



PRODUCT SPECIFICATION

DOC NO.: JL-PS-RD-2202

REV. : A0

SHEET : 1 of 11

规格承认书

Specification Approval Sheet

客户名称 Customer Name: _____

型号名称 Model Name: SDHJ-IFP-32135-15Ah

签发日期 Issuing Date: _____

编制 Prepared	审核 Checked	批准 Approved

客户承认 Customer Approval	签名 Signature	日期 Date

苏州时代华景新能源有限公司

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目录 CONTENTS

1 适用范围 Scope	4
2 种类和型号 Description and Model	4
3 规格描述 Specifications	4
4 外形、尺寸和外观 Shape & Dimension & Appearance	5
5 标准测试条件 Standard Test Condition	5
6 测试方法及其标准 Test Procedure and its Standard	6
7 安全测试标准 Safety Criteria for Acceptance	7
8 单体电池特征曲线图 (Charge and discharge curve)	9
9 自放电 Self Discharge	9
10 电池出货前充电状态 Charge State of Battery Before Shipment	9
11 RoHS 要求 RoHs compliance	9
12 电池使用时警告及注意事项 Notice and warning items using the battery	9
13 单体电池尺寸图 Dimension & Drawing for single battery	11



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DOC NO.: JL-PS-RD-2202

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SHEET : 4 of 11

电池规格书 Battery Specification

1 适用范围 Scope

本规格书适用于苏州时代华景新能源有限公司供的可充电圆柱形锂离子电池。

This specification is to provide technical information for the rechargeable Lithium-ion cell SDHJ-IFP32135-15Ah, and supplied by Suzhou ShiDaiHuaJing new energy Co., Ltd

2 种类和型号 Description and Model

2.1 种类 Description 可充电锂离子电池 Rechargeable Lithium-ion cell

3 规格描述 Specifications

NO.	项目 Item	规格 Specifications
1	型号 Model	SDHJ-IFP32135-15Ah
2	标称容量(0.5C ₁ A) Standard capacity for battery system	15Ah @ 2.0V-3.65V
4	标称电压(工作电压) Rated voltage(Work Voltage)	3.2V
5	上限充电电压 Max. Charge voltage	3.65V
6	放电截至电压 Cut-off voltage	2.0V
7	最大充电电流 Max. Charge current	15A (1.0C ₁ A)
8	标准充电电流 Standard charge and discharge current	7.5A (0.5C ₁ A)
9	标准放电电流 Standard discharge and discharge current	7.5A (0.5C ₁ A)
10	最大持续放电电流 Max continuous discharge current	45A (3.0C ₁ A)
11	最大间隙放电电流 (30S) Maximum gap discharge current (30S)	90A (6C ₁ A)
12	重量(包含外壳重) Weight (including shell)	305±15g
13	内阻 Internal Impedance(Max, at 1000Hz)	≤3.0 mΩ
14	标准充电方法 Standard Charge method	0.5C恒流充电至3.65V后, 恒压3.65V充电至电流≤0.05C截止 0.5C CC charge to 3.65V, 3.65V CV charge to 0.05C cut-off
15	操作温度 Operate temperature	充电 charge 0℃~45℃
		放电 discharge -20℃~60℃
		储存 storage -10℃~45℃

Remark: **CC**----Constant Current **CV**----Constant Voltage **SOC**---- State of Charge

4 外形、尺寸和外观 Shape & Dimension & Appearance

4.1 外形、尺寸 Shape & Dimension

参考单体电池尺寸图 Refer to Monomer Dimension Drawing

4.2 外观 Appearance

外观不得有变形及裂纹，表面无毛刺、干燥、无外伤、无污物，且宜有清晰、正确的标示

Free from any deformation, crack, nor burr, scratch, stain on the surface of the battery, The battery need to mark clearly and properly and keep dry.

5 标准测试条件 Standard Test Condition

5.1 环境状况 Environmental Conditions

除非另有说明，所有测试必须在递交后一个月内，在环境温度为 $25\pm 5^{\circ}\text{C}$ ，相对湿度15~90%，大气压力为86Kpa~106Kpa条件下进行。

Unless otherwise specified, all tests shall be conducted within one month of delivery at the temperature Of $25\pm 5^{\circ}\text{C}$, the relative humidity of 15~90% and the atmospheric pressure of 86~106Kpa.

5.2 测试设备 Test Equipments

5.2.1 电流表和电压表 Ammeter and voltmeter

电压及电流测量装置不低于0.5级。

The ammeter and voltmeter shall have an accuracy of not less than grade 0.5 respectively.

5.2.2 游标卡尺 Slide caliper

游标卡尺要符合JIS B7507标准(游标卡尺)和0.01mm度数。

The slide caliper shall meet with JIS B7507 standard (slide caliper) and have a scale of 0.01mm.

5.2.3 内阻仪 Impedance meter

内阻测试仪测试频率为交变电流1KHz The impedance meter shall be operated at 1 kHz.

6 测试方法及其标准 Test Procedure and its Standard

3	项目 Item	测试程序 Measuring Procedure	标准 Standard
1	外观 Appearance	目视 Visual	无损坏、无漏液 No Defects and Leakage
2	尺寸 Dimension	用卡尺测量 Caliper for dimension	依照4项 As item 4
3	重量 Weight	天平 Balance	依照3.10项 As item 3.10
4	开路电压 Open Circuit Voltage	电压表 Voltmeter	3.2~3.3V
5	初始内阻 Initial Internal Impedance	在交流1KHz条件下测试内阻 Measure the AC impedance at 1kHz	≤3.0mΩ (30% SOC)
6	放电容量 Discharge Capacity	在25±2℃条件下，电池标准充电结束后，按标准要求放电。 Follow standard discharge after standard charge, at 25±2℃	≥14.5Ah
7	循环寿命(25±2℃，每次循环之间静置10分钟) Cycle Life (25±2℃, Rest for 10 min between each cycle.)	充电：以0.5C恒流充电至3.65V，恒压3.65V充电至截止电流0.05C； Charge: 0.5C CC to 3.65V, 3.65V CV charge to 0.05C cut-off; 放电：以0.5C恒流放电至2.0V。 Discharge: 0.5CCC discharge to 2.0V	首次放电容量≥标称容量 第1500次放电容量≥80%初始容量 ≥100%Min capacity @ 1 cycle. ≥80%Initial capacity @ 1500 cycles
8	漏液测试 Leakage Test	在60±2℃和85±5%湿度下，电池完全充电后储存7天。 The battery which is fully charged shall be stored at 60±2℃ and 95±5% RH for 7 days.	无漏液 No leakage.
9	高/低温放电特性(充满电后55℃保持5小时或-10℃保持20h) H/L Temp. Characteristic (Hold for 5h@55℃ or 20h@-10℃ after full charging)	充电：在25±2℃环境下，以0.5C恒流恒压充电至3.65V，截止电流0.05C； Charge:0.5C CC to 3.65V, 3.65V CV charge to 0.05C cut-off at 25±2℃ 放电：-10±2℃环境下，1C恒流放电至1.8V；55±2℃环境下，1.0C恒流放电至2.0V Discharge: 1C CC discharge to 1.8V at -10±2℃；1.0C CC discharge to 2.0V at 55±2℃.	放电容量保持率： Discharge capacity rate: ≥70%Min Capacity -10±2℃ ≥90%Min Capacity 55±2℃.



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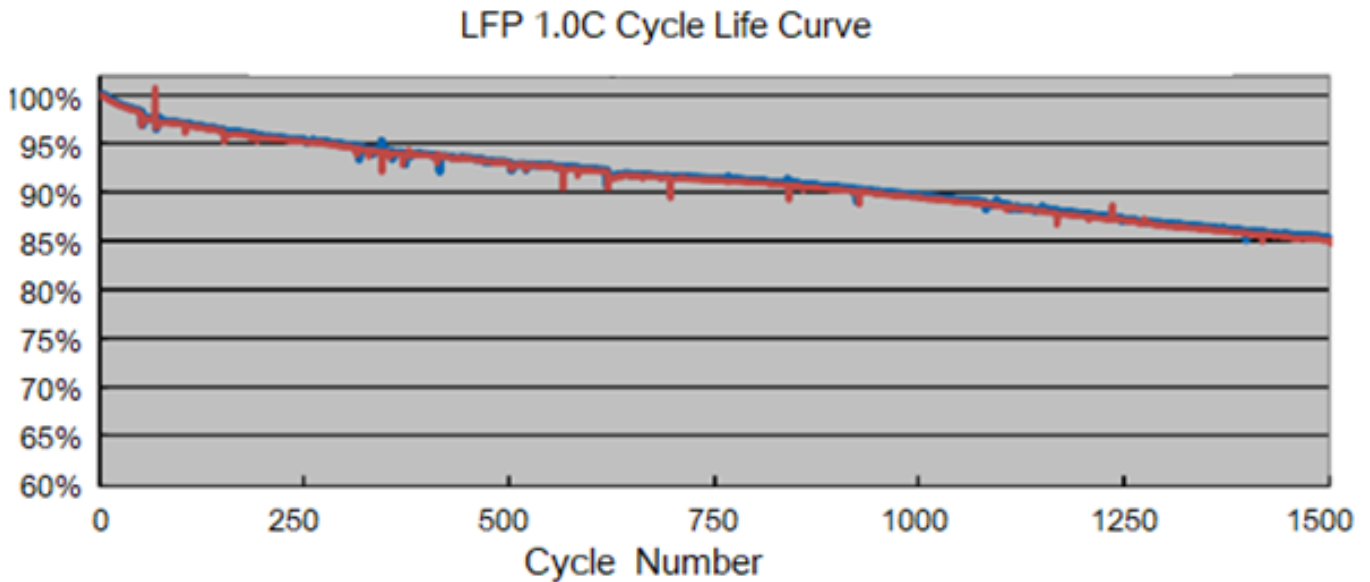
DOC NO.: JL-PS-RD-2202
 REV. : A0
 SHEET : 7 of 11

7安全测试标准 Safety Criteria for Acceptance

项目Item	电池状态State	测试方法Test method	标准 Standard
外部短路测试 External Short Test	满电 Fully Charged	在室温下，电池正、负极两端用一根内阻小于100毫欧的导线连接短路10min，观察1小时。 Battery terminals are short-circuited with a resistance of less than 100mΩ for 10minutes. Observe 1 hour. Tests are to be conducted at room temperature.	不爆炸，不起火 NO EXPLOSION AND NO FIRE.
过放测试 Over-Discharge Test	满电 Fully Charged	电池标准充电结束后，以1C电流放电90分钟,观察1小时。 1C CC discharge for 90minutes after standard charge , Observe 1 hour.	不爆炸，不起火，不漏液 NO EXPLOSION NO FIRE AND NO LEAKAGE
热冲击 Heating Test	满电 Fully Charged	将温度箱的温度以5°C/min的速度升温至130°C±2°C，在130 °C下保持30min，观察1小时 Put the battery into an oven at RT, and increase the temperature at a rating of 5°C/min to 130±2°C, after the oven temperature reached to 130°C±2°C, maintain for 30 minutes at that temperature before the test is discontinued. , Observe 1 hour.	不爆炸，不起火 NO EXPLOSION AND NO FIRE.
挤压测试Crush Test	满电 Fully Charged	电芯放置于两个平板之间，以13kN的压力进行测试并保持30分钟。 Crush between two flat plates. Applied force is about 13kN, Observe 30min.	不爆炸，不起火 NO EXPLOSION AND NO FIRE.
针刺测试 Nail Test	满电 Fully Charged	用φ3mm钢针（针表面光洁、无锈蚀、油污等），以(25±5)mm/s速度，从垂直于电池极板方向贯穿，贯穿位置宜靠近所刺面的几何中心，钢针停留在蓄电池中，观察1小时 A nail is penetrated vertically through the center of the battery at a speed of (25±5)mm/s and left for over 1h, The diameter of the nail is 3mm, the surface of the nail is free, no stain and rust. Observe 1 hour.	不爆炸，不起火 NO EXPLOSION AND NO FIRE.

项目Item	电池状态State	测试方法Test method	标准 Standard
跌落测试 Drop Test	满电 Fully Charged	将一个充满电的电池正负端子朝下，从1.5米高自由跌落到水泥地面上，观察1小时。 Drop a fully charged battery with positive and negative electrode towards down onto a concrete floor from a height of 1.5 meters, Observe 1 hour	不爆炸，不起火，不漏液 NO EXPLOSION NO FIRE AND NO LEAKAGE
过充测试 Overcharge Test	满电 Fully Charged	以1C电流恒流充电至电压达到4.0V，恒压充电至电流达到0mA后停止充电。 1C CC Charge to 4.0V，40V CV charge to 0mA cut-off.	不爆炸，不起火 NO EXPLOSION AND NO FIRE.
海水浸泡测试 Saltwater Immersion Test	满电 Fully Charged	将单体蓄电池浸入3.5% NaCl溶液中2小时，水深需完全没过单体蓄电池。 Immerse the whole battery into NaCl solution of 3.5% for 2hours.	不爆炸，不起火 NO EXPLOSION AND NO FIRE.
低气压测试 Low Pressure Test	满电 Fully Charged	单体电池放入低气压箱中，调节试验箱中气压为11.6kPa，温度为室温，静止6小时，观察1小时。 Sample battery are to be stored for 6 hours at an absolute pressure of 11.6 kPa and a room temperature, Observe 1 hour	不爆炸，不起火，不漏液 NO EXPLOSION NO FIRE AND NO LEAKAGE
温度循环测试 Temperature Cycling Test	满电 Fully Charged	60分钟内降温至-40℃并保温90分钟、60分钟内升温至25℃、90分钟内升温至85℃并保温110分钟、70分钟内降温至25℃。循环5次后观察1小时。 Reducing the chamber temperature to -40℃ within 60 minutes and maintaining this temperature for 90 minutes, Raising the chamber temperature to 25 °C within 60minutes, Raising the chamber temperature to 85℃ within 90minutes and maintaining this temperature for 110 minutes, Reducing the chamber temperature to 25℃ within 70minutes. Repeating the sequence for a further 4cycles, Observe 1 hour	不爆炸，不起火，不漏液 NO EXPLOSION NO FIRE AND NO LEAKAGE

8 单体电池特征曲线图 (charge and discharge curve)



9 自放电 Self Discharge

储存30天后，在相同温度 $25\pm 2^{\circ}\text{C}$ 和相对湿度 $65\pm 20\%$ 条件下进行测量，剩余容量应超过初始容量的90%。

The residual capacity should be $\geq 90\%$ of the initial capacity. The capacity after 30 days storage, measured under the same conditions as $25\pm 2^{\circ}\text{C}$ and relative humidity $65\pm 20\%$ environmental test conditions.

电池充满电后，测量电池初始容量，然后再将电池充满电；按要求储存电池后，测量电池的剩余容量。

Data is collected by fully charging the battery, measuring the initial capacity (discharging), recharging the battery, storing the battery, and then measuring the residual capacity after storing.

10 电池出货前充电状态 Charge State of Battery Before Shipment

电池出货前充电至大约10%的容量，电压控制在3.2V~3.3V。电池出厂一个月内测试容量和电压应符合 以上要求。

The battery is charged to approximately 50% of minimum capacity. Voltage is 3.20V~3.30V. This measuring test should be performed within one month after shipment from our factory.

11 产品部件符合RoHS要求RoHs compliance is for all parts.

12 电池使用时警告及注意事项(Notice and warning items using the battery)

为防止电池可能发生泄漏,发热、爆炸,请注意以下预防措施：

In order to prevent the battery leaking, getting hot and exploding, please pay attention to preventing measure as following:

警告 ! (Warning !)

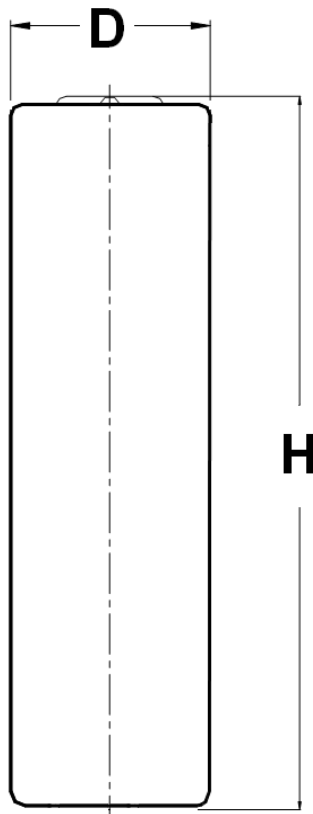
- 严禁将电池浸入海水或水中,保存不用时,应放置于阴凉干燥的环境中 ;
Never throw the battery into water, keep it under dry, shady and cool circumstance when not use.
- 禁止将电池在热高温源旁,如火、加热器等使用和留置 ;
Never keep the battery beside high temperature source examples: fire, heating machine,ect.
- 充电时请选用锂离子电池专用充电器 ;
Please use the stated charger when charging.
- 严禁颠倒正负极使用电池 ;
Never upside down the positive and negative.
- 严禁将电池直接插入电源插座 ;
Never cut the battery in socket directly
- 禁止将电池丢于火或加热器中 ;
Never throw the battery into fire or heating machine.
- 禁止用金属直接连接电池正负极短路 ;
Never connect the positive and negative of battery with metal.
- 禁止将电池与金属,如发夹、项链等一起运输或贮存 ;
Never ship or store the battery together with metal
- 禁止敲击或抛掷、踩踏电池等 ;
Never knock, throw or trample the battery.
- 禁止直接焊接电池和用钉子或其它利器刺穿电池 ;
Never cut through the battery with nail or other edge tool.

注意 ! (Warning !)

- 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。
Never use the battery under strong static and strong magnetic field, otherwise it will destroy the protecting device
- 若电池发生泄露,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 battery leaked, the electrolyte get into eyes, please don't knead, please wash eyes by water and send to hospital. Otherwise it will hurt 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 battery emit peculiar smell, heating, distortion or appear any unconventionality during using, storage or charging process, please take it out from device or charge and stop using.
- 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。
If the pole was duty, please clear it before using.
- 废弃之电池应用绝缘纸包住电极,以防起火、爆炸。
Please encase the pole with insulating paper when you want to abandon the battery to prevent exploding and getting into fire.

13 电池尺寸图(无比例) Dimension & Drawing for battery (without scales)

Items项目	Description描述	Dimension and Spec尺寸和规格
D	Diameter 直径	32.5mm max
H	Height 高度	136.0mm max
	Caps盖帽	Plane平头



电芯配组标准：△容量≤1%标称容量，△V≤10mV，△内阻≤0.3mΩ