佳利亚实业香港有限公司

聚合物锂离子可充电电池

产品规格书

JIALIYA INDUSTRY HONGKONG LTD.,

POLYMER LITHIUM-ION RECHARGEABLE BATTERY

SPECIFICATION

型　　号 MODEL : **3.2V100Ah**

客户名称 CUSTOMER: _____

客户确认 CONFIRMATION: _____

日　　期 DATE : **June-03-2014**

制定 DARFT	审核 CHECKED	批准 APPROVED
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目录 Content

1.适用范围 Scope

本产品规格书描述了佳利亚实业香港有限公司（以下简称佳利亚）生产的可充电聚合物锂离子电池的产品性能指标。

This specification describes the product performance of the Polymer Li-ion rechargeable batteries, which is manufactured by Jialiya Industry HongKong LTD,.

2.型号 Model：3.2V100Ah

3.尺寸 Dimension：(50% SOC)

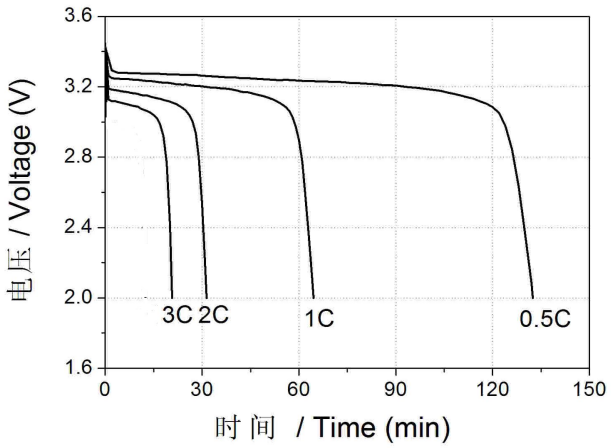
项目 Item	描述 Description	尺寸 Dimensions
T	厚度 Thickness	46 mm max
W	宽度 Width	182 mm max
L	长度 Length	295 mm max

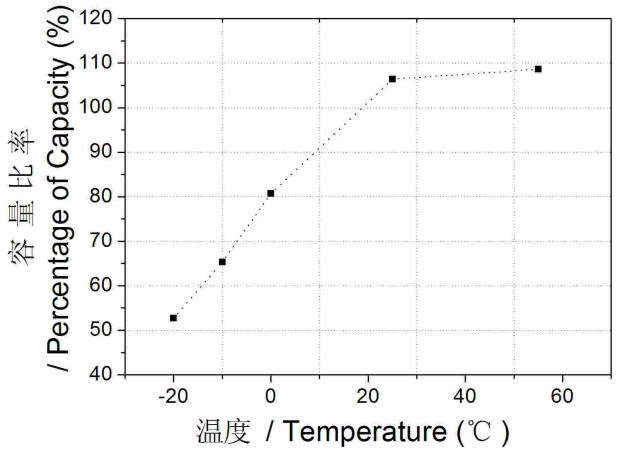
4.规格 Specifications：

NO	项目 Item	规格 Specification
1	标称容量 Nominal capacity	100Ah 0.3C（30000mA）放电 discharge
2	标称电压 Nominal voltage	3.2 V
3	内阻 Impedance	≤0.7 mΩ 半电态下用交流法测试内阻 Internal resistance measured at AC 1KHZ after 50% SOC
4	充电截止电压 Charge cut-off voltage	3.65V
5	放电截止电压 Discharge cut-off voltage	2.3V
6	标准充电 Standard charging	0.3C 恒流（CC）充电至 3.65V，再恒压 3.65V（CV）充电直至充电电流≤0.02C Constant current at 0.3C with max. voltage of 3.65V and cut-off current at 0.02C
7	标准放电 Standard discharging	0.3C 恒流（CC）放电至 2.3V Constant current at 0.3C with min. voltage of 2.3V
8	最大(快速)持续充电电流 Max.(rapid)continuous charge current	100Amps
9	最大放电电流 Max. discharge current	200Amps
10	充电时间 Charging time	标准充电：1h（参考值）Standard charge：1h（reference）
11	工作温度 Operating temperature	充电Charge：0°C ~ 45°C 放电 Discharge：-20°C ~ 60°C
12	储存温度 Storage temperature	小于三个月：-10°C ~ 45°C Less than 3 months：-10°C ~ 45°C 小于一年：-10°C ~ 25°C Less than 1 year：-10°C ~ 25°C
13	储存湿度 Storage humidity	60±25%RH

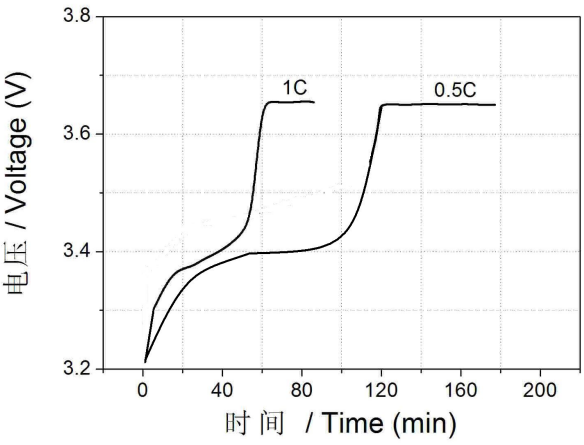
14	电池重量 Cell Weight	约 Approx：3.3 kg

5. 特征曲线图 FEATURE CURVE

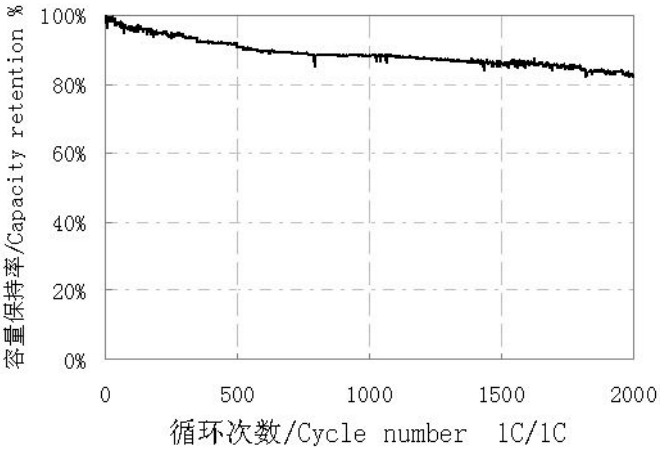




不同倍率放电曲线
Discharge Curve Of Different Rate



不同温度放电容量
Discharge Curve Of Different Temperature



不同倍率充电曲线
Charge Curve Of Different Rate

循环寿命曲线
Life Cycle curve

6.电池性能 Battery Performance

6.1 电性能 Electrical characteristics

序号 NO.	项目 Item	标准 Requirements	测试方法 Test Method
1	倍率放电性能 Rate Discharge Performance	放电容量/标称容量×100% Discharge Capacity/Nominal capacity×100% 0.3C≥100% 1.5C ≥95%	a)在 1 标准大气压，环境温度 25℃±5℃，相对湿度为 45%～80%的条件下，电池 0.3C 标准充电后，以 0.3C/1.5C 电流放电,直到放电终止电压 2.0V 或企业技术条件中规定的放电终止电压。 a).Standard charge at 0.3C under the condition of normal atmospheric pressure, the environmental temperature 25±5℃ and the relative humidity 45%～80% , then discharge at 0.3C/1.5C to 2.0V or other cut-off voltage which is specified in the technical document of the company. b)以放电电流值和放电时间数据计算容量（以 Ah 计），并表达为额定容量的百分数。（循环三次，当有一次达到标准，即达到标准要求） b）the capacity(AH)=the discharge time（hour）*discharge current（A）, and is described as the percentage of the actual capacity and the nominal capacity (Charge/discharge cycle can be repeated for 3 times before meeting the Standards，the same below）.
2	高低温放电性能 High-low Temperature Discharge performance	放电容量/标称容量×100% Discharge Capacity/Nominal capacity×100% A) 55℃时≥95%; B) -20℃时≥50%;	电池标准充电后，在 55±2℃条件下恒温搁置 5h（在-20±2℃条件下恒温搁置 20h），以 0.3C 电流放电，直到放电终止电压 2.0V 或企业技术条件中规定的放电终止电压，用电流值和放电时间数据计算容量（以 Ah 计），并表达为额定容量的百分数。 After Standard charging， store it at the constant temperature of 55±2℃ for 5h（-20±2℃ for 20h）, then discharge at 0.3C to 2.0V or other cut-off voltage which is specified in the technical document of the company, the capacity(AH)= the discharge time（hour）*discharge current（A）, and is described as the percentage of the actual capacity and the nominal capacity
3	荷电性能与容量恢复性能 Charge Retention and capacity recovery performance	剩余容量≥标称容量*90% Charge Retention ≥Nominal capacity*90% 恢复容量≥标称容量*95% Recoverable capacity ≥Nominal capacity *95%	A．电池标准充电后，开路放置 28 天（55℃±2℃下贮存 7 天），以 0.3C 放电至 2.0V 或企业技术条件中规定的放电终止电压，测量电池的剩余容量；0.3C /0.3C 测量电池的恢复容量，可循环三次，当有一次达到标准，即达到标准要求。 Store for 28 days（Store for 7 days at the constant temperature of 55±2℃） after standard charge, then measure final status and residual capacity at 0.3C to 2.0V or other cut-off voltage which is specified in the technical document of the company; After charge/discharge(0.3C/0.3C) cycle recoverable capacity will be tested. Charge/discharge cycle can be repeated for 3 times before meeting the Standards.
4	贮存性能 Storage performance	恢复容量≥标称容量*95 %（recoverable capacity ≥nominal	电池标准充电后搁置 1h，以 0.3C 放电 2h，在 25℃±5℃储存 90 天；标准充电后,以 0.3C 放电，此充放电最多可循环 5 次，有一

		capacity *95％）	次达到要求即可。 Standard charge and then rest for 1h,then discharge for 2h at 0.3C;storge for 90 days at 25℃±5℃;After standard charge, discharge at 0.3C, Charge/discharge cycle can be repeated for 5 times before meeting the Standards
5	循环寿命 Cycle Life	容量≥标称容量*80％ Discharge Capacity ≥Nominal capacity*80％	进行 0.3C 充/0.3C 放循环，2000 次循环后，测量电池容量。 0.3C/0.3C cycle for 2000 times .The discharge capacity shall be measured after 2000 cycles.

6.2 安全性能 Safety Performance

序号 NO.	项目 Item	标准 Requirements	测试方法 Test Method
1	过充性能 Over charge	不起火、不爆炸 No fire， no explosion	标准充电后，以 3C 电流充电至 10V 结束试验。 After standard charging，Charge at 3C to 10V
2	过放性能 Over discharge	不起火、不爆炸 No fire， no explosion	标准充电后，电池在 25℃±5℃下；以 0.3C 电流放电，直至电池电压 0V。 After standard charging，Discharge at 0.3C to 0V at 25±5℃
3	短路性能 Short Circuit at Room Temperature	不爆炸、不起火 No fire， no explosion	电池标准充电后，置于防爆玻璃罩中直接短路其正负极（线路总电阻不大于 5mΩ）10min，试验结束。 After standard charging, Put the battery into a ventilation explosion-proof cabinet and short-circuit the positive and negative terminals directly (general resistance shall be less than or equal to 5mΩ) for 10 minutes.
4	跌落性能 Drop	电池不起火、不爆炸、不漏液 No fire, no explosion., No leakage	电池标准充电后，将电池样品由高度(最低点高度)1.5m 的位置自由跌落到 20mm 厚的硬木板上，每个面 1 次。 After standard charging, let itself fall off from a height of 1.5m (the lowest height) to a rigid wooden board with a thickness of 20mm. The drop is implemented one time for every face.
5	热冲击安全性能 Thermal Shock	不起火、不爆炸 No fire, no explosion	电池标准充电后，放置于 85±2 ℃恒温箱中保持 2h。 After standard charging， keep the battery in the oven with a constant temperature of 85 ±2 ℃ for 2 hours.

6	挤压 Crush	不起火、不爆炸 No fire, no explosion	电池标准充电后，放在支座上,1.挤压方向：垂直于蓄电池极板方向施压。2.挤压头面积：不小于 20cm²。3.挤压程度：直至蓄电池壳体破裂或内部短路（蓄电池电压变为 0V） After standard charging, put the battery on the bracket,1. Extrusion direction: Perpendicular with the direction of the battery plates. 2. Extrusion contact area :≥20cm². 3. Extrusion degree: Until the battery shell ruptured or internal short circuit (battery voltage becomes 0V)
7	针刺性能 Needle puncture performance	不爆炸、不起火 No fire，no explosion	电池标准充电后，放在支座上,用φ3mm～φ8mm 的耐高温钢针、以 10-40mm/s 的速度，从电池的最大平面靠近中心的部位快速完全刺穿电池. After standard charging, put the battery on the bracket ,penetrate through it with a 3mm ～ 8mm diameter nail near the center of its biggest surface at the speed of 10mm/s-40mm/s.

备注：以上标准中的一些术语的定义：

Comments：The definitions of some nomenclatures of this specification.

（1）标准充电：在环境温度 25℃±5℃的条件下，以 0.3C 充电，当电池端电压达到充电限制电压 3.65V 时，改为恒压充电，直到充电电流小于或等于 0.02C 后停止充电
Standard charge：Charge with current 0.3C to limit charge voltage 3.65V under the condition of 25℃±5℃， then charge with constant voltage of 3.65V till the current less than or equal to 0.02C.

（2） 剩余容量：电池经过特定的检测程序后的首次放电容量。
Residual Capacity: The first discharge capacity after being tested by specific procedure.

（3） 标准循环：电池 0.3C 标准充电后，搁置 10min，以 0.3C 放电至 2.0V
Standard Cycle：After standard charge at 0.3C, rest for 10min, then discharge at 0.3C to 2.0V.

（4） 恢复容量：电池经过特定的检测程序后，通过反复充放电使状态恢复后的放电容量。
Recovery Capacity: The discharge capacity by implementing charge-discharge cycle repeatedly after being tested by the specific procedure.

（5） 用于上述测试的电池必须是交货一个月内的电池，除非另有规定。
Test should be conducted with new batteries within one month after shipment from our factory， Unless otherwise specified.

7.外观检查 Visual Inspection

不允许有任何影响电池性能的外观缺陷，如裂纹、裂缝、泄漏等。
There shall be no such defects as scratch, flaw, crack, and leakage, which may adversely affect battery performance.

8.标准测试环境 Standard test environment

除非特别说明，本规格书中所有测试均在以下环境条件下进行：
Unless otherwise specified, all tests defined in this Product Specification are conducted at below condition:

温　度：25±5℃　　Temperature: 25±5℃
湿　度：25-85％RH　　Humidity: 25-85％RH
大气压：86KPa～106 kPa　Atmosphere pressure : 86KPa～106 kPa

9.储存及其它事项 Storage and Others

9.1 长期储存 Long Time Storage

长期储存的电池须置于干燥、凉爽处。每3个月对电池进行一次充放电，储存电压为≥3.32V且储存环境要求参照第4项。

If the cell is stored for a long time，the cell should be stored in drying and cooling place. The cell should be charged and discharged every 3 months The cell's storage voltage should ≥ 3. 32V and the cell is to be stored in a condition as NO.4

9.2 其它事项 Others

任何本规格书中未提及的事项，须经双方协商确定。

Any matters that this specification does not cover should be consulted between the customer and JIALIYA.

10. 保质期及产品责任 Warranty Period& Product Liability

保质期是从出厂日期（喷码）开始计算

Warranty period of this product start at the release date (manufacturing code).

佳利亚公司对因没有按本规格书规定操作而导致的意外不负责任，本规格书内容因提高产品质量或升级相关技术参数而变更，佳利亚公司会通知购买方。

JIALIYA is not responsible for the troubles caused by mishandling of the battery which is clearly against the instructions in this specification. If the contents of this specification is changed because improving product quality or upgrading technical parameters, JIALIYA will inform the buyer..

11.电芯操作注意事项 Notice of Handling of Cells

由于电芯属于软包装，为保证电芯的性能不受伤害，必须小心对电芯进行操作。

Since the battery is packed in flexible package,to ensure cells against damage, you should carefully handle the battery.

11.1 铝箔包装材料 Soft aluminum foil packing

铝箔包装材料易被尖锐部件刺损，诸如镍片，尖针。.

The soft aluminum foil packing is very easily damaged by sharp edge parts such as Ni-tabs and needles.

- 禁止用尖锐部件碰撞电池
- Don't strike battery with any sharp edge parts
- 应清洁工作环境，避免有尖锐部件存在
- Clean work environment to make sure no any sharp component

11.2 顶封边 Top sealed edge

顶封边非常容易受到损害。Sealing edge is very easy to be damaged

- 禁止弯折顶封边。Don't bend or fold sealing edge

11.3 折边 Folding edge

折边在电池生产过程中已完成，并通过了密封测试。

The folding edge is formed in battery production process and passed all hermetic test

- 禁止打开或破坏折边。Don't open and deform folding edge

11.4 极耳 Tabs

极耳的机械强度并非异常坚固，特别是铝片

The battery tabs are not so firm especially the aluminum tab

- 禁止弯折极耳。Don't bend tab

11.5 机械撞击 Mechanical shock

- 禁止坠落、冲击、弯折电芯。Don't drop, hit, bend battery body

11.6 短路 Short circuit

- 任何时候禁止短路电芯，它会导致电芯严重损坏。
- Short circuit of battery is strictly prohibited at any time, it may damage battery very badly.

11.7 电池外壳设计注意事项 Notice of Designing Battery Pack

- 电池外壳应有足够的机械强度以保证其内部电芯免受机械撞击。

  The outer shell of the Battery should have sufficient strength and cell should be protected from mechanical shock.

- 外壳内安装电芯的部位不应有锋利的边角。
- No Sharp edge components should be inside of the outer shell.

11.8 电芯的连接 Cell connection

- 建议使用超声波焊接或点焊技术来连接电芯与保护电路模块或其它部分。
  Ultrasonic welding or spot welding is recommended to connect battery with PCM or other parts
- 如使用手工锡焊，须注意以下事项，以保证电芯的功能：
  If apply manual solder method to connect tab with PCM, below notice is very important to ensure battery performance

a. 烙铁的温度可控且防静电；
   The temperature of the solder iron should be controlled and static-proof
b. 烙铁温度不能超过 350°C；
   The Soldering temperature should not exceed 350°C
c. 锡焊时间不能超过 3 秒：
   Soldering time should not be longer than 3s
d. 锡焊次数不能超过 5 次；
   Soldering times should not exceed 5 times
e. 必须在极片冷却后再进行二次焊接；
   Keep the battery tab cold down before the next time soldering
f. 严禁直接加热电芯，高于 80°C 会导致电芯损坏。
   Directly heat cell body is strictly prohibited, Battery may be damaged by heat above approx 80°C.

12. 电池使用时警告事项及注意事项 Warnings and Cautions in using the battery

为防止电池可能发生泄漏、发热，请注意以下事项：
To prevent the possibility of the battery from leaking, fever, please observe the following precautions:

警　　告 ！ WARNINGS!

- 使用规定的充电器
- Use the battery charger specifically for that battery when recharging.
- 不要将电池投入火中或加热
- Do not discard the battery in fire or a heat.
- 不要将电池分解拆散
- Do not dismantle the battery
- 严禁将电池浸入海水或水中,保存不用时,应放置于阴凉干燥的环境中.
- Do not immerse the battery in water or seawater, and keep the battery in a cool dry surrounding if it stands by.
- 禁止将电池在高温源旁（如火、加热器等）使用和留置.
- Do not use or leave the battery near a heat source such as fire or heater.
- 充电时请选用锂离子电池专用充电器.
- Please choose lithium-ion battery charger when charging.
- 严禁颠倒正负极使用电池.
- Do not reverse the positive and negative terminals.
- 严禁将电池直接插入电源插座.
- Do not connect the battery to an electrical outlet.
- 禁止用金属直接连接电池正负极短路.
- Do not short-circuit the battery by directly connecting the positive and negative terminals with metal objects.
- 禁止将电池与金属,如发夹、项链等一起运输或贮存.
- Do not transport or store the battery together with metal objects such as hairpins, necklaces, etc.

- 禁止敲击或抛掷、踩踏电池等.
- Do not strike, trample or throw the battery.
- 禁止直接焊接电池和用钉子或其它利器刺穿电池.
- Do not directly solder the battery and pierce the battery with a nail or other sharp objects.

小　　心！CAUTIONS!

- 禁止在高温下（炙热的阳光下或很热的汽车中）使用或放置电池,否则可能会引起电池过热、或功能失效、寿命减短.

  Do not use or leave the battery at high temperature (for example, in strong direct sunlight or in a vehicle in extremely hot weather). Otherwise, it can be overheated or its performance will be degenerate and its service life will be decreased.
- 禁止在强静电和强磁场的地方使用,否则易破坏电池安全保护装置,带来不安全的隐患.

  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.
- 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,否则会伤害眼睛.

  If the battery leaks, and the electrolyte get into the eyes, do not rub the eyes, instead, rinse the eyes with clean water, and immediately seek medical attention. Otherwise, it may injure eyes.

  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.

  If the battery gives off an 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.

  如果电极弄脏,使用前应用干布抹净,否则可能会导致接触不良功能失效

  In case of the battery terminals are dirty, clean the terminals with a dry cloth before use. Otherwise performance may degenerate due to the poor connection with the instrument.
- 废弃电池应用绝缘纸包住电极,以防短路、泄露。

  Be aware that discarded batteries may cause short circuit or leak, tape the battery terminals to insulate them.