High Voltage DC Contactor

CBVC9 SERIES DC CONTACTOR

CBVC9V-20 Relay Specification

1 Ordering Information

CBVC9 ① V ② - 20 ③ / 450 ④ – 12 ⑤ - H ⑥ T ⑦ P ⑧ 2 ⑨ A ⑩ （XXX） ⑪

① Type	CBVC9
② Application	V：Vehicle
③ Lode Current	20：20A
④ Lode Voltage	450：450 Vd.c.
⑤ Coil Voltage	12:12 Vd.c. 24:24 Vd.c.
⑥ Contact Type	H: 1 Form A
⑦ Contact Termination	T：Silver Alloy
⑧ Coil Termination	Q：QC Termination P: PCB Termination
⑨ Load Termination	2: QC Termination Nil：PCB Termination
⑩ mounting boss	Nil：no mounting boss A：mounting boss
⑪ Special Code	customer demand(Only for special requirements)

2 Coil Rating

Rated Voltage Vd.c.	Operate Voltage Vd.c.（at -40 ℃～85 ℃）	Release Voltage Vd.c.（at -40 ℃～85 ℃）	Coil Resistance Ω（at 23 ℃）	Coil Power W（at -40 ℃～85 ℃）
12	≤9	≥1	48×(1±7%)	Approx 3W
24	≤18	≥2	192×(1±7%)	Approx 3W

3 Contact Specification

3.1 Contact Arrangement: H 1 Form A 。

3.2 Contact Material: Silver Alloy 。

3.3 Contact Resistance: ≤10 mΩ (at 1 A) 。

3.4 Contact Rating: 20 A （≥4 mm^2 wire）。

3.5 Max. Breaking Current: 30A 450VDC（≥1 ops） 。

3.6 Max. Switching Voltage: 750 Vd.c.。

3.7 Min. Applicable Load: 6 Vd.c. 1 A 。

3.8 Current Endurance

Current	Duration
20 A	cont.
30 A	1 h
40 A	20 min
80 A	30 s
120 A	10 s
200 A	0.6 s

Condition for current endurance

1) Ambient temperature：Room temperature；
2) Supply rated voltage to coil；
3) The cross section area of wire is 4 mm^2。

4 Endurance

4.1 Electrical Endurance

Product model	Ambient Temperature	Contact Rating	ON：OFF	Electrical Endurance
CBVC9V-20	Room Temperature	Forward making：Steady 20 A Contact Voltage 450 Vd.c.	0.3 s:5.7 s	7.5×10^4 ops
		Forward making：Steady 6 A Contact Voltage 750 Vd.c.	0.3 s:5.7 s	7.5×10^4 ops
		Forward limit breaking（L/R≤1ms）： Steady 30 A Contact Voltage 450 Vd.c	0.6 s on	1 ops
		Forward switching：Steady 20 A Contact Voltage 450 Vd.c.	0.6 s:5.4 s	3×10^3 ops
		Forward switching：Steady 10 A Contact Voltage 450 Vd.c.	0.6 s:5.4 s	1×10^4 ops

4.2 Mechanical Endurance

Version	Contact Rating	Ambient Temperature	ON：OFF	Mechanical Endurance
1H	No load	Room Temperature	0.25s:0.25 s	2×10^5 ops

5 Insulation Resistance

5.1 Before Test

Between open contacts::1000 MΩ (500 Vd.c.)。

Between contact and coil:1000 MΩ (500 Vd.c.)。

5.2 After Test

Between open contacts: 50 MΩ (500 Vd.c.)。

Between contact and coil: 50 MΩ (500 Vd.c.)。

6 Dielectric Strength (Leak Current:1 mA)

6.1 Before Test

Between open contacts: 2450 Va.c. (50/60 Hz 1 min) 。

Between contact and coil: 3000 Va.c. (50/60 Hz 1 min) 。

6.2 After Test

Between open contacts: 1875 Va.c. (50/60 Hz 1 min) 。

Between contact and coil:2250 Va.c.(50/60 Hz 1 min)。

7 Time(At Rated Voltage)

7.1 Operate Time: ≤30 ms。

7.2 Release Time: ≤10 ms。

7.3 Bounce Time: ≤5 ms。

8 Vibration

Sinusoidal vibration，1.5 mm double amplitude ,10 Hz to 450 Hz, acceleration 49 m/s^2, 8 hours each for every axis,4 hours each for the energized and non-energized status ,total 24 hours. There shall not be any abnormalities onrelay appearance, construction and performance.

9 Shock

9.1 Functional

energized status 196 m/s^2,duration 11 ms,non-energized status 196 m/s^2,duration 11 ms,450 ops for each direction of three mutually perpendicular axes, 250 opseach for the energized and non-energized status, total 3000 shocks. The openingtime for close contacts or the closing time for open contacts should not exceed10 μs.

9.2 Destructive

490 m/s^2,duration 6 ms, 50 shocks for each directions of three mutually perpendicular axes,total 300 shocks .There shall not be any abnormalities on relay appearance, construction and performance.

10 Standards Test Condition

10.1 Temperature: 23 ℃±5 ℃。

10.2 Humidity: 25 % ～ 75% RH。

10.3 Direction of Measurement: 任意 Free 。

11 Operating Condition

11.1 Temperature: -40 ℃ ～ 85 ℃ 。

11.2 Humidity: 5 % ～ 85 % RH 。

11.3 Mounting Direction: Free 。

Note:The ambient environment of application shall not cause any dewing or icing insidethe relay. Otherwise, the relay may fail to work consequently.

12 Storage Condition

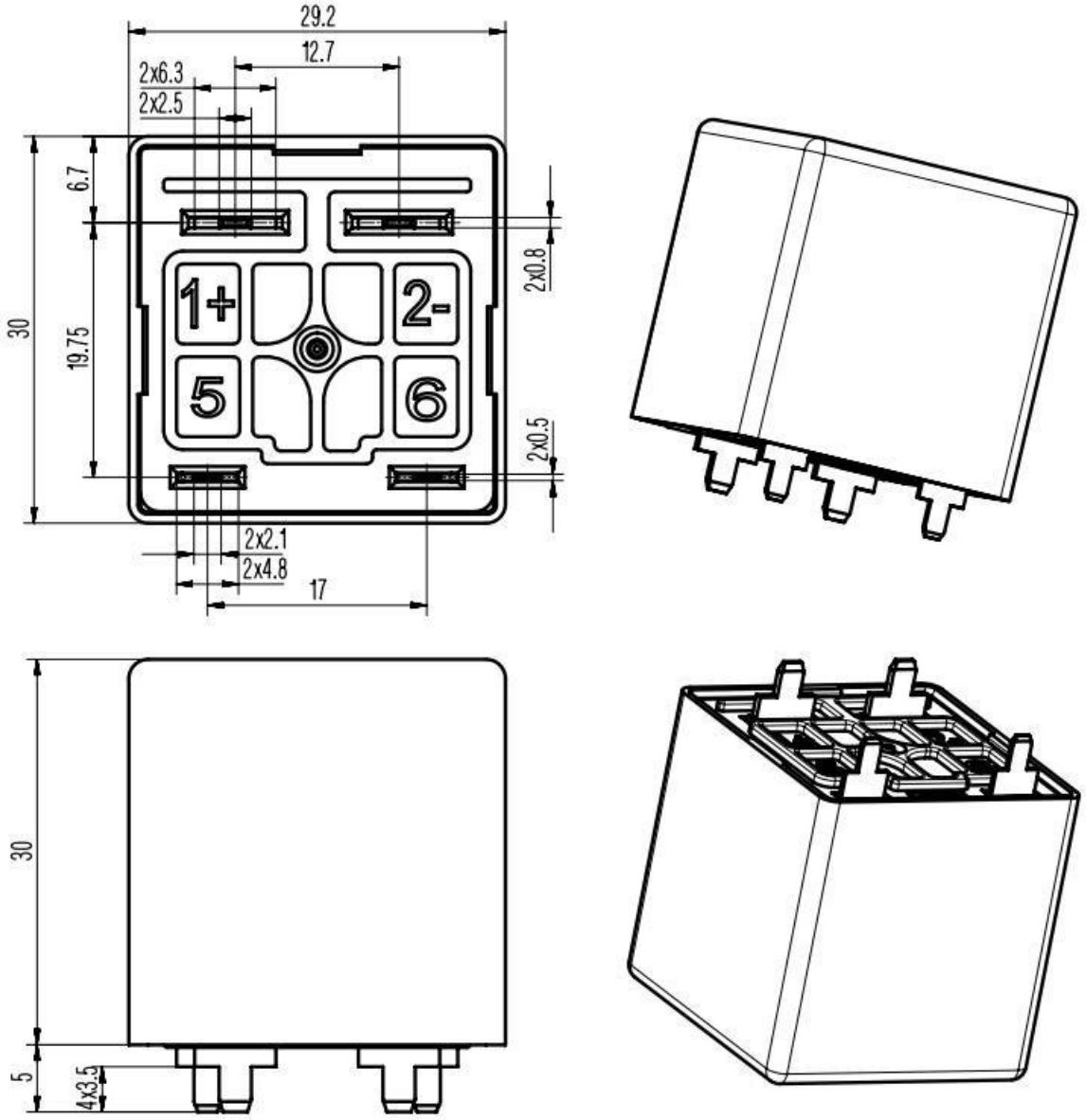
12.1 Temperature: -40℃ ～ 85℃ 。

12.2 Humidity: 5% ～ 85% RH 。

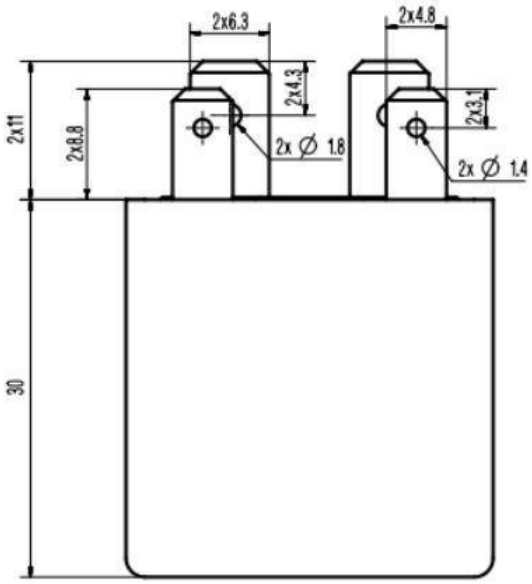
13 Configuration

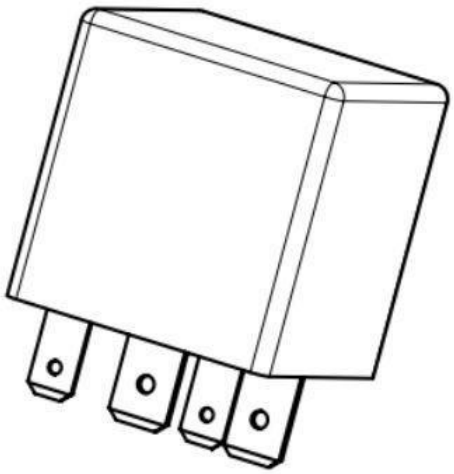
13.1 Outline Dimensions：

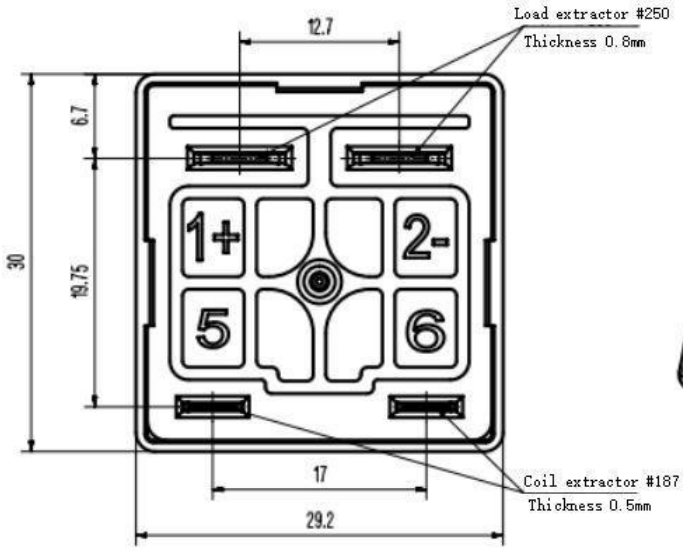
Model：CBVC9V-20/450-XX-HTP

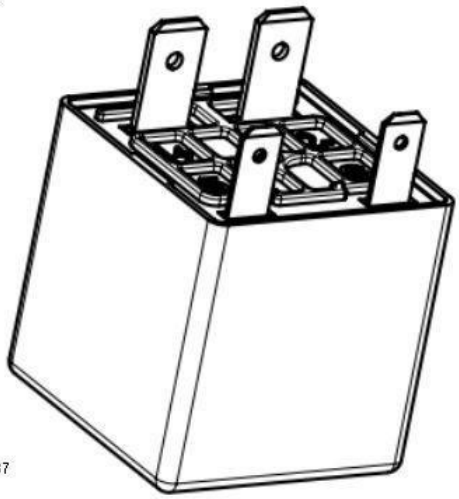


Model: CBVC9V-20/450-XX-HTQ2

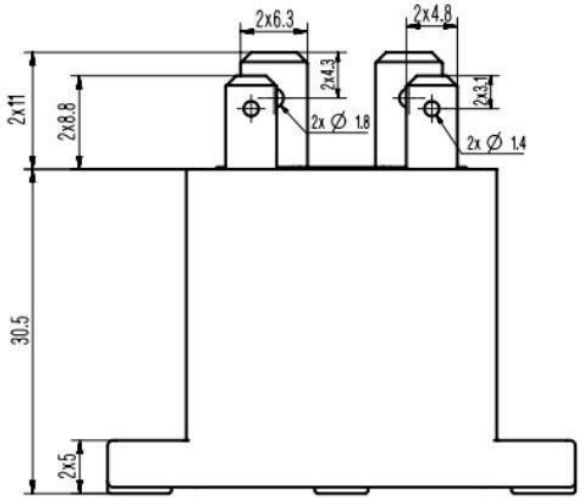


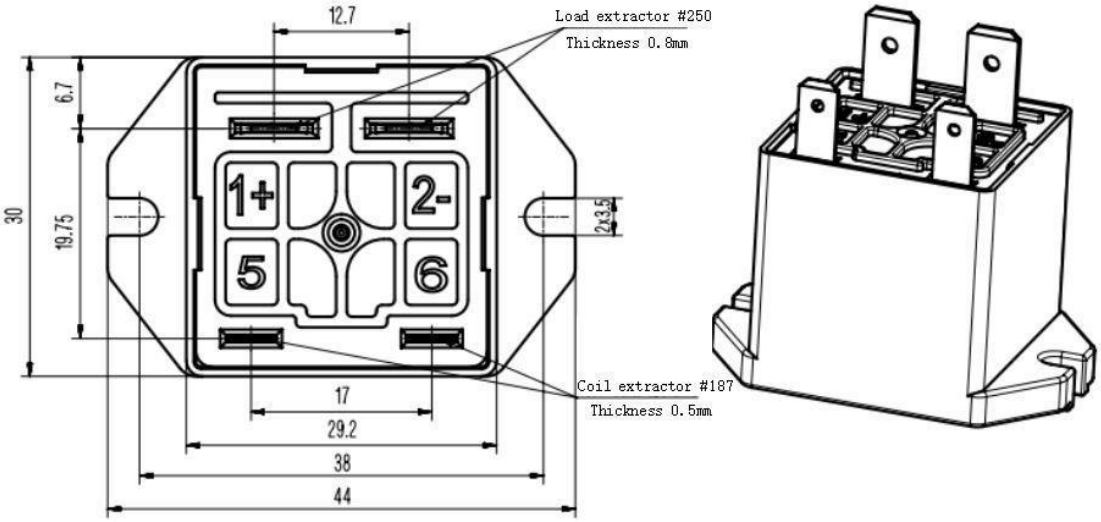






Model：CBVC9V-20/450-XX-HTQ2A



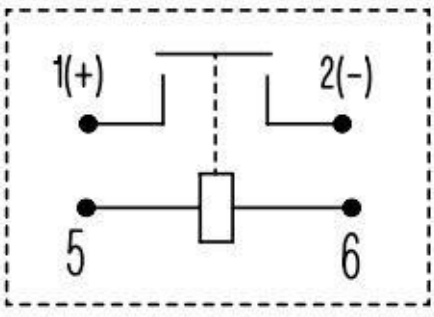


Product model	Unit Weight
CBVC9V-20/450-XX-HTXXX	Approx 50g

Note 1: All unspecified tolerance according to following table

Outline dimensions hadn't specified tolerance	
Outline Dimensions	**Tolerance**
≤10	±0.3
＞10～50	±0.5
＞50	±0.8

13.2 Wiring Diagram



Note 1: Polarity option on the load；no polarity on coil.

14 Others

14.1 Supplier

Component Basics

14.2 All the performance data listed in the datasheet are the initial valuestested under standard testing condition.

14.3 **Notes**

14.3.1 CBV could not evaluate all the performance and all the parameters for every potential application. The customer can choose the right product according to the specific usage conditions and requirements. If there is any queries, please contact CBV for the technical service. However, customer will responsible forwhat they choose and it is the user's responsibility to determine which product should be used.

14.3.2 Without special note, the load we commit to the load is the ratingload. CBV doesn't response for any usage beyond our guarantee.

14.3.3 The rating load of contact is resistive load. Please assure a surgeabsorption device together with inductive load when using the L/R≥1ms inductive load (L Load), otherwise it may lead to the decrease of electrical endurance anddefective switch.

14.3.4 In order to curb the reverse electromotive force of coil, a nonlinear resistor is recommended to use（ZNR is recommended，the max energy tolerance: ≥1J；Voltage: 1.5～2 times the rated voltage）. Please be noted that a diodewill make the release time of relay increase, which should lead to the degradation of cutting-off capability.

14.3.5 Please avoid installation in strong magnetic field (around the transformers & the magnet) and the heating objects nearby.

14.3.6 In order to prevent loosening, please use the washer when installing the relay. Please use the M3 screws to install relay with HTQ2A type terminals, screwlocking torque within 1.4N.m～2.2N.m; Allowable pulling or pushing force for the terminal:(1)load terminal 49N;(2)coil terminal 49N.Damage may occur when it is beyond the range.

14.3.7 PCB welding parameters: manual welding (380±20）℃, time（3～5）s;wave

soldering (260±5）℃,time（3～5）s.

14.3.8 Please avoid grease and other foreign matter in the terminal，pleaseuse the connecting wire with a cross section area ≥4 mm^2, or they may cause overheating to the terminal part.

14.3.9 In principle, please do not use it when the relay has fallen down.

14.3.10 Environmental Protection

CBV products are all RoHS compliant.

14.3.11 CBV reserves the right to make changes. Customers should reconfirm the contents of the specification before first orders and ask for us to supply a newspecification if necessary.

15 ABOUT US

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