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嘉佰达科技

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Product Confirmation

Customer Name		Customer Model	JBD-HP04S024-L4S-30A-30A-B
Our company's part number		Customer part number	
Sample delivery date		Company Model	JBD-HP04S024 V1.0
Edition	A01	Pages	7

Approval	Review	Draft
	Zhang Qiaoqiao	Wang Xiang
Material Number	JBD-HP04S024-L4S-30A-30A-B	

Customer Confirmation Section

Confirmation of opinion:

signature:

date:

Special Note:

1After receiving the samples, please organize testing promptly and provide feedback on the test results to our company so that we can arrange subsequent work for this project.

do.5If no response is received within one day, the company assumes that the customer's test has passed and the project is considered to have ended normally.

2If the customer's test is successful, please clearly state the product name and product code in the customer feedback section, and affix your seal and signature for confirmation. Otherwise, please indicate if the test was unsuccessful.

The "Qualified" section identifies the problems and provides suggestions for improvement.

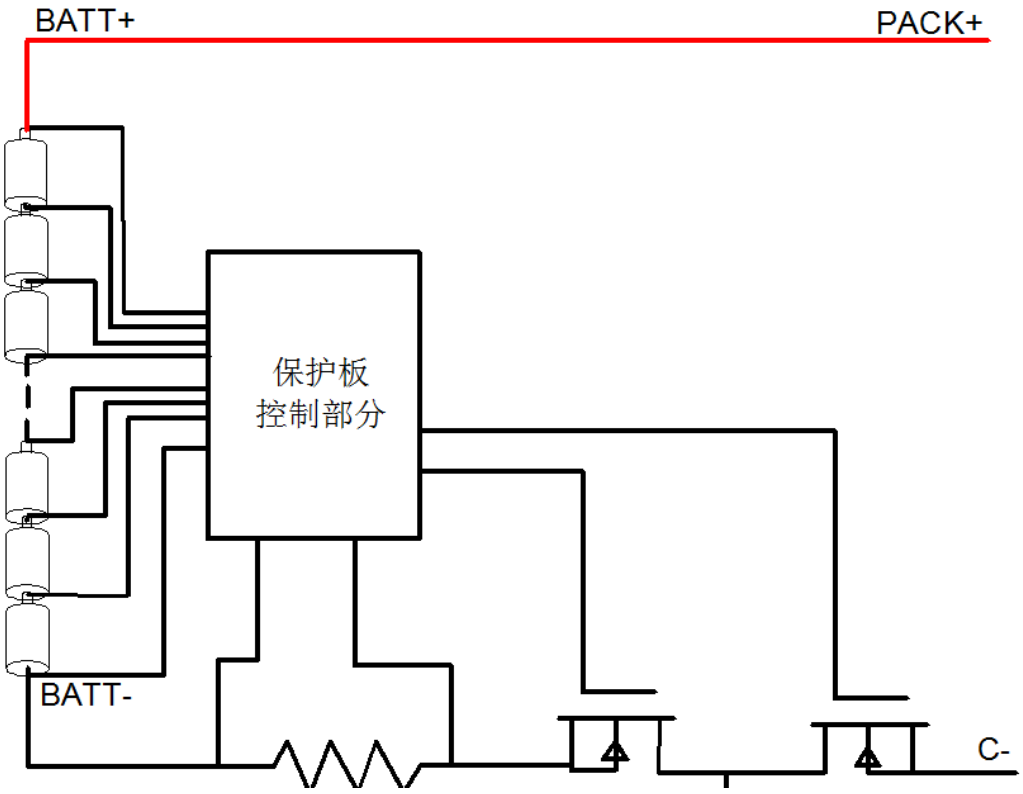
3Our company can only accept orders after receiving the original documents signed and stamped by the customer, along with detailed product specifications and functional descriptions.

I. Introduction and Features

JBD-HP04S024Dongguan Jiabaida Electronic Technology Co., Ltd. specializes in products such as power tools and energy storage.4This is a protection board solution designed for series-connected battery packs; it is applicable to lithium-ion, lithium polymer, and lithium iron phosphate cells with different chemical properties. The protection board has a strong load-carrying capacity, with a continuous discharge current reaching [value missing].30A.

- 4Energy-saving cell series protection
- Various protection functions for charging and discharging
- Hardware-based overcurrent and short-circuit protection functions
- Reserved temperature protection function
- Extremely low quiescent current consumption
- Equalization function

II. Principle Block Diagram



III. Basic Parameters

3.1Scope of application:

Battery pack structure:	4S
Charging method:	CC-CV(Constant current and constant voltage)
Discharge method:	Constant current discharge
Output terminals:	C-
Input terminals:	B-,BC0~BC4

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3.2Electrical parameters (The test needs to be conducted at a temperature25±2℃, relative humidity65+/-20%It will be conducted indoors.)

Function	Test Project	Specification			unit
		Small value	Typical value	Large value	
Operating voltage	Voltage range	8.4		15.0	V
Operating current	Charging current			30	A
	Discharge current			30	A
Charging protection	Charger voltage (CC-CV)	14.4			V
	Overcharge protection voltage	3.700	3.750	3.800	V
	Overcharge protection delay time	500	1000	2000	mS
	Overcharge protection recovery voltage	3.550	3.600	3.650	V
Equalization function	Equalizing turn-on voltage	3.550	3.600	3.650	V
	Equalizing current	20		30	mA
Discharge protection	Over-discharge protection voltage	2.000	2.100	2.200	V
	Over-discharge protection delay time	100	300	500	mS
	Over-discharge protection recovery voltage	2.200	2.300	2.400	V
	Over-discharge protection recovery conditions	Charge or disconnect the load			
Overcurrent protection	Overcurrent protection value for charging				A
	Overcurrent delay during charging				mS
	Overcurrent protection recovery conditions				
	Overcurrent discharge1Protection current value	100	120	140	A
	Overcurrent discharge1Protection delay	50	150	200	mS
	Discharge overcurrent protection recovery conditions	Disconnect the load or charge.			
Short circuit protection	Short circuit protection delay time	100	200	400	uS
	Short circuit protection recovery	Disconnect the load or charge.			
Temperature protection	High-temperature discharge protection				℃
	High-temperature discharge protection release				℃
Internal resistance	Internal resistance of discharge circuit		10	20	mR
Self-consuming power	Work mode		30	50	uA
Operating temperature	Normal working range	- 20		70	℃
Storage temperature	Humidity is lower than90%,	- 40		85	℃
Protective plate size	Length * Width * Height	(120±2)*(60±2)*(10±2)			mm

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3.3Protection function description:

Overcharge protection When the battery is charging, the voltage continuously increases. When the protection board detects this...**any section**Cell voltage**Higher than the overcharge protection value**The protection board immediately starts timing, and when the overcharge protection delay is reached, the protection board shuts off charging.MOSThe tube is closed during charging; charging is not possible at this time.

Overcharge protection recovery After the protection board triggers overvoltage protection, when the battery voltage drops while the battery is at rest or discharging, the protection board will detect this.**Each section**voltage**Below overcharge protection recovery voltage**At this time, the protection board outputs a signal to start charging.MOSThe tube can be charged at this time.

Over-discharge protection When the battery is discharging, the voltage continuously decreases. When the protection board detects this...**any section**Cell voltage**Below the over-discharge protection value**The protection board immediately starts timing. When the over-discharge protection delay is reached, the protection board outputs a signal to shut off the discharge.MOSWhen the tube is in the discharge cutoff state, the load lockout circuit is activated, preventing discharge.

Over-discharge protection recovery After the protection board activates over-discharge protection, the battery voltage continues to rise when the battery is at rest or charging. When the protection board detects this...**Each section**voltage**Higher than over-discharge protection recovery voltage**At this time**Disconnect the load or charge.**The protection board outputs a signal to initiate the discharge process.MOSThe tube can now discharge electricity.

Overcurrent protection When the battery is at rest or discharging, if the current suddenly increases, the protection board will detect that the current has reached the overcurrent protection value. At this time, the protection board will start timing. When the duration of the current in the circuit reaches the overcurrent protection delay time, the protection board will output a signal to shut off the discharge.MOSWhen the tube is in operation, the load lockout circuit is working, and it cannot discharge.

Overcurrent protection recovery After the protection board activates the discharge overcurrent protection, the discharge...MOSWhen the tube is turned off, the current in the circuit becomes0.At this time, if the load is disconnected or charging begins, the protection board outputs a signal to initiate discharging.MOSThe tube can now discharge electricity.

IV. Detailed Explanation of Numbering:

JBD –HP04S024 –L4S –30A –30A –B

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

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

(2) Our company's protection board model:HP04S024,support4String. ⑶L4SThe sample submitted this time was a lithium iron phosphate battery.4Serial protection board. (4) Exceeding the charging current may cause permanent damage to the protection board.

(5) Exceeding the discharging current may also cause permanent damage to the protection board.

(6) Balance function indicator.

After your company receives the specification sheet and samples and completes the verification test, if you require subsequent batch production, please sign this specification sheet and return it to us. We will then produce the batch according to the parameters in this specification sheet.

This specification defines the functions, electrical parameters, mechanical parameters, packaging, transportation, installation, and usage methods of the lithium battery pack management system designed and manufactured by Dongguan Jiabaida Electronic Technology Co., Ltd. (hereinafter referred to as "our company") based on the design requirements provided by your company. This specification is valid only for our company and your company's internal use and may not be distributed to any third party without our permission. Our company reserves the right of final interpretation of this specification.

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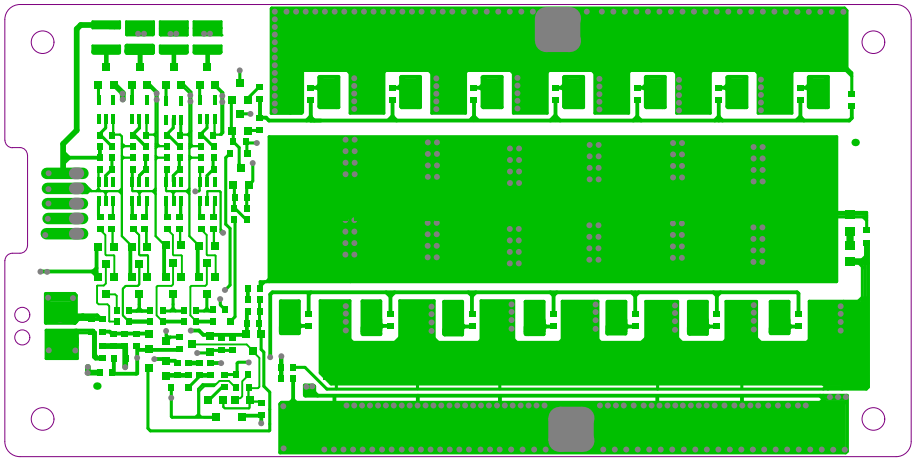
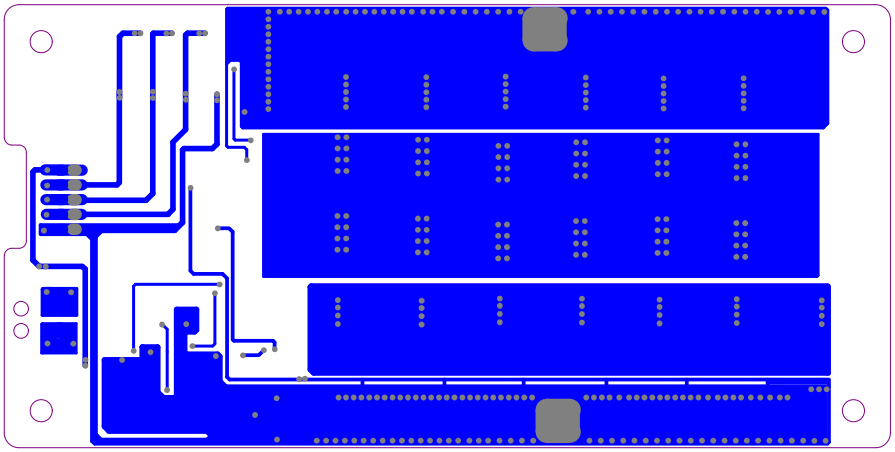
five,PCBWiring and dimensional structure diagram



Top floor wiring diagram



Bottom layer wiring diagram

Border Dimension Diagram

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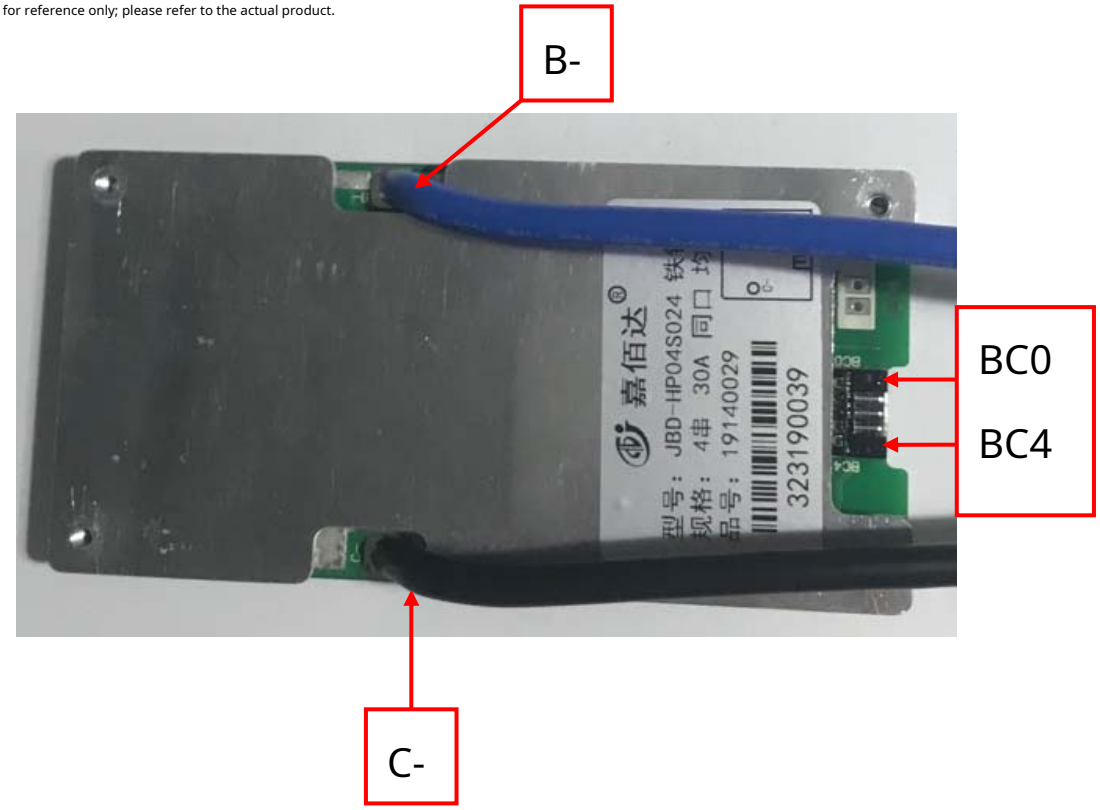
VI. Wiring Diagram

Images are for reference only; please refer to the actual product.



Port description:

port	explain bright
C-	Charge, discharge negative electrode
B-	Connect the battery pack1Series negative terminal, i.e., the total negative terminal of the battery pack
BC0	Connect the battery pack1Series negative electrode
BC1	Connect the battery pack1positive electrode
BC2	Connect the battery pack2positive electrode
BC3	Connect the battery pack3positive electrode
BC4	Connect the battery pack4Series positive terminal, i.e., the total positive terminal of the battery pack

VII. Main Components

sequence Number	Material Name	Manufacturer	Dosage
1	ProtectIC\HY2112-CB\SOT23-6	Hongkang	4PCS
2	balancedIC\HY2212-AB3A\SOT23-6	Hongkang	4PCS
3	MOSTube\JMTE3002B\TO-263	Jiejie Micro	8PCS

Provided that product performance is guaranteed, the above materials may be replaced by materials with equivalent or better specifications. Our company will not provide further notice. The final interpretation right belongs to Jiabaida.

8. Wiring sequence

During assembly and wiring, the ribbon cable should be correctly soldered to the battery cell.PCMofB-Connect it to the negative terminal of the battery cell, and then insert the ribbon cable.PCMThe needle hub on it. (Note: The wiring method varies depending on the number of serial numbers, and the wiring method also varies depending on whether the serial number is on the same port or a separate port.)

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IX. Precautions for Use

1.During use, the design parameters and operating conditions must be followed. Do not use the equipment in violation of the parameters in this specification, otherwise the protection board may be damaged, which may in turn damage the battery pack.

2.During use, static electricity must be prevented. Appropriate static discharge measures should be taken when testing, installing, or touching the protection board.

3.The charging port can withstand the specified DC voltage. Chargers with voltages exceeding this limit cannot guarantee 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 for double protection. Chargers without trickle-off function are designed for lead-acid batteries and are not suitable for lithium batteries.

4.During use, be careful not to let the lead wires, soldering iron, solder dross, etc. come into contact with the components on the circuit board, otherwise the protection board may be damaged.

5. The large discharge current is a high current lasting several seconds. During testing, the duration should not be too long to avoid power loss.MOSDamage caused by overheating.

6.When assembling the protection board and battery pack, do not place the heat dissipation aluminum plate close to the surface of the battery cells; otherwise, heat will be transferred to the battery cells, affecting the safety of the battery pack.

7.If any abnormalities occur during use, please stop using it immediately and return it to the original manufacturer or have it repaired by a professional technician.

8.If it is a split-port protection plate, it is prohibited.P-Used as a charging port, becauseP-When used as a charging port, the battery pack lacks overcharge protection. Do not use.C-It is used as a discharge port during the splitting process.

9.It is prohibited to use two or more protection boards in series or in parallel.

10.This protection board has undergone extensive reliability testing, and its reliability is far higher than that of ordinary protection boards on the market. The battery cell manufacturing process must also be guaranteed to minimize the occurrence of combustion.

11.This protective panel is not equipped with0VBattery charging function, once the battery is in use...0VIn such cases, battery performance will severely degrade, and it may even be damaged.

12.To avoid damaging the battery, users should avoid prolonged exposure (battery pack capacity and charge greater than [a certain value]).2AHStorage exceeds3(For months) When not in use, it needs to be charged periodically to replenish the power; when in use, it must be fully discharged and then...12Charge the battery promptly within 24 hours to prevent it from discharging due to self-discharge. 0VCustomers are required to display clear markings on the battery casing indicating that the battery must be regularly maintained by the user.

13.This protection board does not have reverse charging protection. If the charger is connected with the polarity reversed, the protection board may be damaged.

Safety Precautions:

Our company is committed to improving quality and reliability. However, electrical components are subject to a certain probability of failure. The durability will vary depending on the usage environment and conditions. We adopt a lengthy design to avoid abnormal heating, smoke, or even personal injury, fire, and social damage caused by overload.

10. Document Revision History

date	Draft	Review	Modifications
2017-11-21	Yi Yuanbing	Zhang Qiaoqiao	First edition
2018-03-14	Yi Yuanbing	Zhang Qiaoqiao	Modify parameters

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