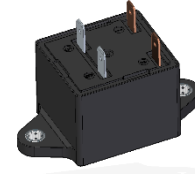


ESM-20

High voltage DC Relay

1 Product Features

- ◆Ceramic Brazing seal, No arc leakage, Make sure no fire and burst
- ◆Compact structure, low noise
- ◆The mixed gas mainly filled with hydrogen can prevent the contact from oxidation and burning
- ◆20A 85°C long time current carrying capacity
- ◆The insulation resistance reaches 1000MΩ (1500VDC) and meets the requirements of IEC60664-1



2 Performance Data

Parameter		Units	Value
Contact Form		/	1 form A
Contact Rated Load		A	20
Mechanical Durability		Ops	3×10^5
Max. Switching Voltage		VDC	1500
Max. Breaking Current		/	200A(1000V DC) 1 times
Current Tolerance ¹⁾		/	30A: 60min; 40A: 20min; 80A: 30s
Contact Resistance		mΩ	≤ 5
Operating Time (at rated voltage)		ms	≤ 30
Release Time (at rated voltage)		ms	≤ 10
Insulation Resistance		MΩ	1000 (1500VDC)
Dielectric Withstand Voltage	Between Open Contacts	/	4000VAC 50 Hz/60 Hz
	Between Contacts and Coil	/	4000VAC 50 Hz/60 Hz
Electrical Endurance ²⁾	20A 1000VDC (DC-1)	Ops	2×10^4
	15A 1500VDC (DC-1)	Ops	1×10^4
Impact	Stability	/	196m/s ²
	Strength	/	490 m/s ²
Vibration		/	10Hz~500Hz 49 m/s ²
Operating Temp		°C	-40~+85
Fumidity		/	5%~85%RH
Form Of Load Outlet		/	Internal Thread/External Thread
Weight		g	150
Outline Dimensions		/	Reference outline drawing

Remark: 1) please refer to the attached figure "tolerance curve". 2) The on-off ratio is 0.6s: 5.4s. Please note that if the coil parallel diode is used, the release time of the relay will be greatly prolonged and the service life will be reduced.

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3 Coil Parameters

Nominal Voltage(Us)	12V DC	24V DC	48V DC
Operating Voltage Range	±20%Us	±20%Us	±20%Us
Pickup Voltage	9.6Vmax	19.2Vmax	368Vmax
Dropout Voltage	1.2Vmin	2.4Vmin	4.8Vmin
Coil Power	2.6W	2.6W	2.6W

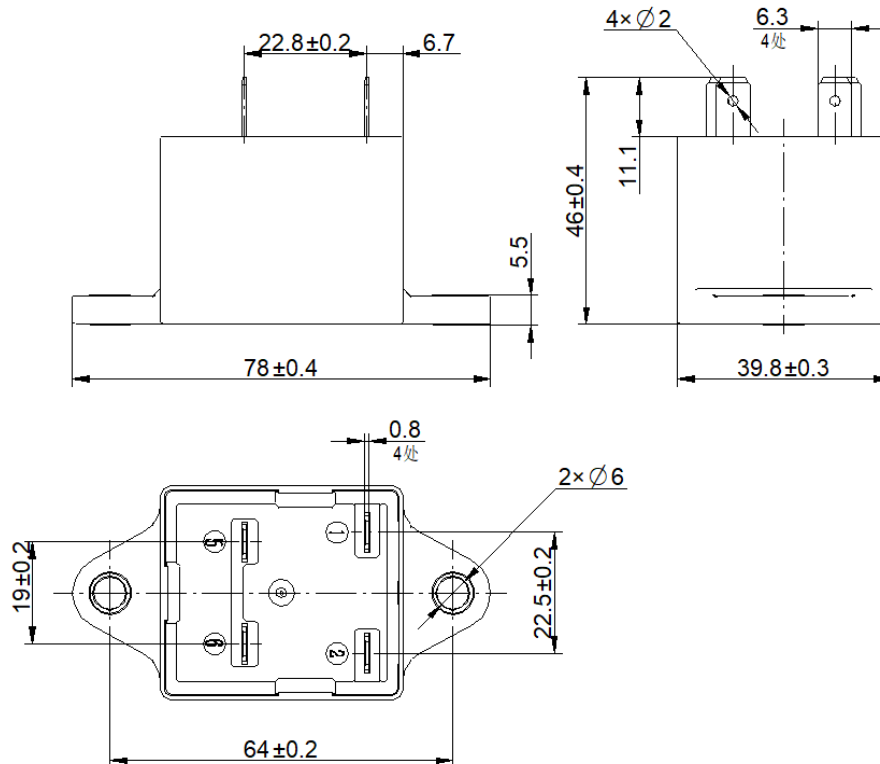
4 Example of order marking

EV M - 20 A / 1500 - 12 Q 2 (XXX)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product Model: EV
- ② Product Type: M: Ceramic Sealed Type
- ③ Contact form: A: 1 Form A
- ④ Series Code: 20: 20A
- ⑤ Load Voltage: 1000: 1000VDC
- ⑥ Nominal coil voltage: 12: 12VDC、24: 24VDC.....
- ⑦ Coil lead-out end form: Q: Insert (6.3)
- ⑧ Form Of Load Outlet: 2: Insert (6.3)
- ⑨ Characteristics Code: Subject To Customer Requirements

5 Outline drawing



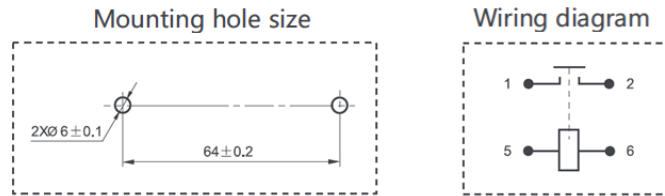
地址：上海市普陀区中山北路 3000 号长城大厦 1007

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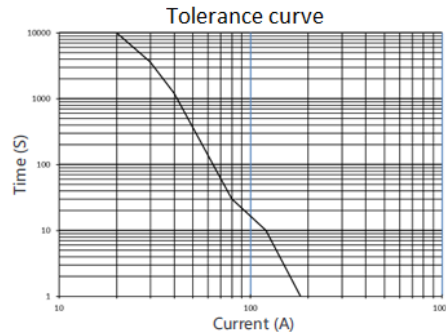
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6 Mounting hole/Wiring diagram



7 Performance graph



Remark: The above data is measured under the conditions of ambient temperature 85°C and the sectional area of conductor wire $\geq 4\text{mm}^2$. The data is for reference only, do not use it to select fuse directly.

8 Precautions for use

- ※ When installing the product, the Torque of the fastening bolt should be kept within the specified range, exceeding the maximum value may cause the product to break.
 - 1) Contact insert and pull force : 49N max
 - 2) Torque at mounting point (M5) : 3 ~ 4N.m
- ※ Please connect according to the schematic diagram. When the wiring is wrong, it may cause accidental misoperation and abnormal heating. Please pay attention to it.
- ※ Avoid installing products in areas directly affected by rain, or in areas with a strong magnetic field, or near objects with heat radiation.
- ※ If the relay coil and contact of the relay continuously at rated voltage (or current), the power is switched on immediately after it was cut off, at this time because the coil temperature increases, the resistance of the coil increases, which makes the product pull-in voltage increase, then it may lead to exceed the rated pull-in voltage.
- ※ If applied to inductive load (I load) at the same time $L/R > 1$ ms, it is recommended that the inductive load be connected in parallel with a surge current protection device, otherwise, it may cause the product electrical life shortened, the main contact broken bad.
- ※ The drive circuit power of the product coil must be greater than the coil power of the product, otherwise the on-off ability of the product will be reduced.
- ※ Please to avoid sticking grease and other foreign bodies on the leading-out piece, and use the connection wire of 10mm^2 or above, otherwise abnormal heating may be caused at the leading-out end.

⚠ Statement:

The document is for customer reference only. Specifications and parameters may be changed due to product improvement. For the specific parameters and performance of each product, please refer to the specifications and samples provided by Mirelay without further notice.

Relay performance parameters in different application areas are different, so customers should choose the appropriate products according to the specific conditions of use, if in doubt, please contact Shanghai MiRelay Electronics Co.,Ltd. for more technical support.

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