

DC HIGH VOLTAGE EV RELAY

EVR20



▶ FEATURES

- **High-voltage, high-current control capable**

With ceramic seal structure, the contact chamber filled with hydrogen mixed reducing gas, combined with magnetic blow-out. Voltage relay can cut off load voltage of 1000VDC.

- **Compact Design & Low Operating Sound**

By using a capsule contact mechanism that is enclosed with hydrogen gas, highcapacity cutoff is possible even with a tiny contact gap. There is little operating sound, which does not change even when large currents are cut off.

- **Arc space unnecessary**

The enclosure box is smaller thanks to an arc-space-free construction from which the arc will not get out.

- **Safety**

Arc will not get out with design of that contacts are enclosed in a sealed capsule.

- **High contact reliability**

The contact part is hermetically sealed with H₂ mixed gas, hence the contact resistance remains stable regardless of the ambient conditions

▶ COIL SPECIFICATION

ITEM		COIL RESISTANCE (Ω)	NOMINAL OPERATING CURRENT(A)	PULL-IN VOLTAGE(V)	DROP-OUT VOLTAGE(V)	NOMINAL OPERATING POWER (W)	MAX. ALLOWABLE VOLTAGE(V)
DC	12	40Ω	0.3A	≤9.0VDC	≥1VDC	3.6W	16VDC
	24	160Ω	0.15A	≤18.0VDC	≥2VDC	3.6W	32VDC

▶ CONTACT RATINGS

ITEM	MODEL	Unipolar resistive load(L/R≤1ms)	
		EVR20	
Maximum Continuous Current		20A	
Maximum Cut Off	V	1000V DC	
	A	200A (300V DC)	
	W	60KW	
Nominal Switching Capacity(Resistive Load)		450VDC	
Overload Opening / Closing Rating		750VDC 60A 50 Ops	
Reverse Direction Cut-off		-	
Min. Switching Capacity(Resistive Load)		1A 12VDC	
Short Term Current		30A 15min, 50A 2min(≥ 3mm ²)	
Contact Resistance		≤ 10mΩ (6V DC 20A)	
Contact Material		Alloy Cu	
Contact Arrangement		1 A (SPST-NO.)	

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▶ PART NUMBERING RULE

EVR 020 - 1 12 D 01

Product Series	Contact load	Auxiliary contacts	Contact Form	Coil voltage	Coil which leads to the way	Special Code
EVR=Square	020 : 20A	Null:NO auxiliary contacts	"1"=1a, Normolly Open	12 : 12VDC	"D"= Wire type, with no quick plug	01-99
				24 : 24VDC	"E"= Wire type, with quick plug	

▶ INSULATION PERFORMANCE

Insulation Resistance		Min.100MΩ 500V DC
Dielectric Strength	Between Open Contacts	2500V AC 60 Sec.10mA
	Between Contact And Coil	4000V AC 60 Sec.10mA
Load Terminal	Electric Clearance	>5mm
	Creepage Distance	>5mm
Impulse Withstand Voltage		5000V AC
Operate Time(at 20 °C)		Max. 30ms
Release Time(at 20 °C)		Max. 10ms
Bounce Time(at 20 °C)		Max. 5ms

Remarks: 1, Ambient Temperature 20 ° C; 2, Coil Resistance Tolerance ± 10%

▶ MECHANICAL PARAMETERS

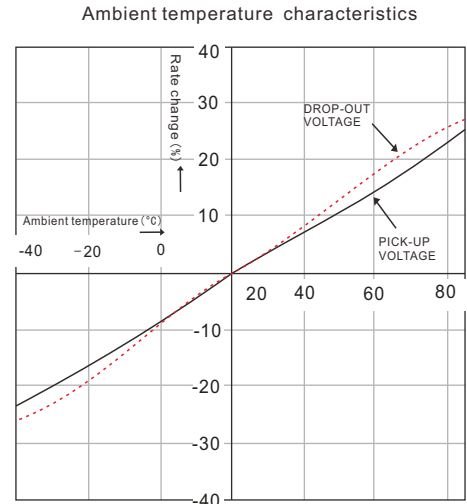
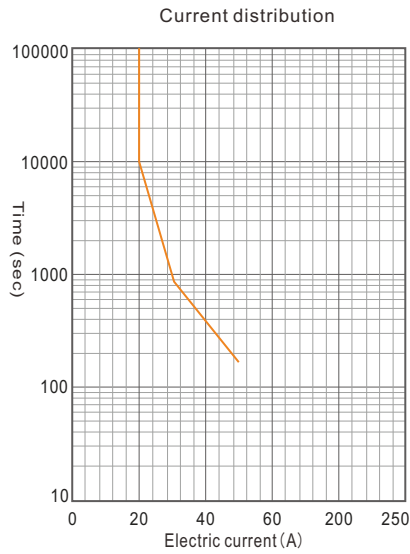
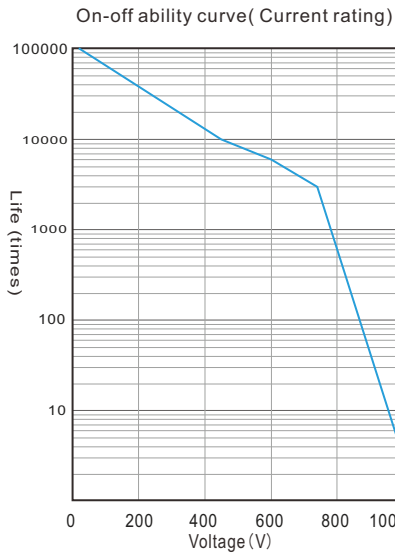
Life	Mechanical Life		2x10 ⁵ Ops
	Electrical Life (Resistive Load) (L/R≤1ms)	450V DC 20A	10,000 Ops
		750V DC 20A	3,000 Ops
Shock Resistance	Functional	Min 196%{20G} 11ms ,(10μS)	
	Destructive	Min 490%{50G} 6ms	
Vibration Resistance	Functional	43%{5G} 10 to 200Hz,(10μS)	
	Destructive	43%{5G} 10 to 200Hz 4h	
Conditions For Operation, Transport And Storage	Ambient Temperature	-40°C to +85°C	
	Humidity	5 to 85% R.H.	
Weight			160g

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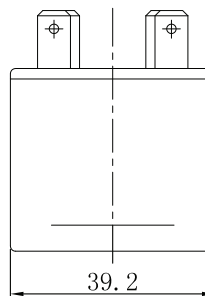
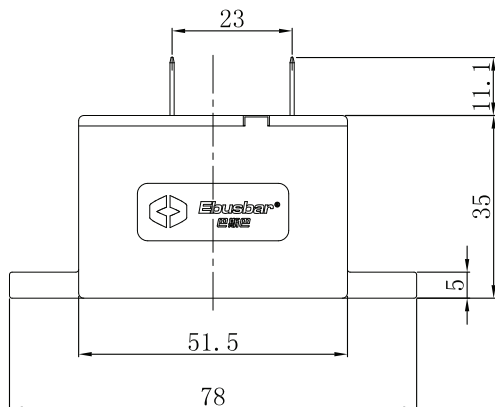
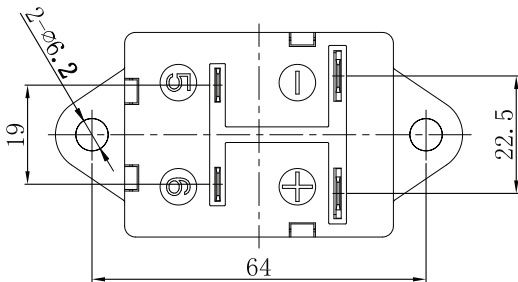
EVR20



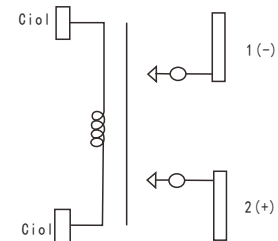
ENGINEERING DATA



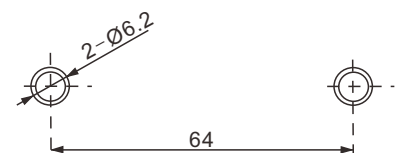
DIMENSIONAL DRAWING



SCHEMATIC



MOUNTING DIMENSIONS



Tolerance:
dim<10mm:±0.3;
dim=10~50mm:±0.6;
dim>50mm:±1.0

EV RELAY APPLICATION PRECAUTIONS:

EVC series high voltage DC relay with higher arc cooling capacity hydrogen medium, have the ability of DC high voltage cutting and adopt ceramic sealing explosion-proof structure. Contact part have waterproof, anti oxidation and other functions. It can be widely used in electric vehicles, hybrid vehicles, fuel cell vehicles, construction machinery, photovoltaic power generation, wind power generation, battery charging and discharging system, DC voltage power control and other DC high voltage fields.

Notes:

- 1.All types of relay terminals have polarity difference. Please use correctly according to the mark on each surface of the product. When the connection polarity is reversed, the electrical characteristics promised in the specification will not be guaranteed.
- 2.The rated value of contact parameters are the value of resistive load. Without measures, there may be a decline in electrical life and the occurrence of cut off. If using diodes, it may lead to a decline in cutting performance
- 3.During the action voltage test of double coil relay, voltage can not be risen slowly. Please drive the product coil through the fast rising (step type power supply mode) , otherwise the relay will not act.
- 4.Don't put the relay in the environment that over normal operating temperature (-40 degrees C to 85 C) for a long time.
- 5.Please avoid installing near in strong magnetic field (around transformer and magnet) and hot objects.
- 6.Make sure the main power line is closest to the relay leading-out terminal, then installed tightly according to the order of the flat washer, spring washer and nut. Incorrect connection order may cause serious overheating, and lead to the insulation layer melting of connecting cable .
- 7.Screw locking torque of every part should be accordant with following chart in case of breakage.

▶ Part I Leading-out terminal installation:

Nut	EVR20	EVR40	EVR100	EVR120	EVR150	EVR200	EVC50	EVC100	EVC150	EVC250	EVC350
M4		2Nm ~ 3Nm	3Nm ~ 4Nm	3Nm ~ 4Nm	3Nm ~ 4Nm	6Nm ~ 8Nm	2Nm ~ 3Nm	2Nm ~ 3Nm			
M5											
M6											
M8											

Remarks:EVC050,EVC100 Use screws;

▶ Part II Relay installation:

Screws	EVR20	EVR40	EVR100	EVR120	EVR150	EVR200	EVC50	EVC100	EVC150	EVC250	EVC350
M4							2Nm ~ 3Nm	2Nm ~ 3Nm			
M5	3Nm ~ 4Nm	3Nm ~ 4Nm	3Nm ~ 4Nm	3Nm ~ 4Nm	3Nm ~ 4Nm	3Nm ~ 4Nm			3Nm ~ 4Nm	3Nm ~ 4Nm	3Nm ~ 4Nm
M6	5Nm ~ 6Nm	5Nm ~ 6Nm	5Nm ~ 6Nm	5Nm ~ 6Nm	5Nm ~ 6Nm	5Nm ~ 6Nm			5Nm ~ 6Nm	5Nm ~ 6Nm	
M8											

Remarks: a. Screw strength must be in compliance with the requirements of grade 8.8 or above ; (GB/T70.1)
b. The effective locking thread length must be greater than 5mm;

8. Please avoid adhering grease and other foreign material on the leading-out terminal; Please use the following specifications of the connection wire, otherwise it may cause abnormal heat of the terminal part.

Product	EVR20	EVR40	EVR100	EVR120	EVR150	EVR200	EVC50	EVC100	EVC150	EVC250	EVC350
Nominal cross-sectional area (Min)	3mm ²	10mm ²	35mm ²	40mm ²	50mm ²	60mm ²	10mm ²	35mm ²	50mm ²	75mm ²	120mm ²

- 9.In the case of accidental fall of the relay, see intended not to use.

- 10.Attentions and product technical data should be updated termly, and copyright by Ebusbar all.