

Shenzhen Heyuxin Technology Co., LTD
深圳市赫宇鑫科技有限公司

Specification Approval Sheet
产品承认书

客户名称：

产品型号：12V铁锂电池

产品规格：12.8V 300AH

客户承认	批准	客户公司盖章
制作	审核	批准

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1. 1. Scope适用范围

This Specification describes the product of the Lithium-ion rechargeable battery which was supplied by Shenzhen Heyuxin Technology Co. Ltd.

本规格书描述的是由深圳赫宇鑫科技有限公司生产制造的可充电式锂离子电池产品

2. Model: 12V Lithium battery 12V铁锂电池

3. Specification

No.	Item	Specification
01	Pack configuration 产品结构	4S1P
02	Cell Model 电芯型号	大单体3.2V/300AH
03	Termination Charged Voltage 充电截止电压	14.6V
04	Discharge cut-off Voltage 放电截止电压	10V
05	Nominal Voltage 标称电压	12.8V
06	Nominal Capacity 标称容量	300AH @ 0.5C discharge
07	Nominal Energy 标称能量	3840Wh @ 0.5C discharge
08	Max Charge Current 最大充电电流	150A
09	Max Cont Discharge Current 最大持续放电电流	200A
10	Max. Discharge current (1-2 Seconds) 最大瞬间放电电流	600A
11	Standard Charge 标准充电	60A constant current to 14.6V, 14.6V CV to taper current \leq 0.02C 60A恒流充电至14.6V, 然后以14.6V恒压充电, 至充电电流降至0.02C为止
12	Standard Discharge 标准放电	0.2C constant current to 10V 0.2C恒流放电, 至电压降至10V为止
13	Pack AC Impedance 成品内阻	\leq 8m Ω max @ 1KHz
14	Pack Weight 成品重量	Appr: 35Kg
15	Shipment Voltage 出货电压	12.8V- 13.2V (SOC:30-50%)

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16	Cycle Life 循环寿命	capacity@3000th cycle \geq 70% of initial capacity Cycle Conditions: Temperature 23 \pm 2 $^{\circ}$ C; 0.2C charge and 0.2C discharge 3000次循环后， 电池容量不低于初始容量的70% 测试条件： 环境温度23 \pm 2 $^{\circ}$ C， 充放电电流0. 2C	
17	Pack Dimension 尺寸规格	(Height:220mm Max)*(Width:269mm Max)*(Length: 520mm Max) (高度:220mm Max)*(宽度:269mm Max)*(长度:520mm Max) See details in battery drawing 更多细节请参考成品图纸	
18	Operating Temperature 工作温度	Charge 充电	0 $^{\circ}$ C ~10 $^{\circ}$ C: 0.2C CC to 14.6V, CV to 0.02C; 10 $^{\circ}$ C ~45 $^{\circ}$ C: standard charging method 0 $^{\circ}$ C ~10 $^{\circ}$ C: 0. 2C恒流充电至14. 6V, 然后恒压充电至电流降至0. 02C为止; 10 $^{\circ}$ C ~45 $^{\circ}$ C: 标准充电方式
		Discharge 放电	-20 $^{\circ}$ C ~60 $^{\circ}$ C: 标准放电方式
19	Storage Temperature 储存温度	-20 ~ 25 $^{\circ}$ C, the pack shall be able to deliver \geq 80% rated capacity after 1 yr. of storage; -20 ~ 45 $^{\circ}$ C, the pack shall be able to deliver \geq 80% rated capacity after 3 months of storage; -20 ~ 60 $^{\circ}$ C, the pack shall be able to deliver \geq 80% rated capacity after 1 month of storage -20 ~ 25 $^{\circ}$ C, 储存一年之后产品的可恢复容量不少于额定容量的80%; -20 ~ 45 $^{\circ}$ C, 储存三个月之后产品的可恢复容量不少于额定容量的80%; -20 ~ 60 $^{\circ}$ C, 储存一个月之后产品的可恢复容量不少于额定容量的80%	

4.Storage and Others 储存及其他

4.1 Long Time Storage 长时间储存

If the pack is stored for a long time, the pack' s storage voltage should be 12.8V- 13.2V and the pack should be stored in a condition as section 4.2;

如果本产品需要长期储存， 电池电压需要保持在 12.8V- 13.2V， 且储存环境需要符合 4.2 要求；

4.2 Standard Environmental Test Condition 标准测试环境

Unless otherwise specified, all tests stated in this Product Specification are conducted at below condition:

Temperature: 23 \pm 2 $^{\circ}$ C; Humidity: 65 \pm 20% RH;

除非另有说明， 该规格书中涉及的所有测试都应在以下环境条件下进行：

温度： 23 \pm 2 $^{\circ}$ C； 湿度： 65 \pm 20% RH；

4.3 Others 其他

Any matter not covered in the specification should be negotiated between the customer and suppliers.

任何该规格书中没有涉及的事项都应在客户和供应商之间协商确定。

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4. Battery Drawing 成品图片:



Remark: The picture is for your reference.

5. PCM Specification 保护板规格

7.1 PCM Electrical Characteristics 电性能参数 (Ta=23±2° C) 注以下参数暂时仅供参考

No	Item项目	Condition条件	Specification规格
1	input Voltage/输入电压	Input Voltage B+ to B-, B+/B-间输入电压	8.4~15V
2	(SOC) 剩余容量估算	Detection voltage accuracy/电压检测精度	-
		Detection current accuracy/电流检测精度	-
		SOC accuracy/容量估算精度	-
3	Overcharge (Any CELL) 过充电(每节)	Detection voltage/保护电压	3.75±0.05V
		Release voltage/恢复电压	3.55±0.05V
		Detection delay time/保护延迟时间	1000±500mS
4	Over discharge (Any CELL) 过放电(每节)	Detection voltage/保护电压	2.20±0.1V
		Release voltage恢复电压	2.70±0.1V
		Detection delay time保护延迟时间	200±100mS
5	Over discharge current 放电过流	Over current/放电过流保护电流	800±300A
6	Over charge current 充电过流	Over current/充电过流保护电流	320±80A
7	Short detection delay time短路保护	Short detection delay time/放电短路保护延时	300±200uS
		Release Conditions/恢复条件	断开负载或瞬间充电
8	Temperature protection 温度保护	Discharge high temperature protection 放电高温保护	70±5°C
		Discharge high temperature protection releas 放电高温保护恢复	50±10°C
		Discharge low temperature protection 放电低温保护	-
		Discharge low temperature protection release 放电低温保护恢复	-

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		Charge high temperature protection 充电高温保护	70±5℃
		Charge high temperature protection release 充电高温保护恢复	50±10℃
		Charge low temperature protection 充电低温保护	-
		Charge low temperature protection release 充电低温保护恢复	-
9	Bleed 均衡	Bleed StartPoint均衡开启电压	3.60±0.05V
		Bleed Current均衡电流	104-184mA

注：各项基本保护参数软件可根据客户须求结合实际使用情况做修改！

6. Warranty 保质期

Warranty period of this product is 24months from delivery date.

It is suggested that the customer use the battery strictly in accordance with the notices indicated in the specification; if the battery is not used correctly, the battery may heat, break, fire, smoke and so on, and lead to safety accidents.

If you do not use batteries in accordance with the precautions in the specification, Shenzhen Heyuxin Technolo CO., Ltd will not be able to avoid such safety incidents

该产品的保质期为自出货之日起的 24 个月之内。

建议客户严格按照该规格书中标示的注意事项来使用电池；如果不正确的使用电池，电池可能发热、破裂、着火、冒烟等，进而导致安全事故。

如果未按规格书中的注意事项使用电池，深圳是赫宇鑫科技有限公司将无法保证避免上述安全事故的发生。

7. Caution 注意事项

9.01 Store batteries out of reach of children so that they are not accidentally swallowed.

将电池置于孩童够不着的地方，以避免孩童吞咽电池。

9.02 If younger children use the battery, their guardians should explain the proper handling.

孩童需在监护人指导下使用电池。

9.03 Remove the battery from the equipment and store in a place with low humidity and temperature if the battery is not used for an extended period.

长期不使用电池，应将电池取出，在低温湿度环境下存储。

9.04 Keep the battery far away from articles or materials with static electric charges while the battery is charged, used or stored.

电池充电，使用和存储过程中需远离静电。

9.05 Use dedicated chargers and follow the specified conditions when charging the battery.

使用专用充电器和正确的方法充电。

9.06 Charge the battery to about 50% SOC each six months during storage.

在电池长期存储过程中，需每六个月补充电一次，以保持约 50%的荷电状态(50%SOC)。

9.07 Do not use or leave the battery at high temperature.

禁止在高温下使用或放置电池。

9.08 Do not use the battery in a location where static electricity and magnetic field is great, otherwise, the safety devices may be damaged, causing hidden trouble of safety.

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禁止在强静电和强磁场的地方使用。

9.09 If the battery gives off strange odor, generates heat, becomes discolored or deformed, or in any way appear abnormal during use, recharging or storage, immediately remove it from the device or battery charger and stop using it.

如果电池发出异味、发热、变色、变形或使用、贮存、充电过程中出现任何异常,立即将电池从装置或充电器中移离并停用。

9.10 Do not heat or put the battery into the fire. Also do not wet the battery.

不要加热或把电池扔到火盆里， 禁止弄湿电池。

9.11 Do not use, leave battery close to fire or inside of a car where temperature may be above 60°C. Also do not charge / discharge in such conditions.

不要在火源， 烤炉附近或超过 60 度的环境中放置和使用电池。

9.12 Do not put or store battery together with metal articles such as necklaces, hairpins, coins, or screws.

不要将电池与金属放在一起存贮移动， 诸如项链、发夹、硬币以及螺丝等。

9.13 Prohibit reverse charging of the battery. The battery must be connected correctly.

严禁反充电池。

9.14 Do not short circuit the (+) and (-) terminals with metal conductors.

不要将电池的正负极用金属连接。

9.15 Do not place battery in a device with the (+) and (-) in a reverse way.

不要将电池反接在设备上使用。

9.16 Do not penetrate battery with a sharp articles such as a needle.

不要用针状尖锐物品刺穿电池。

9.17 Do not disassemble the battery.

不要拆解电池。

9.18 Do not use a battery with serious scar or deformation.

不要使用有严重划痕和变形的电池。

9.19 Do not put battery into a heating vessel, washing machine or high-pressure container.

不要将电池置于加热、洗涤或高压容器中。

9.20 Do not use battery with primary batteries, or batteries of a different package, type, or brand.

电池不可与其它类型的一次或不同的包装、类型和品牌二次电池混用。

9.21 Stop charging the battery if charging is not completed within the specified time.

超出规定的充电时间时， 应停止充电。

9.22 Stop using the battery if abnormal heat, odor, discoloration, deformation or abnormal condition is detected during use, charge, or storage.

在使用、充电或存贮过程中发现有异常发热、有气味、变色、变形的情况， 应停止使用。

9.23 Keep away from battery immediately when leakage or foul odor is detected.

假如发现电池漏液或有异味， 应立即远离。

9.24 Wash well with clean water immediately if liquid leaks onto your skin or clothes.

假如电池漏液粘在皮肤或衣物上， 请立即用清水冲洗。

9.25 If the battery leaks and the electrolyte gets into the eyes, do not rub the eyes, instead, rinse the eyes with clean water, and immediately seek medical attention.

如果电池发生泄露， 电解液进入眼睛， 请不要揉擦， 应用清水冲洗眼睛， 并立即送医治疗。