

Specification Approval Sheet

产品规格书

Customer Name 客户名称: _____

P/N 料 号: _____

Product Model 产品型号: 12V300Ah/4S1P

Prepared by 制作	Checked by 审核	Approved by 批准
Customer Approved 客户承认		

Edit Record
修改记录

version 版本	Describe 描述	The date of 日期	Reviser 修订者
A0	The official version 正式版本		

 深圳市威泰能源有限公司 Shenzhen Wistek Energy Co.Ltd.	Number 编号: Edition版本: A0	DOC No.	12V300Ah
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1. Scope 概述

This specification is applied to Lithium Polymer Battery manufactured by
 本产品规格书适用于生产的聚合物锂离子电池。

The product is ROHS compliant
 本产品符合 ROHS 标准

This product specification stipulates GB/T 31485-2015 《Safety requirements and test methods for power batteries for electric vehicles》
 本产品规格书规定了 GB/T 31485-2015 《电动汽车使用动力蓄电池安全要求及试验方法》

2. Product and Model Name 产品种类及型号

2.1 Product 产品种类: Lithium iron phosphate power battery in aluminum case 铝壳磷酸铁锂动力电池

2.2 Model Battery 电池型号: 12V 300Ah

3. Product basic information 产品基本信息

No.	Items 项目	Parameter 参数	
3.1	Battery model 电芯型号	12V-300Ah	
3.2	The anode material 正极材料	磷酸铁锂	
3.3	Nominal capacity 标称容量	300Ah ((25±2)°C,标准充放电。)	
3.4	Nominal voltage 标称电压	12.8V	
3.5	AC impedance resistance 内阻(IKHz)	≤0.5mΩ	
3.6	Charge/discharge cut-off voltage 充/放电截止	14.6V/10V	((25±2)° C)
3.7	Standard charge current 标准充电电流	0.5C	((25±2)° C)
3.8	Maximum charge current 最大持续充电电流	304A/1C	((25±2)° C)
3.9	Standard discharge current 标准放电电流	0.5C	((25±2)° C)
3.10	Maximum discharge current 最大持续放电电流	304A/1C	((25±2)° C)
3.11	Pulse charge current脉冲充电电流	2C (持续时间 The duration of the 10S)	
3.12	Pulse discharge current脉冲放电电流	2C (持续时间 The duration of the 10S)	
3.13	Operating Temperature 工作温度	Charge 充电	0℃~60℃
		Discharge 放电	-30℃~60℃
3.14	Storage temperature 贮存温度	-30℃~60℃	Short term (within 1 month) 短期(1个月内)
		0° C~35° C	Long term (within 1 year) 长期(1年内)
3.15	The battery weight 电池重量	27±1kg	
3.16	Recommend SOC window 推荐SOC使用窗口	10% ~90%	
3.17	Self-discharge rate 月自放电率	W3%/month/月	

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4.electrical 电性能

4.1Standard test conditions 标准测试条件

Test should be performed under standard atmospheric conditions.

Temperature: (25 + 2) ° C

Relative humidity: 15% to 85%

Atmospheric pressure:86KPa~106KPa

本规格书中各项试验应在标准大气条件下进行。

温度： (25±2)° C

相对湿度： 15%~90%

大气压力： 86KPa~106KPa

4.2 Accuracy of test equipment 测试设备精度

- (1) Voltage measurement accuracy 电压测量精度: ≥0.5 级.
- (2) Accuracy of current measurement 电流测量精度: ≥0.5 级.
- (3) Accuracy of temperature measurement 温度测量精度: ±0.5℃.
- (4) Accuracy of time measurement 时间测量精度: ±0.1%.
- (5) Accuracy of dimensional measurement 尺寸测量精度: ±0.1%.

4.3 Standard charge 标准充电

Under the condition of (25±2)° C, the battery was charged at A constant current of 0.5C(A) until the charging limit voltage was 14.6V and then the battery was charged at a constant voltage until the current was less than 0.05C(A).

在(25±2)° C 的条件下，对电池以 0.5C(A)恒流充电至充电限制电压 14.65V 后再恒压充电,直至电流小于 0.05C(A)。

4.4The standard of discharge 标准放电

A constant current of 0.5C(A) was applied to the cell to a termination voltage of 10V at (25±2)° C.

在(25±2)° C 的条件下，对电池以 0.5C(A)恒流放电至终止电压 10V。

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5. Battery performance 电池性能				
No.	Items 项目	Test Method 测试方法	The performance requirements 性能要求	
1	25° C rate discharge performance 25° C 倍率 放电性能	After standard battery charging, discharge to 10V at 0.5C(A), 1.0C(A), respectively, using 1h. If the discharge capacity fails to meet the technical requirements, this test can be repeated three times. 电池标准充电后, 搁置 1h, 分别以 0.5C(A)、1.0C(A)、进行放电至 10V, 如果放电容量达不到技术要求, 此项试验允许重复 3 次。	Discharge capacity/nominal capacity x100% A) 0.5 C (A) > 100% B) 1.0 C (A) > 100% 放电容量/标称容量 x100% A)0.5C(A)>100% B)1.0C(A)>100%	
2	Discharge performance at different temperatures 不同温度 放电性能	A) After standard charging, the battery is stored at 55±2° C for 5h and discharged at 1.0C(A) to 10V; B) After standard charging, the battery was stored at -20±2° C for 24h and discharged to 10Vo at 1.0C(A) A) 电池标准充电后, 在 55±2° C 条件下搁 置 5h, 以 1.0C(A) 放电至 10V; B) 电池标准充电后, 在 -20±2° C 条件下搁 置 24h, 以 1.0C(A) 放电至 10V	Discharge capacity/nominal capacity x 100% A) 55 ° C ≥ 95% B) -20 ° C ≥ 70% 放电容量/标称容量 x 100% A)55° C 时 ≥95% B)-20° C 时 ≥70%	
3	Charge holding at 25° And resilience 25° 荷电保持与恢复能力	Battery standard charge, open placed 28 days; Discharge 1.0C(A) to 10V, denoted as residual capacity; After another standard charge, set aside for 30min and discharge to 10V with LOC(A), which is recorded as recovery capacity. 电池标准充电后, 开路放置 28 天; 以 1.0C(A) 放电至 10V, 记为剩余容量; 再 次标准充电后, 搁置 30min, 以 LOC(A) 放电至 10V, 记为恢复容量。	The residual capacity ≥ Nominal capacity x95% Restore capacity ≥ Nominal capacity x97% 剩余容量≥标称容量 x95% 恢复容量≥标称容量 x97%	
4	25° C cycle life 25° C 循环寿命	(25±2)° C, the battery under 300kgf fixture: 0.5C(A) constant current constant voltage charge to 14.6V, cut-off current 0.05C(A), put on hold for 30min, 0.5C(A) constant discharge current to 10V, put on hold for 30min, and then carry on the next cycle, until the capacity decay to 80% of the nominal capacity. (25±2)° C , 电池在 300kgf 夹具下: 以 0.5C(A) 恒流恒压充电至 14.6V, 截止电流 0.05C(A), 搁置 30min, 以 0.5C(A) 恒流放 电至 10V, 搁置 30min, 再进行下一循环, 至容量衰减为标称容量的 80% 止。	≥3500 次 @304A/304A	
5	45° C cycle life 45° C 循环寿命	(45±2)° C, the battery in 300kgf fixture: 0.5C(A) constant current constant voltage charge to 14.6V, cut-off current 0.05C(A), use for 30min, 0.5C(A) constant current to 10V, use for 30min, then carry on the next cycle, until the capacity	≥1800 次 @304A/304A	

		attenuation is 80% of the nominal capacity. (45±2)° C ,电池在 300kgf 夹具下: 以 0.5C(A)恒流恒压充电至 14.6V,截止电流 0.05C(A),搁置 30min,以 0.5C(A)恒流放电至 10V,搁置 30min,再进行下一循环, 至容量衰减为标称容量的 80%止。	
6	End of life management 寿命终止管理	During the use of the battery, when the service life is expired, the battery should be stopped. 电池使用过程中,超出寿命终止规定时, 应停止使用电池。	Capacity/nominal capacity < 70% 容量/ 标称容量<70%

6. safety performance 安全性能

NO. 序号	Item 项目	The technical requirements 技术要求	The test method 测试方法
1	discharge 过放电	No explosion, no fire, no leakage 不爆炸、不起火、不漏液	Reference: GB/T 31485-2015 "Electric vehicle power battery safety requirements and test methods" 参考: GB/T 31485-2015 《电动汽车使用动力蓄电池安全要求及试验方法》
2	charging 过充电	No explosion, no fire 不爆炸、不起火	
3	short circuit 短路	No explosion, no fire 不爆炸、不起火	
4	fall 跌落	No explosion, no fire, no leakage 不爆炸、不起火、不漏液	
5	heating 加热	No explosion, no fire 不爆炸、不起火	
6	extrusion 挤压	No explosion, no fire 不爆炸、不起火	
7	acupuncture 针刺	No explosion, no fire 不爆炸、不起火	
8	Seawater immersion 海水浸泡	No explosion, no fire 不爆炸、不起火	
9	Temperature cycle 温度循环	No explosion, no fire, no leakage 不爆炸、不起火、不漏液	
10	depression 低气压	No explosion, no fire, no leakage 不爆炸、不起火、不漏液	

7.Transportation and Storage 运输和储存

7.1transport 运输

Select the appropriate battery packing method according to the destination and mode of transportation. In the process of transportation should be prevented from violent vibration, external impact or extrusion, to prevent the sun and rain, for the use of aircraft transportation in the transportation process to maintain less than 30% of the electricity, the use of cars, trains, ships and other means of transportation for transportation, to maintain 30%~50% of the electricity or according to the special requirements of customers.

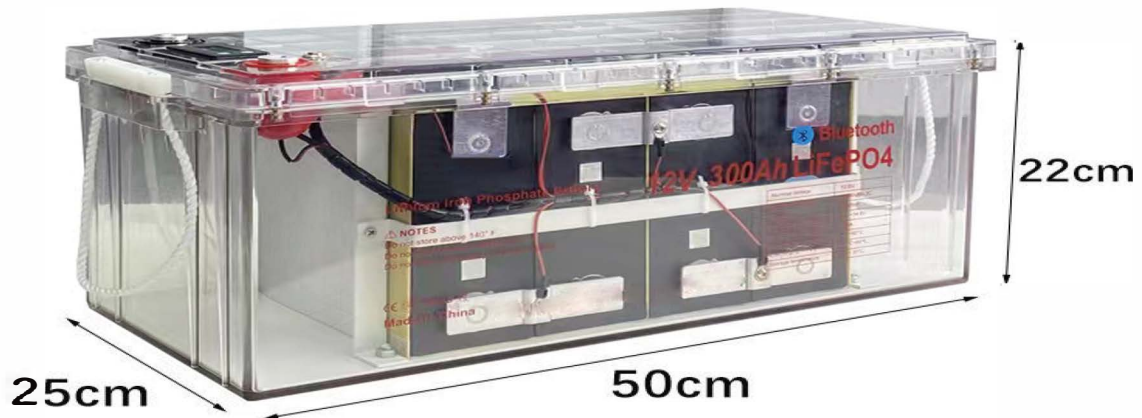
应根据运输的目的地和运输方式，选定合适的电池包装方式。在运输过程中应防止剧烈振动、外力冲击或挤压，防止日晒雨淋，对于使用飞机进行运输在运输过程中保持≤30%的电量，使用车、火车、轮船等交通工具进行运输，保持30%~50%的电量或按照客户的特殊要求。

7.2 storage 存储

The battery should be stored (for more than one month) in a clean, dry and ventilated room with an ambient temperature of 0° C to 35° C. The battery is charged and discharged every 6 months to store the charged state (30%-50% SOC).

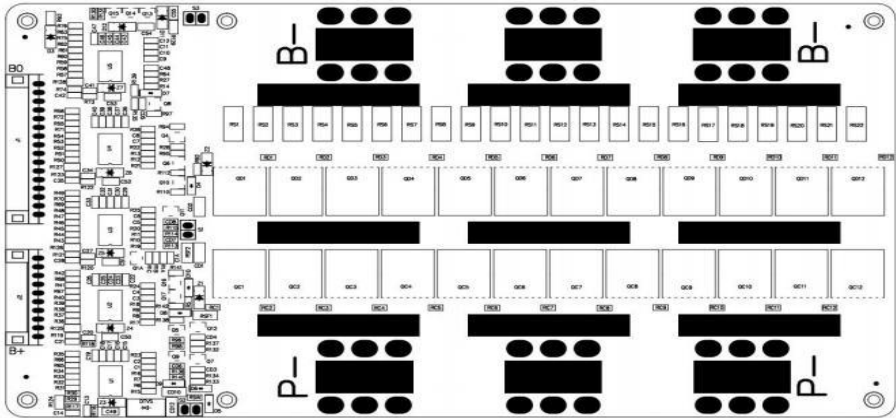
电池应贮存(超过 1 个月)在环境温度为 0° C~35° C 的清洁、干燥通风的室内。每 6 个月对 电池进行一次充放电，储存荷电态(30%~50%SOC)。

8. Dimensioning drawing 尺寸标注图 (单位: mm)



Item 项	Parameter 参数	Size 大小
W	Width 宽度	240±1mm
T	Thickness 厚度	218±1mm
L	length 长度	552±1mm

9.PCM Schematics PCM 示意图



10.PCM BOM

NO 序号	Part Name 零件名称	Specifications 规格	Packaging form 封装形式	consumption 用量	Company 单位
1	保护 IC	MM3474DB1VBE	TSSOP-20	1	PCS
2	充电 MOS	NCEP018N85LL/SS018N08LS	TOLL	24	PCS
3	放电 MOS	NCEP018N85LL/SS018N08LS	TOLL	24	PCS
4	插座	5Pin 2.00mm 间距		1	PCS

11.PCM parameter PCM 参数

三、保护板电性能参数

PCB 型号	芯片方案	MOS 数量	弱电开关	高温保护	均衡	应用领域
JWZN-923A	美之美集成	24 充 24 放	可选	有	有	储能

Note: Unless otherwise specified, the test shall be carried out in a room with a temperature of 25 ± 2 °C and a relative humidity of 65+/- 20%. The battery pack to be tested must be a battery with a production cycle of no more than one week. The self consumption of the protection board is a dynamic value. During the test, the cell voltage must be ≥ 3.2V

注：除特别说明外，测试需在温度 25±2℃，相对湿度 65+/-20% 的室内进行，所测试用电池组必须为生产周期不超过一周的电池，保护板自耗电属于动态值，测试时，电芯电压需≥3.2V.

Test items 检测项目		Symbol 符号	Test conditions 测试条件	Min	Typ	Max	Unit
充电保护	Overcharge protection voltage (single section) 过充保护电压(单节)	Vov	At charge off	3.800	3.850	3.900	V
	Overcharge recovery voltage (single section) 过充恢复电压(单节)	Vovr	-	3.600	3.650	3.700	V
	Overcharge protection delay time 过充保护延迟时间	Tov	-	500	1000	1500	ms
	Continuous charging current	Iov	-			300	A

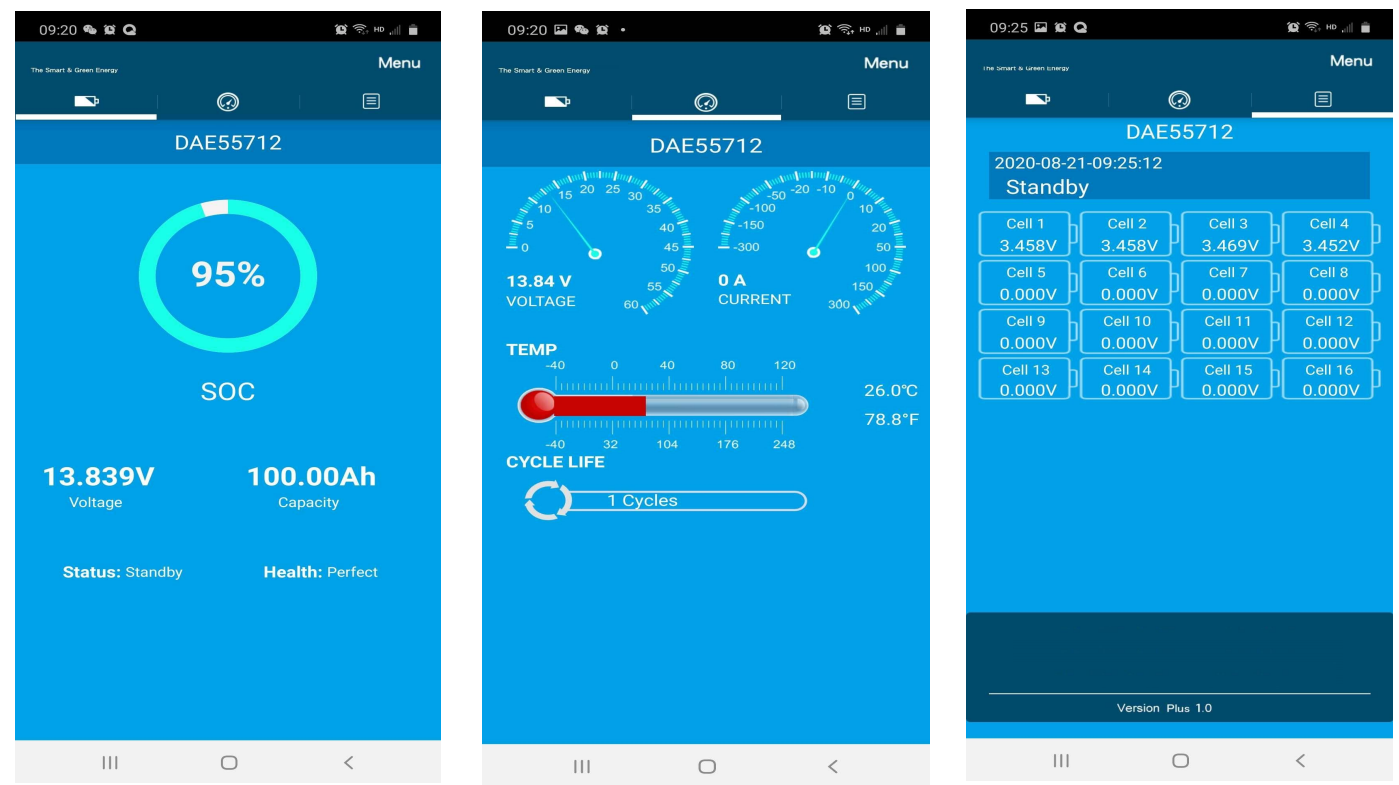
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放电保护	持续充电电流						
	Overdischarge protection voltage (single section) 过放保护电压(单节)	Vuv	At discharge off	2. 200	2. 300	2. 400	V
	Overdischarge recovery voltage (single section) 过放恢复电压(单节)	Vuvr	-	2. 400	2. 500	2. 600	V
	Overdischarge protection delay time 过放保护延迟时间	Tuv	-	500	1000	1500	mS
	Continuous discharge current 持续放电电流	Iuv	-			300	A
	Discharge overcurrent protection 1 current 放电过流保护 1 电流	Idoc1	-	1220	1320	1420	A
	Delay time of discharge overcurrent protection 1 放电过流保护 1 延迟时间	Tdoc1	-	500	1000	1500	ms
短路	Short circuit protection delay time 短路保护延时时间	Tshort	Single Voltage=3. 2V	200	350	700	us
	Release conditions of short-circuit protection 短路保护释放条件	-	Single Voltage=3. 2V	移除负载			
温度保护	Discharge high temperature protection temperature 放电高温保护温度	Tdot	-	70	75	80	℃
	Discharge high temperature protection recovery temperature 放电高温保护恢复温度	Tdotr	-	39	53	67	℃
	Charging high temperature protection temperature 充电高温保护温度	Tcot	-	70	75	80	℃
	Recovery temperature of charging high temperature protection 充电高温保护恢复温度	Tcotr	-	39	53	67	℃
Self consumption 自耗电		Icc1	Single Voltage=3. 2V			100	uA
Weak current switch function 弱电开关功能		Sw	-	无			
		The weak current switch is connected to the switch through two wires. When the switch is opened, the discharge starts. When the switch is disconnected, the discharge stops. 弱电开关通过两根线连接开关，开关打开时开始放电，开关断开后，停止放电。					

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通讯方式 Communication method	☒ UART ☒ RS485 ☐ CAN ☒ 蓝 牙 Bluetooth ☐ GPS ☐ LCD ☐ 电量显示模块 SOC indicator
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Bluetooth connection mobile terminal interface 蓝牙连接手机端界面

Android and Apple IOS interfaces 安卓和苹果 IOS 界面



PS: 此界面为示意图、具体以实际为准

PS: This interface is a schematic diagram, which is subject to the actual situation

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12.Quality assurance 质量保证

The warranty period of the battery depends on the commercial contract. if the battery problem is not caused by the manufacturer's process and quality, but by user misuse, during this period. Can provide technical guidance, do not promise free replacement service.

We will not take any responsibility for the following problems and safety accidents

- 1) Problems and safety accidents caused by violation of the safety guide
- 2) Defective batteries produced by users during battery assembly after shipment
- 3) Problems with batteries used in combination with circuits, battery packs and chargers. For safety reasons, please consult Co., Ltd for other special applications such as equipment design, lithium-ion battery system protection circuit or high current. Related matters.

电池的保质期限依商务合同而定。在此期限内，如果非制造厂商的制程和品质原因，而是用户误用造成的电池问题，可提供技术指导意见，不承诺免费更换服务。

公司对以下几种情况产生的问题及安全事故不承担任何责任：

- 1)违反安全使用指南所产生的问题及安全事故；
- 2)出货后用户在电池组装过程中产生的不良电池；
- 3)电池与电路、电池组和充电器搭配使用所产生的问题。为了安全起见，如有配套设备设计、锂离子电池系统保护电路或大电流等其它方面的特殊应用，请先咨询供应商相关事宜。

13. Handling Instructions 电池使用指南

To avoid battery damage or personal injury caused by misuse of square lithium ion battery modules, please read the following safety guidelines carefully before using square lithium ion battery modules:

为避免滥用方形锂离子电池模块造成的电池损害或人身伤害，在使用方形锂离子电池之前，请认真阅读下面的安全指南：

- Improper use and storage of batteries may cause risks of fire, explosion and burn. Do not decompose batteries.
Crush, incinerate, heat and throw into fire;
- 电池非正确使用和存放，具有火灾、爆炸和烧伤的风险，勿将电池分解、压碎、焚化、加热和投入火中；
- Keep the battery out of reach of children. Do not remove the original packaging before use
Dispose of used batteries in a timely manner according to local recycling or waste regulations;
- 将电池置于儿童能接触的范围之外，使用之前不得将电池原包装移除，应根据当地的回收或废弃物法规及时处理废旧电池；
- If you need to replace the battery, use the battery produced by the same manufacturer, and use the battery provided by another manufacturer There may be a risk of fire and explosion.
- 如需更换电池，应使用同一制造商生产的电池，使用其他制造商提供的电池可能存在起火和爆炸的风险；
- Do not put the battery in water or get it wet.
- 勿将电池投入水中或将其弄湿；
- Do not contact the positive and negative electrodes of the battery with the metal shell at the same time;
- 勿将电池正负极与金属壳体同时接触；
- Do not short circuit, overcharge or overdischarge the battery;
- 勿将电池短路、过充或过放；

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- Do not use or store batteries near heat sources such as fire or heaters.
- 勿在热源(如火或加热器)附近使用或贮存电池;
- Do not connect the positive and negative electrodes of the battery inversely;
- 勿将电池正负极接反;
- Do not place batteries with coins, metal ornaments or other metal objects.
- 勿将电池与硬币, 金属饰品或其它金属物品放置在一起;
- Do not Pierce the battery shell with nails or other sharp objects. Do not hammer or pedal the battery.
- 勿用钉子或其它尖锐物体刺穿电池壳体, 禁止锤击或脚踏电池;
- Do not weld the battery directly
- 勿直接焊接电池;
- Do not remove or trim the battery in any way without authorization
- 勿擅自以任何方式拆卸或修整电池;
- Do not hit, throw or cause the battery to be subjected to mechanical vibration and natural drop
- 勿撞击、投掷或者使电池受到机械震动及自然跌落;
- Do not mix different types and brands of lithium-ion batteries
- 勿将不同种类、不同品牌的锂离子电池混合使用;
- Do not connect the negative pole to the housing (positive electrode)
- 勿将负极柱与壳体(正电性)相连;
- If the battery gives off peculiar smell, heat, deformation, discoloration or any other abnormal phenomenon, do not use it and remove the battery from the operating environment
- 如果电池发出异味、发热、变形、变色或出现其它任何异常现象时不得使用并将电池转移出使用环境;
- If the battery catches fire, extinguish it with dry powder, foam extinguisher, or sand and keep it away from the environment.
- 如果电池起火, 需用干粉、泡沫灭火器、沙子等熄灭并远离使用环境。

14 . Shipment status 出货状态

If the customer has no special requirements and does not use the aircraft transportation, the battery is delivered with about 30%~50% power.

客户若无特殊要求且不使用飞机运输时, 电池出厂时具有 30%~50%左右的电量。

15 . Amendment of this Specification 产品规格书的修订

Supplier has the right to amend the specification of this product, and will inform the customer before amending.

供应商有权对本产品规格书进行修订, 在对产品规格书修订前供应商将会通知客户。

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16.Physical drawing of battery 电池实物图 (For reference only 仅供参考)

