telephone:0769—82960405
URL:http://www.jiabaida.com
Address: Baoyuan 2nd Road, Lianhu Lake, Tangxia Town, Dongguan City 40 No 6 Dong 2 building
Alibaba:http://jiabaida.1688.com

Product Confirmation

client's name		Customer Type	JBD-AP20S003S-L20S-300A-BUR
Our part number		Customer Part Number	
Delivery date	2021-11-3	Company model	JBD-AP20S003S
Edition	A01	Number of pages	7

Approved	Review	Draw up
		Wang Ligang

material code	JBD-AP20S003S-L20S-300A-BU -R

Customer Confirmation Column

Confirmation:

signature:

date:

Special Note:

1, After the customer receives the sample, please organize the test in time, and feedback the test result back to our company to facilitate our company to arrange the follow-up work of this project do.5 If there is no reply within days, the company defaults that the customer has passed the test and the project ends normally.

2, The customer has passed the test, please specify the product name and product code in the customer comment column, and stamp and sign for confirmation, otherwise, please Point out the problem in the qualified column and put forward suggestions for improvement.

3, Our company can only receive orders after receiving the original signed and sealed by the customer and attaching the detailed function description of the product description.

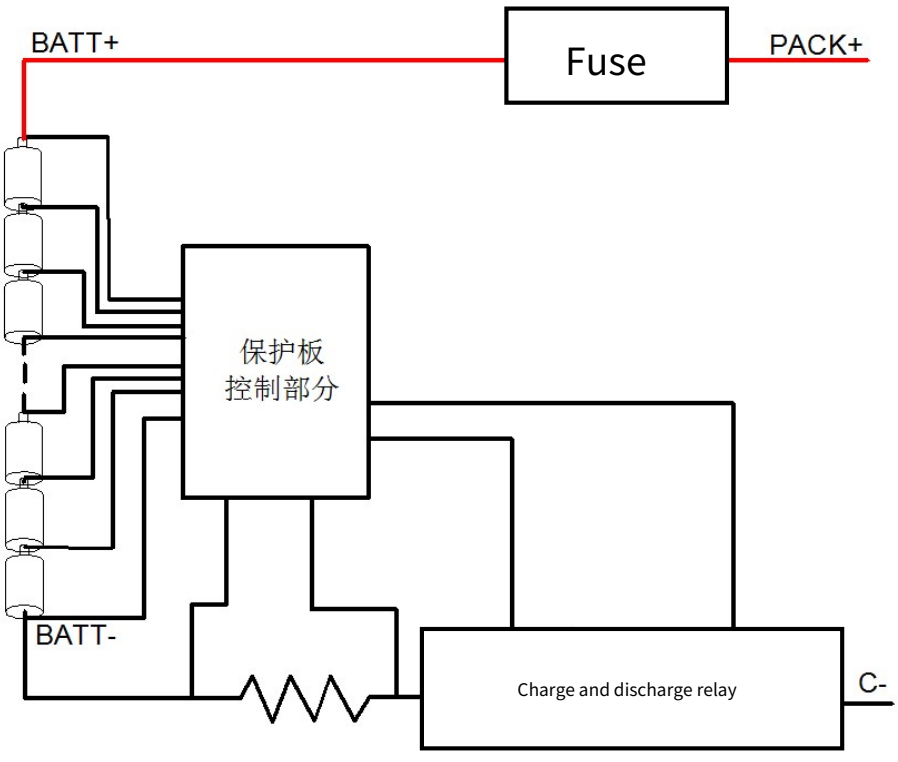
1. Introduction and Features

JBD-AP20S003SIt is Dongguan Jiabaida Electronic Technology Co., Ltd. which specializes in power batteries, electric bicycles, electric motorcycles and other products7~20A smart protection board solution designed for stringing battery packs; applicable to lithium batteries with different chemical properties, such as lithium ion, lithium polymer, lithium iron phosphate, etc. The protection board has strong load capacity, and the continuous discharge current can reach the maximum300A.

- 7~20Battery-saving cores are protected in series, and the number of battery strings is automatically identified.
- Vehicle-grade analog front-end chip, high voltage acquisition accuracy, safer and more reliable.
- Various protection functions for charging and discharging
- The power switch is a relay with high withstand voltage and more reliability.
- PreciseSOCCalculation with automatic learningSOCFeatures
- Bluetooth communication function.
- OptionalRS485Communication function, can read all battery data in real time, and online upgrade.
- OptionalCANCommunication function
- Reserve a switch to control the output of the protection board. With the discharge switch, there is a pre-charge function to prevent lighting.
- When the standing time reaches the set value (parameter setting page switch time), it will automatically shut down and sleep, reducing standby power consumption.
- Support the use of battery packs in series, but the total number of strings after the series connection is less than or equal to32string.
- Parallel use of battery packs is not supported (battery packs are directly connected in parallel, and there is a high-current discharge of high-voltage battery packs to low-voltage battery packs.

problem).

Second, the principle block diagram



Three, basic parameters

3.1 Use range:

Battery pack structure:	20S
charging method:	CC-CV(Constant current and constant voltage)
Discharge method:	Constant current discharge
Output terminal:	C-;
Input terminal:	B-,BC0~BC20

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3.2 Electrical parameters (The test needs to be at temperature 25±2℃, relative humidity 65+/-20% Indoors.)

Features	Test items	Specification			unit
		Minimum	Typical value	Max	
Operating Voltage	voltage range	44		72	V
Working current	Charging current (continuous)			300	A
	Discharge current (continuous)			300	A
Charging protection	Charger voltage (CC-CV)		72		V
	Overcharge protection voltage	3.720	3.750	3.780	V
	Overcharge protection delay time	1000	2000	3000	mS
	Overcharge protection recovery voltage	3.450	3.500	3.550	V
Discharge protection	Over discharge protection voltage	2.100	2.200	2.300	V
	Over-discharge protection delay time	1000	2000	3000	mS
	Over-discharge protection recovery voltage	2.700	2.800	2.900	V
Overcurrent protection	Charging overcurrent protection value	305	320	335	A
	Charge overcurrent delay	55	60	65	S
	Charge overcurrent release recovery conditions		Delay 32S freed		
	Discharge overcurrent 1 Protection current value	305	320	335	A
	Discharge overcurrent 1 Protection delay	55	60	65	S
	Discharge overcurrent 2 Protection current value	800	1000	1200	A
	Discharge overcurrent 2 Protection delay	600	1200	1800	mS
	Discharge overcurrent protection recovery conditions		Delay 32S freed		
Short circuit protection	Short circuit protection delay time		5000		uS
	Short circuit protection recovery		Disconnect load, delay 60S freed.		
Balance function	Balanced opening voltage	3.370	3.400	3.430	V
	Balanced opening pressure difference		10		mV
	Balanced mode		Static, charge and discharge balance		
	Balance current	100	180	260	mA
Temperature protection	Charging high temperature protection value	62	65	68	℃
	Charging high temperature protection release value	52	55	58	℃
	Charging low temperature protection value	-13	-10	-7	℃
	Charging low temperature protection release value	- 8	-5	- 2	℃
	Discharge high temperature protection value	72	75	78	℃
	Discharge high temperature protection release value	62	65	68	℃
	Discharge low temperature protection value	-25	-20	-15	℃
	Discharge low temperature protection release value	-15	-10	-5	℃
Internal resistance	Internal resistance of discharge circuit	/	5	10	mR
Self-consumption	Working mode (relay closed)		35	60	mA
	Sleep mode			1000	uA
	Sleep conditions and delay		Delay in no current\communication\protection state 65000S(Can set up)		
Operating temperature	Normal working range	-20		70	℃
storage temperature	Humidity is lower than 90%,	-40		85	℃
Protection board with shell size	length Width Height		165*114.5*76(±2)		mm

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3.3 Software parameter description:

3.4 Protection function description:

Overcharge protection: When the battery is in the charging state, the voltage continues to rise, when the protection board detects**Any section**Cell voltage**Higher than the overcharge protection value**, The protection board starts timing immediately, and when the time reaches the overcharge protection delay, the protection board turns off**Charge and discharge relay**, The charging is cut off, and it cannot be charged at this time.

Overcharge protection recovery: After the protection board has over-voltage protection, the battery voltage drops when the battery is standing or discharged. When the protection board detects**Every section**Voltage**Lower than overcharge protection recovery voltage**When the protection board outputs signal, turn on**Charge and discharge relay**, It can be charged at this time.

Over discharge protection: When the battery is in the discharge state, the voltage keeps decreasing, when the protection board detects**Any section**Cell voltage**Lower than over-discharge protection value**, The protection board starts timing immediately, when the time reaches the over-discharge protection delay, the output signal of the protection board is turned off**Charge and discharge relay**, Discharge is cut off, the load lock circuit works, and it cannot discharge at this time.

Over-discharge protection recovery: After the protection board has over-discharge protection, the battery voltage will continue to rise when the battery is standing or discharged. When the protection board detects**Every section**Voltage**Higher than over-discharge protection recovery voltage**When the protection board outputs signal, turn on**Charge and discharge relay**, It can be discharged at this time.

Overcurrent protection: When the protection board detects that the current reaches the overcurrent protection value, the protection board starts timing. When the current duration in the loop reaches the overcurrent protection delay time, the protection board output signal is turned off.**Charge and discharge relay**, Can't discharge at this time.

Overcurrent protection recovery: After the discharge over-current protection of the protection board appears, the delay reaches the set over-current release time, the protection board outputs a signal and turns on**Charge and discharge relay**, It can be discharged at this time.

Note: If the parameters of the protection board have been adjusted, please read the internal parameters of the protection board before making changes, and the modification is complete

Then click Write. If the nominal capacity of the battery pack has not been notified to our company, please change it after communication.

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Fourth, the numbering details:

JBD - AP20S003S - L20S - 300A - B – U–R

(1) (2) (3) (4) (5) (6) (7)

(1) Abbreviation of Jiabaida Electronic Technology Co., Ltd.:JBD

(2) Model of our protection board:AP20S003S,Maximum support20string. (3)L20SThat is,

the sample sent this time is an iron-lithium battery20String protection board.

(4) The maximum charge and discharge current, if it exceeds this current, the protection board may be permanently damaged.

(5) With equalization function.

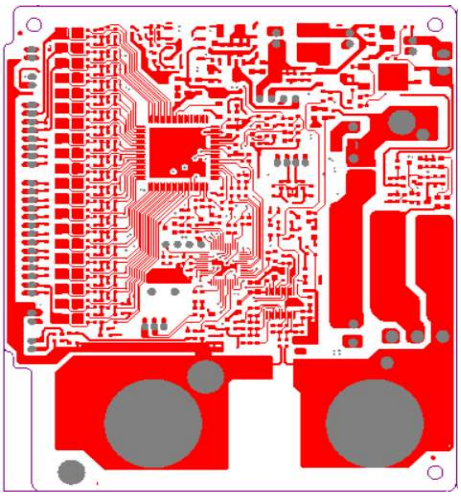
(6) BeltUARTCommunication function. It has been used to connect to the Bluetooth module.

(7)belt485Communication function

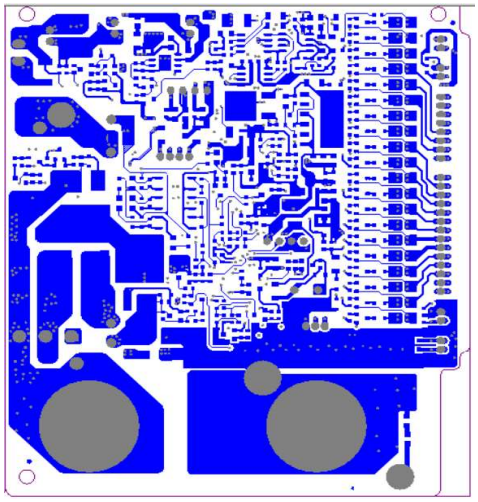
After your company receives the specifications and samples, the verification test is completed. If you need subsequent batches, please sign this specification and return this specification to our company, and our company will send it to your company according to the specifications of this specification. batch.

This specification defines the functions, electrical parameters, mechanical parameters and packaging of the lithium battery pack management system designed and manufactured by Dongguan Jiabaida Electronic Technology Co., Ltd. (hereinafter referred to as "our company") according to the design requirements provided by your company Transportation and installation methods. After confirmation by your company, this specification is only for our company and your company’ s internal use, and cannot be given to a third party without our permission, and our company has the final right to interpret this specification.

five,PCB Wiring and size structure diagram



Top-level wiring diagram



Bottom wiring diagram

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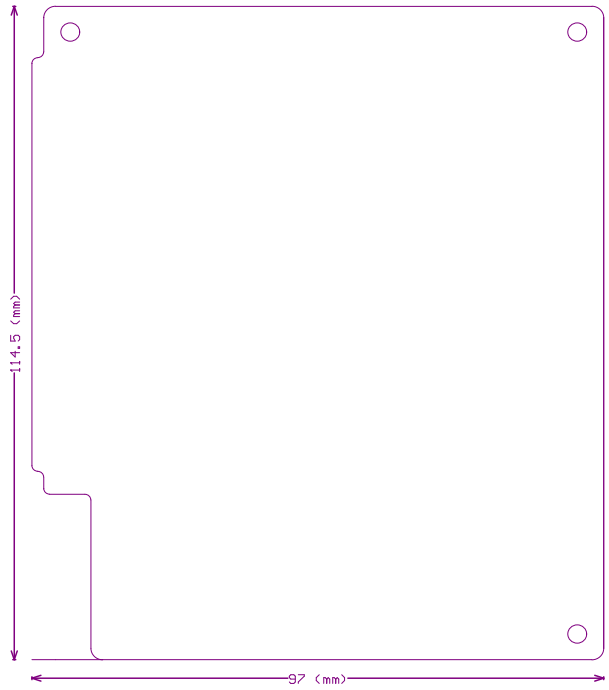
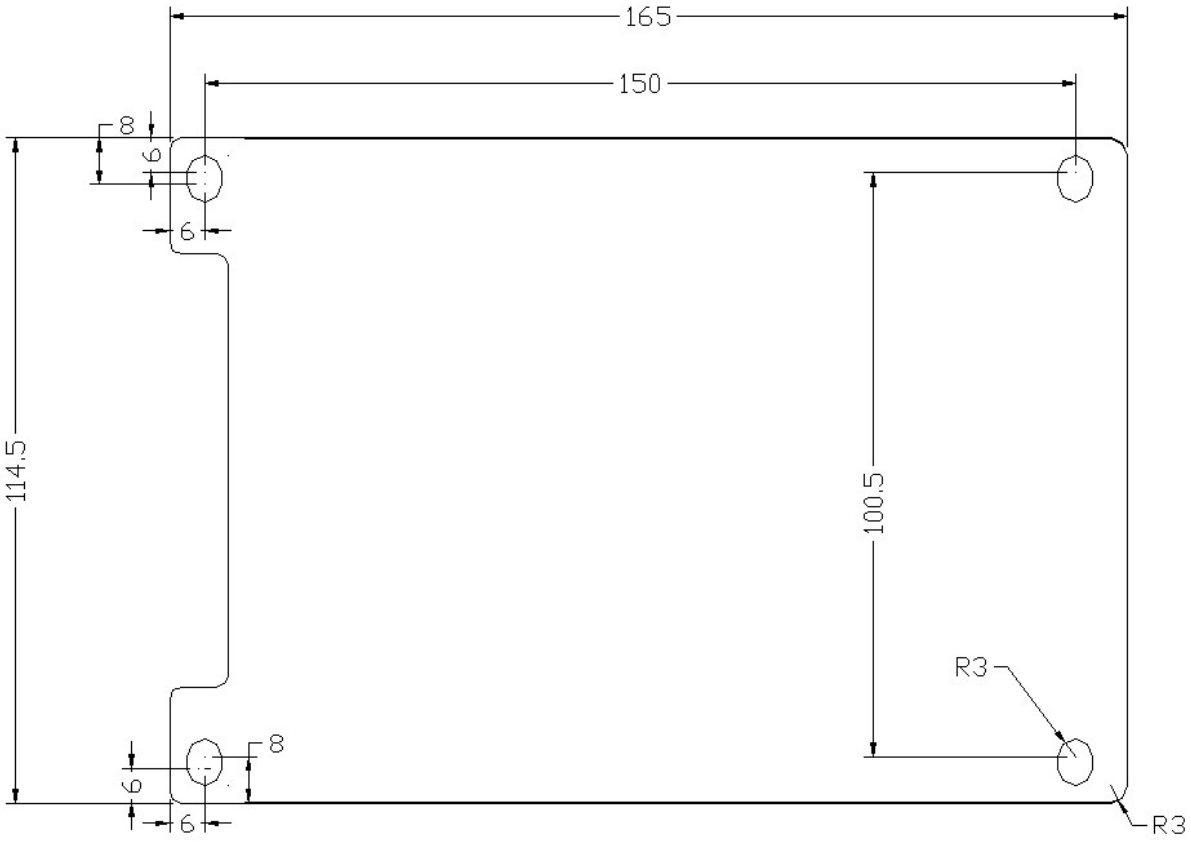


PCB Dimensions(PCB size 97*114.5*1.6mm)



Installation dimension drawing

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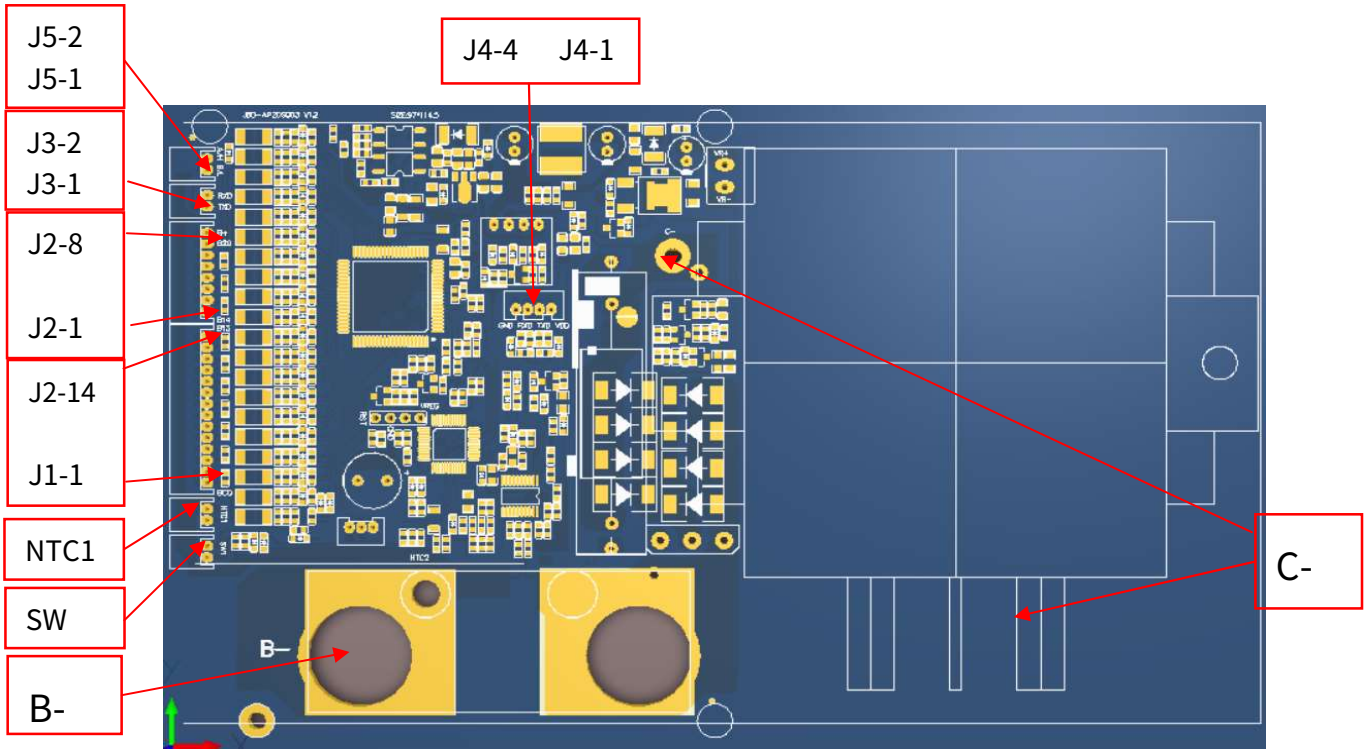
Six, wiring diagram



port		Say bright
C-		Charge and discharge negative electrode
B-		Connect the battery pack 1 String negative electrode, that is, the total negative electrode of the battery pack
J1	1	**Connect the battery pack 1 String negative**
	2	Connect the battery pack 1 String positive
	3	Connect the battery pack 2 String positive
	4	Connect the battery pack 3 String positive
	5	Connect the battery pack 4 String positive

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	6	Connect the battery pack 5 String positive
	7	Connect the battery pack 6 String positive
	8	Connect the battery pack 7 String positive
	9	Connect the battery pack 8 String positive
	10	Connect the battery pack 9 String positive
	11	Connect the battery pack 10 String positive
	12	Connect the battery pack 11 String positive
	13	Connect the battery pack 12 String positive
	14	Connect the battery pack 13 String positive
J2	15	Connect the battery pack 14 String positive
	16	Connect the battery pack 15 String positive
	17	Connect the battery pack 16 String positive
	18	Connect the battery pack 17 String positive
	19	Connect the battery pack 18 String positive
	20	Connect the battery pack 19 String positive
	twenty one	Connect the battery pack 20 String positive (voltage acquisition)
	twenty two	Connect the battery pack 20 String positive (BMS powered by)
J3	1	RXD
	2	TXD
J5	1	RS485-B
	2	RS485-A
J4 Built-in Bluetooth interface	1	VDD(right GND Level 11V Bluetooth is used for power supply, and it is not connected at other times.)
	2	TXD2
	3	RXD2
	4	GND
NTC1		External temperature probe

Automatically identify the connection method of the number of strings

20S	Not shorted	
19S	BC17~BC18 Short, connect together 17 String positive	
18S	BC16~BC18 Short, connect together 16 String positive	
17S	BC15~BC18 Short, connect together 15 String positive	
16S	BC14~BC18 Short, connect together 14 String positive	
15S	BC13~BC18 Short, connect together 13 String positive	
14S	BC12~BC18 Short, connect together 12 String positive	
13S	BC11~BC18 Short, connect together 11 String positive	
12S	BC10~BC18 Short, connect together 10 String positive	
11S	BC9~BC18 Short, connect together 9 String positive	
10S	BC8~BC18 Short, connect together 8 String positive	
9S	BC7~BC18 Short, connect together 7 String positive	
8S	BC6~BC18 Short, connect together 6 String positive	
7S	BC5~BC18 Short, connect together 5 String positive	

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Seven, wiring sequence

When assembling the wiring, solder the flat cable and the battery correctly, and PCM of B-Connect with the main negative pole of the battery, and then insert the flat wire PCM On the needle seat.(Note: The wiring method is different for different serial numbers, and the same port split-port wiring method is also different)

Nine, use matters needing attention

1. During use, the design parameters and use conditions must be followed, and the parameters of this specification must not be used, otherwise the protection board will be easily damaged and the battery pack will be damaged.
2. Prevent static electricity during use, and take corresponding measures to discharge static electricity when testing, installing, and touching the protective board.
3. The charging port can withstand up to the specified DC voltage. Chargers above this voltage cannot guarantee that the protection board will not be damaged. Please use the charger within this specification. It is best to choose a charger with a trickle-off function at the end of the charging current. In this way, double insurance is achieved. Chargers that do not have the trickle shutdown function are designed for lead-acid batteries and are not compatible with lithium batteries.
4. Be careful not to touch the components on the circuit board with the lead wire, electric soldering iron, tin slag, etc. during use, otherwise the protection board may be damaged.
5. The maximum discharge current is the maximum current that lasts for a few seconds. During the test, the unsustainable time is too long to avoid power MOS Damaged by overheating.
6. When assembling the protection board and the battery pack, do not put the heat dissipation aluminum plate close to the surface of the battery cell, otherwise, heat will be transferred to the battery cell and affect the safety of the battery pack.
7. If there is any abnormality during use, please stop using it immediately and return it to the original factory or ask professional maintenance personnel for repair.
8. If it is a split port protection board, prohibit P-Used as a charging port because P-When used as a charging port, the battery pack has no overcharge protection. prohibit C-Used as a discharge port when split
9. This protection board has done a lot of reliability tests, and the reliability is much higher than that of the general protection boards on the market. The process of the electric core must also be guaranteed at the same time, so as to reduce the occurrence of combustion as much as possible.
10. This protection board is not equipped 0V Battery charging function, once the battery appears 0V Under the circumstances, the battery performance will be severely degraded and may even be damaged.
11. In order not to damage the battery, users have to charge more than 2AH, Storage exceeded 3 Months) when not in use, it needs to be recharged regularly to replenish the power; and when in use, it must be 12 Charge in time within hours to prevent the battery from being discharged to0V. The customer is required to have an obvious mark on the battery shell for regular maintenance of the battery.
12. This protection board does not have a reverse charging protection function. If the charger's polarity is reversed, the protection board may be damaged.

Safety Precautions:

The company is committed to improving the quality and reliability. Generally speaking, electrical parts will have a certain probability of failure. The use environment and conditions are different, and the durability will be different. The use of lengthy design is used to avoid overloading. The occurrence of abnormal heat, smoke, personal accidents, fire accidents, social damages, etc. caused by

10. Document revision history

date	Draw up	Review	Modify content
2021-11-3	Wang Ligang	Zhang Qiaoqiao	First release

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