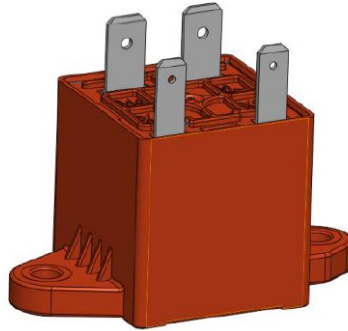


EVC Series High Voltage DC Contactor — EVC-20 (20A Type)



Application information

EVC series square contactor is applicable to DC systems with working voltage up to DC1000V, mainly used in new energy vehicles, charging piles, photovoltaic, energy storage and other fields. It has the characteristics of long service life, high reliability, small size and low power consumption, as well as electromagnetic compatibility, flame retardancy and rapid response.

Summarize

- Compact size – The product has a small volume and a variety of customized structures to meet different installation needs.
- Strong contact – The contact is made of silver alloy material, with high conductivity and higher service life.
- Fully RoHS compliant – More environmentally friendly.

Part number designation

EVC	-	A	B	-	20	C	-	Q	2
Series		Contact form	Coil struc.		Current rating	Installation		Coil lead out type	Load lead out type
		A : 1NO	B : 12VDC C : 24VDC D : 48VDC			C: Standard mounting pin N: No mounting pin T: T-shaped mounting pin		Q: QC lead out P: PCB lead out	2: QC lead out None: PCB lead out

Contact Specification

Contact Arrangement	1NO
Contact Material	Silver Alloy
Operation Voltage	12~750VDC
Continue Current	20A 4mm ²
Initial Contact Resistance	< 10mΩ (@1A)
Current Durability (4mm ² 85°C) Refer to the current carrying curve	30A 1h 40A 1,200s 80A 30s 200A 0.6s
Max. Breaking Current	30A 450V 5 ops

Durability

Electric Durability	20A 450VDC 3,000 ops (Making & Breaking)
	10A 450VDC 10,000 ops (Making & Breaking)
	20A 450VDC 75,000 ops (Making)
	6A 750VDC 75,000 ops (Making)
	30A 450VDC 5 ops (Breaking)
Mechanical Durability	200,000 ops
Note:	
1、Electric durability tests are conducted in room temperature, operating frequency : 0.6s : 5.4s	
2、Mechanical durability tests are conducted in room temperature, operating frequency 0.3s : 0.3s	

Coil Specification

Coil Type	B	C	D
Rated Voltage (23°C)	12VDC	24VDC	48VDC
Max. Operating Voltage (23°C)	16VDC	32VDC	52VDC
Pick-up Voltage (-40~85°C)	Max. 9VDC	Max. 18VDC	Max. 36VDC
Drop-out Voltage (-40~85°C)	Min. 1VDC	Min. 2VDC	Min. 4VDC
Coil Resistance (23°C)	≈46Ω	≈184Ω	≈736Ω
Rated Power (23°C)	≈3W	≈3W	≈3W
Driving Mode	Single Coil	Single Coil	Single Coil

Mechanical Performance

Shock-Function	1/2 sine, 11ms, 196m/s ² (20G)
Shock-Destructive	1/2 sine, 11ms, 490m/s ² (50G)
Vibration	10-2,000Hz, 57.9m/s ² (6G)

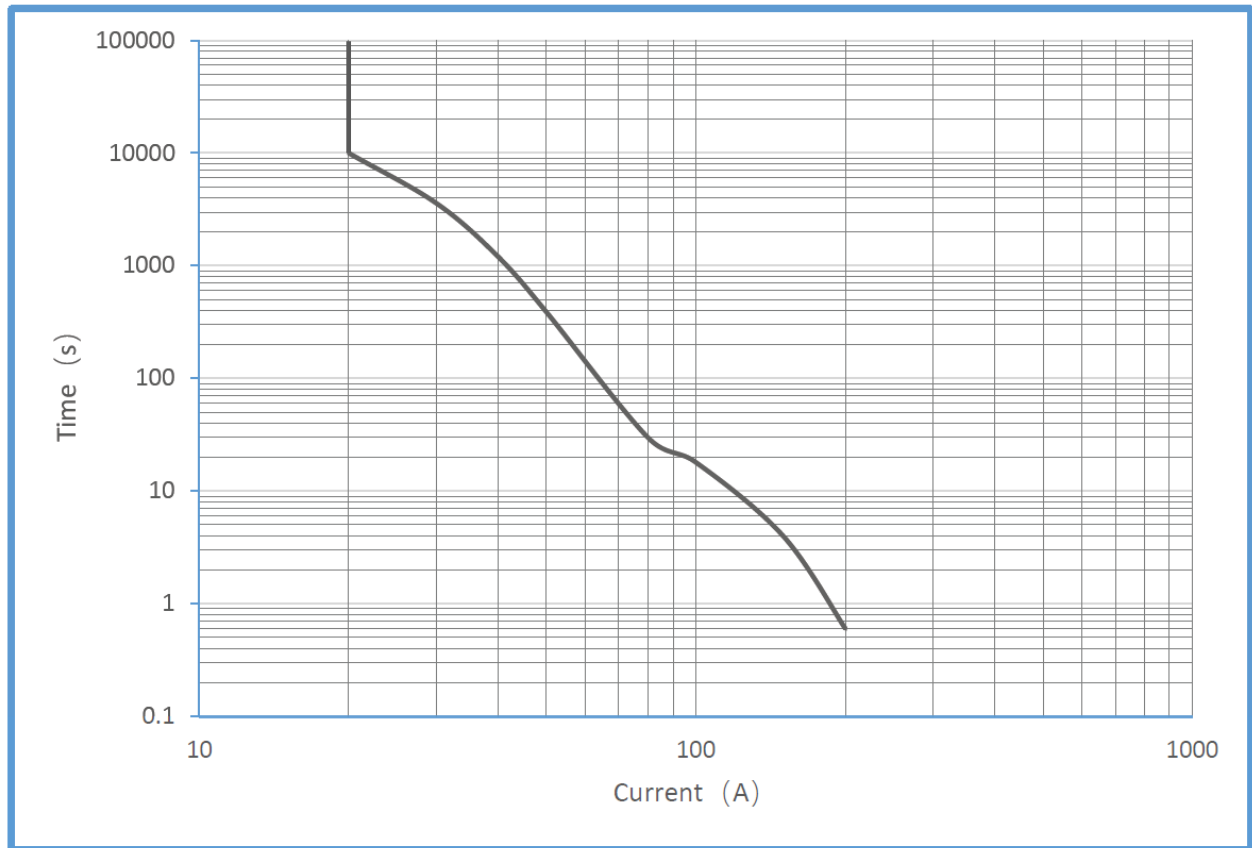
Application Condition

Operating Temperature	-40~85°C
Operating Humidity	5%~95%RH
Storage Temperature	10~75°C
Storage Humidity	5%~95%RH
Mounting Direction	Vertical
Weight	Approx. 50g

Electric Performance

Operate Time	30ms (At rated coil voltage, 23°C)
Release Time	10ms (At rated coil voltage, 23°C)
Bounce Time	5ms (At rated coil voltage, 23°C)
Insulation Resistance (Between open contact)	Before test: ≥ 1,000MΩ After test: ≥ 50MΩ
Insulation Resistance (Between contact and coil)	Before test: ≥ 1,000MΩ After test: ≥ 50MΩ
Dielectric Strength Leakage current ≤ 1mA (Between open contact)	Before test: 2,500VAC, 50/60Hz, 1min After test: 2,000VAC, 50/60Hz, 1min
Dielectric Strength Leakage current ≤ 1mA (Between contact and coil)	Before test: 3,000VAC, 50/60Hz, 1min After test: 2,500VAC, 50/60Hz, 1min

Current Carrying Curve



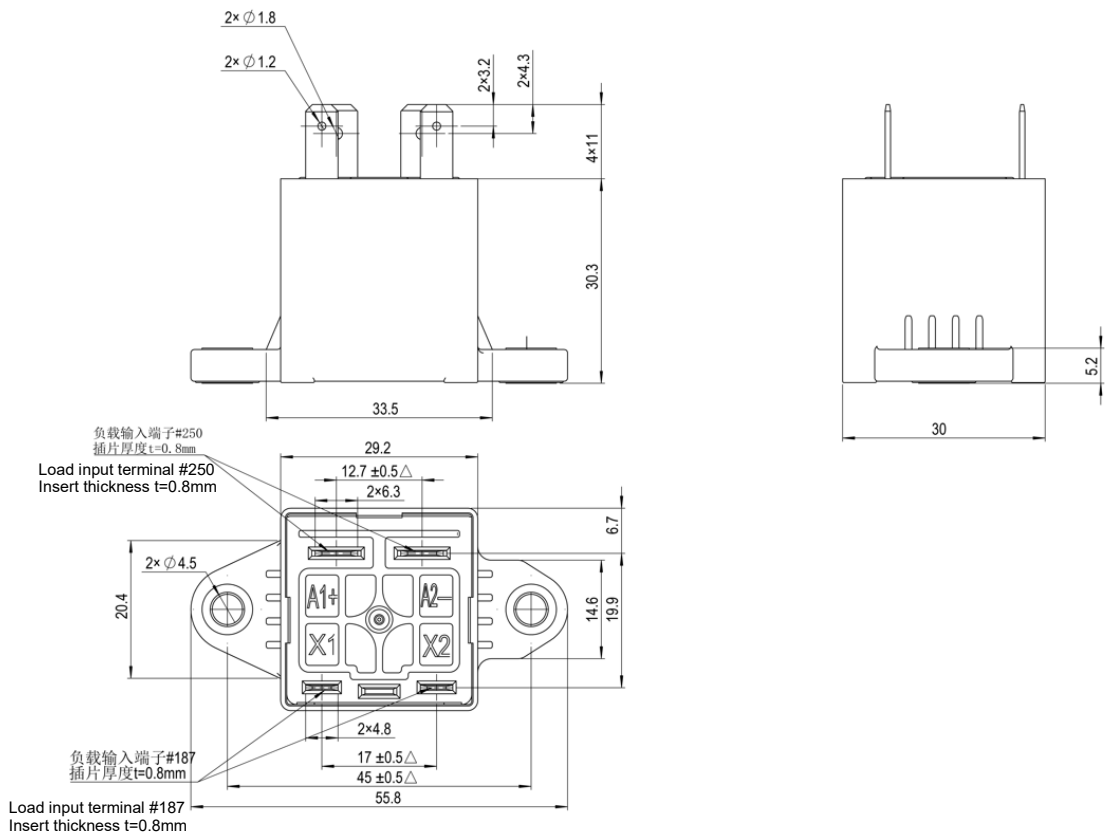
Note:

- The curve is based on the ambient temperature of 85°C, the cross-sectional area of conductor is 4mm².

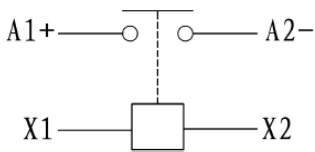
Order information

Order Part No.	Coil Type	Mounting Type	Others
EVC-AB-20C-Q2	12VDC	Bottom Mounting	-
EVC-AC-20C-Q2	24VDC	Bottom Mounting	-
EVC-AD-20C-Q2	48VDC	Bottom Mounting	-

Dimension



Wiring Diagram



Note:

- Δ marked as important control dimension
- No tolerance marked, refer to:

Dimension (mm)	< 10	10~50	> 50
Tolerance (mm)	± 0.25	± 0.5	± 0.8

- The products are shipped with standard installation screws, gaskets, spring washers and other accessories.

Application considerations

- When installing the relay, please use washers to prevent looseness. For EVC-A*-20C-Q2 pin position, please use M4 screws, and the locking torque of screws shall be controlled within $2\text{N}\cdot\text{m} \sim 3\text{N}\cdot\text{m}$; The allowable plugging force of relay lead out pin is: 1) Load lead out end 49N, 2) Coil lead out end 49N, exceeding this range may cause product damage.
- Please avoid adhering foreign matters, grease and corrosive liquid during installation, otherwise it will cause abnormal heating at the contact end of the contactor.
- The locking torque of contactor installation shall be controlled within the range specified in the table below, which may cause thread damage. Mounting screw at the load end is an option.
- Please avoid installation near strong magnetic fields (around transformers, magnets, etc.) and heating objects.
- The contact of the contactor has polarity. Please connect the load according to the wiring diagram in the outline drawing. The reverse connection of the load will lead to the decrease of the breaking capacity for the contactor.
- Coil circuit of the contactor is nonpolarity, and any connection can make the contactor act.
- Paralleling freewheeling diode at the coil end of the contactor as a measure to suppress the reverse voltage will prolong the release time of the contactor and lead to the decrease of the product cutting performance. It is recommended to use bidirectional zener diode and TVS tube with a clamping voltage of more than 1.5 times the rated voltage of the coil to suppress the reverse overvoltage of the coil.
- When the contactor is applied in the capacitive load circuit, please pay attention to taking pre charging and other measures. It is recommended that the closing pressure difference of the contactor be controlled within 20V. If pre charging measures are not taken, contact adhesion may be caused.
- When the contactor is applied in the inductive load circuit, it is recommended to install surge absorption device in parallel with the inductive load. If no measures are taken, the cut-off performance of the contactor may be reduced.
- Please avoid collision or falling of the contactor during use, installation or transportation. In order to maintain the performance of the contactor, it is not recommended to use the contactor after impact or falling.
- The contact cavity of the contactor is filled with protective gas, and there is internal gas penetration along with the change of contact temperature. It is strictly prohibited to put the relay in the use temperature range ($-40 \sim +85^\circ\text{C}$) exceeding the product for a long time.
- For information on matching application of contactors and fuses, please contact Bussmann technical support team.

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