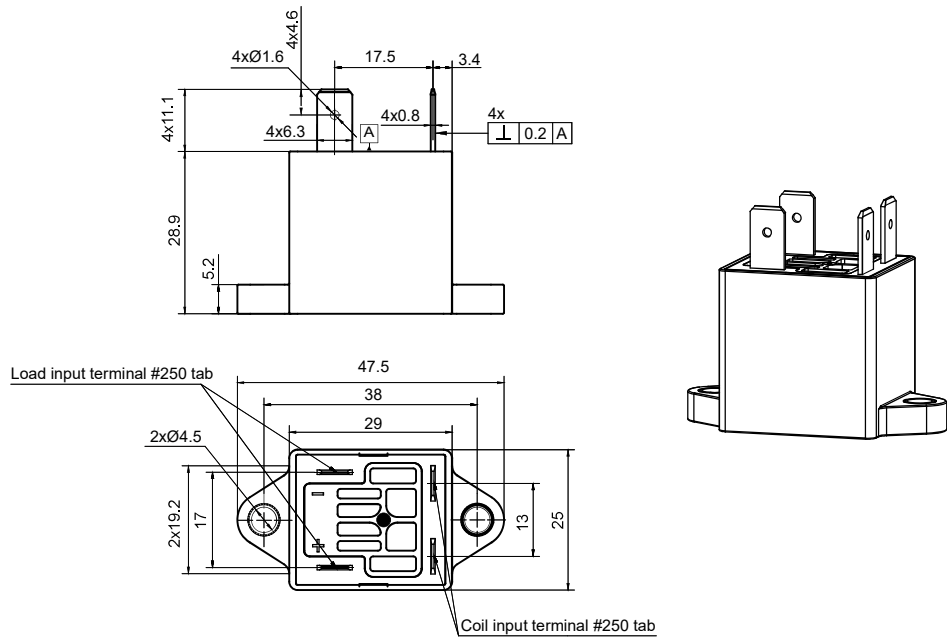
Notes: Outline dimension: outline dimension $\leq 10\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 10\text{mm}$ and $\leq 50\text{mm}$, tolerance should be $\pm 0.5\text{mm}$; outline dimension $> 50\text{mm}$, tolerance should be $\pm 0.8\text{mm}$.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

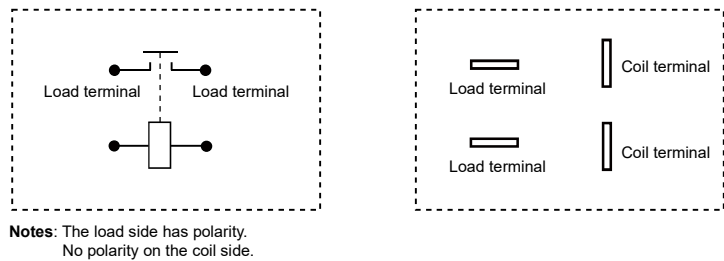
Outline Dimensions

HFE80V-20D/450-XX-HT-Q2DJ



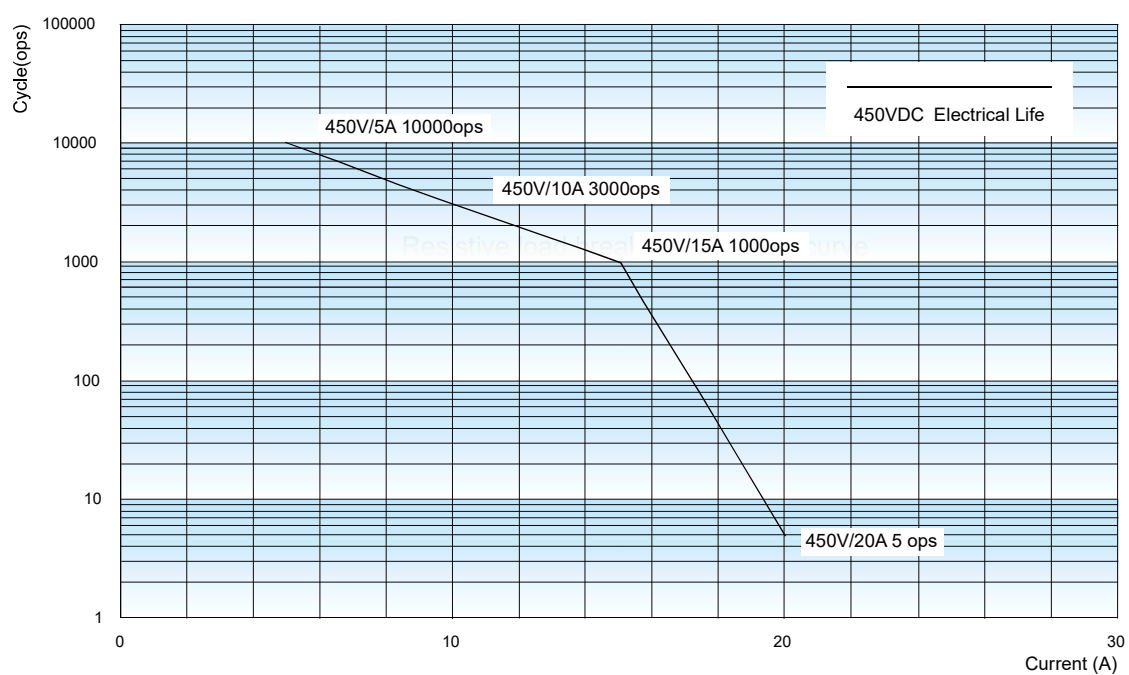
Notes: Outline dimension: outline dimension \leq 10mm, tolerance should be \pm 0.3mm; outline dimension $>$ 10mm and \leq 50mm, tolerance should be \pm 0.5mm; outline dimension $>$ 50mm, tolerance should be \pm 0.8mm.

Terminal Arrangement



CHARACTERISTIC CURVES

Breaking Capability Curve (Resistive Load)

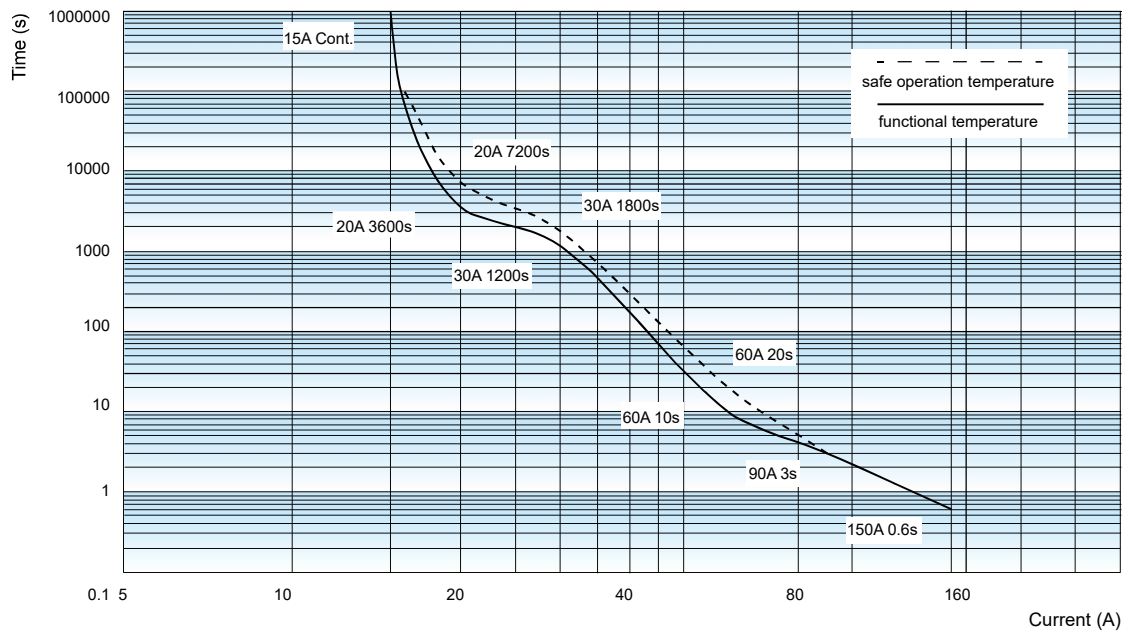


Notes:

- 1) The data is for reference only.
- 2) Cable cross section: $\geq 4\text{mm}^2$.
- 3) 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°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.

CHARACTERISTIC CURVES

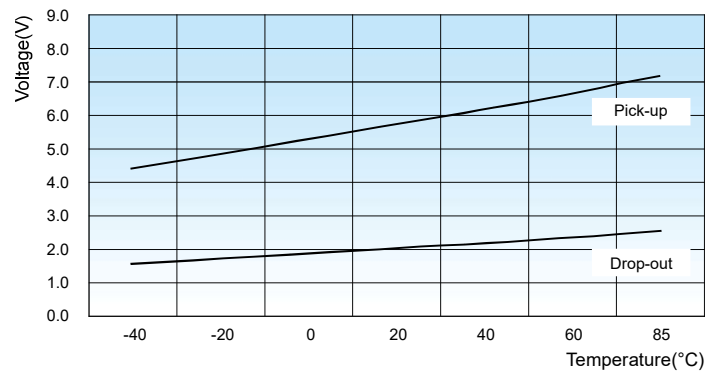
Endurance Capacity Curve



Notes:

- 1) The data is for design reference, it shall be verified 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°C and 130°C respectively.
- 3) It is recommended that the upper temperature limit shall not exceed 130°C when long time operation. The relay may also fail, if the safe temperature limit of 180°C 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°C for safe operation and function, the temperature is room temperature with cross-sectional area $\geq 4\text{mm}^2$.
- 6) If any breaking beyond the definition in the specification, it may cause fire or 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°C ~ 85°C.

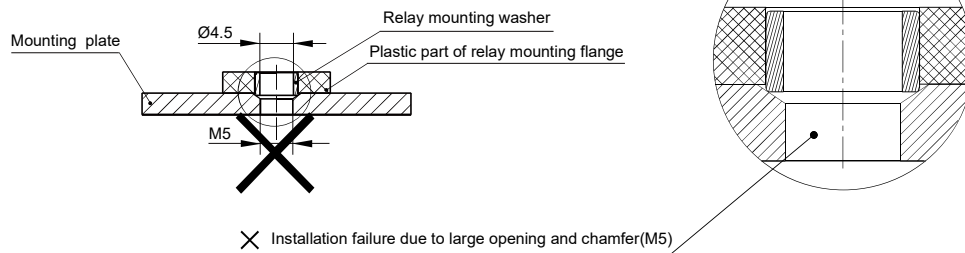
CAUTIONS

1. In case of loosening, please use M4 screw for HT-Q2DJ terminal mounting, and the screw tightening torque shall be within 2N.m to 3N.m, The insertion and withdraw force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range 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 section area of 4mm², otherwise it may cause the abnormal heating of the terminal part.
3. Do not use the relay when it is dropped.
4. Cautions of mounting for relay body:

Unrecommended method

Large opening of mounting plate at customer-side.

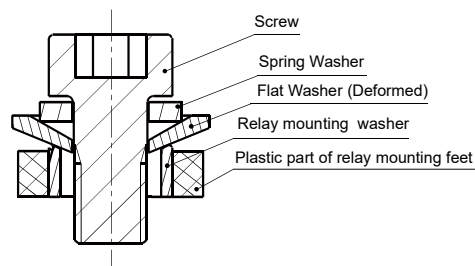
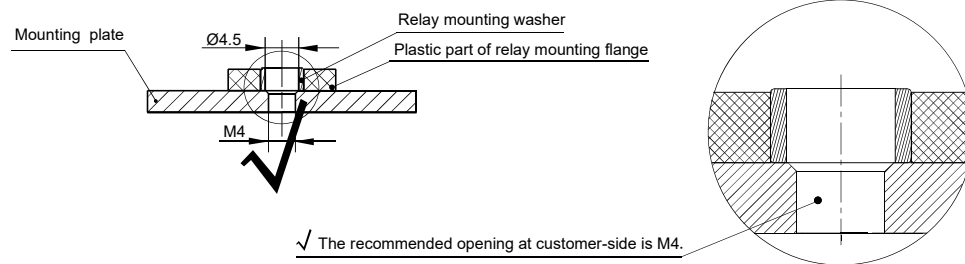
Enlarged Schematic Diagram:



Recommended method

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

Enlarged Schematic Diagram:



When use M4 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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