



深圳市晨木实业有限公司
SHENZHEN CHENMU INDUSTRIAL CO., LTD.

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REV. : A
PAGE: 1 of 6

规格承认书 APPROVAL SHEET

客户:

CUSTOMER _____

品名:

DESC. ICR18650-2500MAH 3.7V

| 承认单位 DEPT. | 采购部 PURCHING | 品管部 QC | 研发部 R&D | 零件承认章 |
|------------------------|-----------------------|-----------------|---------------|-------|
| 审核 CHECK | | | | |
| 确认 APPROVAL | | | | |
| 审核结果 INSPEC. RESULT | 合格 ACCEPT | | 不合格 REJECT | |
| | 说明: EXPOS. : _____ | | | |
| 样品数量: SAMPLE QTY | 承认书份数: COPIES | 送承认书日期: DATE | | |

深圳市晨木实业有限公司

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(生产商对本规格书如有更改不另行通知)



Content

目录

| | |
|---|---|
| 1.Scope | 3 |
| 适用范围 | |
| 2.Model:ICR-18650-2600..... | 3 |
| 型号 | |
| 3.Specification | 3 |
| 产品规格 | |
| 4.Battery Cell Performance Criteria | 4 |
| 电芯性能检查及测试 | |
| 5.Storage and Others | 5 |
| 贮存及其它事项 | |
| 6.Drawing | 6 |
| 外观尺寸 | |

1.Scope

This document describes the Product Specification of the Lithium (Li) rechargeable battery cell supplied by CHENMU Industrial Corporation Limited).

适用范围

本规格说明书描述了深圳市晨木实业有限公司（以下简称晨木）生产的可充电锂离子电池芯的产品性能指标

2.Model:ICR-18650-2500

型号: ICR-18650-2500

3.Specification

产品规格

| NO. | Items | Specifications |
|-----|-------------------------------------|---|
| 1 | Charge voltage 充电电压 | 4.2V |
| 2 | Nominal voltage 标称电压 | 3.7V |
| 3 | Nominal capacity 标称容量 | 2500mAh @ 0.2C Discharge(放电) |
| 4 | Charge current 充电电流 | Standard Charging 标准充电: 0.2C Rapid charge 快速充电: 0.5C |
| 5 | Standard Charging method 标准充电方法 | 0.2C CC (constant current) charge to 4.2V, then CV(constant voltage 4.2V) charge till charge current decline to $\leq 0.02C$ 0.2C CC (恒流) 充电至 4.2V, 再 CV (恒压 4.2V) 充电直至充电电流 $\leq 0.02C$ |
| 6 | Charging time 充电时间 | Standard Charging: 6.0hours(Ref.) 标准充电: 6.0 小时 (参考值) Rapid charge: 2hours(Ref.) 快速充电: 2.5 小时 (参考值) |
| 7 | Max.charge current 最大充电电流 | 1.0C |
| 8 | Max.discharge current 最大放电电流 | 1.0C |
| 9 | Discharge cut-off voltage 放电截止电压 | 2.75V |
| 10 | Operating temperature 工作温度 | Charging 充电: 0°C~45°C Discharging 放电: -20°C~65°C |
| 11 | Storage temperature 储存温度 | -10°C~ +45°C |
| 12 | Battery Weight 电池重量 | Approx: 50g 约: 50g |
| 13 | Battery Dimension 电池尺寸 | Height 高度: 65.0mm Max (not including tabs) Diameter 直径: 18.3mm Max |

4. Battery Cell Performance Criteria

电芯性能检查及测试

4.1 Electrical characteristics 充放电性能

| NO. | Items | Test Method and Condition | Criteria |
|-----|---------------------------------------|--|---|
| 1 | Standard Charge 标准充电 | Charging the cell initially with constant current at 0.5C and then with constant voltage at 4.2V till charge current declines to 0.02C 先用 0.5C 恒流充电至 4.2V, 再恒压 4.2V 充电直至充电电流 $\leq 0.02C$ | |
| 2 | Rated Capacity 初始容量 | The capacity means the discharge capacity of the cell, which is measured with discharge current of 0.2C with 2.75V cut-off voltage after standard charge. 该容量是指标准充电后, 0.2C 放电至 2.75V 截止电压所放出的容量。 | $\geq 2500mAh$ |
| 3 | Cycle Life 循环寿命 | Test condition: Charge: 0.5C to 4.2V Discharge: 0.5C to 3.0V 70% or more of 1 st cycle capacity at 0.5C discharge of Operation 测试条件: 充电: 0.5C 充电到 4.2V 放电: 0.5C 放电到 3.0V 当放电容量降至初始容量的 60% 时, 所完成的循环次数定义为该电芯的循环寿命 | ≥ 500 |
| 4 | Self-discharge 自放电 | After the standard charging, storied the cells under the condition as No.4.4 for 30 days, then measured the capacity with 0.2C till 2.75V 标准充电后, 在 No.4.4 条件下贮存 30 天, 再以 0.2C 放电至 2.75V 所放出的容量。 | Residual capacity >90% 剩余容量 >90% |
| 5 | Initial impedance 初始内阻 | Internal resistance measured at AC 1KHz after 50% charge 半充状态下, 测量其 AC 1KHz 下的交流阻抗 | $\leq 60m\Omega$ |
| 6 | Battery Voltage 电池电压 | As of shipment. 出货状态 | 3.60V~4.0V |
| 7 | Temperature Characteristics 温度性能参数 | 1. According to item 4.1.1, at $23 \pm 5^\circ C$. 2. Capacity comparison at each temperature, measured with constant discharge current 0.2C with 2.75V cut-off. Percentage as an index of the capacity compared with 100% at $23^\circ C$ 1. 在 $23 \pm 5^\circ C$ 条件下, 用 4.1.1 方法将电芯充电。 2. 在不同温度条件下, 用 0.2C 的电流恒流放电至截止电压 2.75V。以 $23^\circ C$ 时放电容量为基准计算百分比。 | $-20^\circ C$: $\geq 70\%$ $-10^\circ C$: $\geq 90\%$ $23^\circ C$: 100% $60^\circ C$: $\geq 90\%$ |
| 8 | Storage Characteristics 贮存性能参数 | 1. According to item 4.1.1, at $23 \pm 5^\circ C$. 2. The battery shall be stored at $60 \pm 5^\circ C$ for 7 days and rested at room temperature for 1 hour then measured with constant discharge current 0.2C with 2.75V cut-off. 1. 在 $23 \pm 5^\circ C$ 条件下, 用 4.1.1 方法将电芯充电。 2. 将电池在 $60 \pm 5^\circ C$ 条件下贮存 7 天, 然后在常温下静置 1 小时, 用 0.2C 的电流恒流放电至 2.75V 截止电压。 | Retained Capacity $\geq 85\%$ |

4.2 Mechanical characteristics

机械特性

| NO. | Items | Test Method and Condition | Criteria |
|-----|------------------------|---|--|
| 1 | Vibration Test 振动测试 | After standard charging, fixed the cell to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between 10Hz an 55Hz,the excursion of the vibration is 1.6mm.The cell shall be vibrated for 30 minutes per axis of XYZ axes. 将标准充电后的电芯固定在振动台上，沿 X、Y、Z 三个方向各振动 30 分钟，振幅 1.6 mm，振动频率为 10Hz~55Hz，每分钟变化为 1Hz。 | No leakage 无泄漏 No fire 不起火 No explode 不爆炸 |
| 2 | Drop Test 跌落测试 | The cell is to be dropped from a height of meter twice onto concrete ground. 将标准充电后的电芯从 1 米高度跌落至混凝土地面 2 次 | No fire, no leakage. No explode 无起火、 无泄漏、不爆炸 |

4.3 Visual inspection

There shall be no such defect as scratch, flaw, crack, and leakage, which may adversely affect commercial value of the cell.

外观检查

不允许有任何影响电芯性能的外观缺陷，诸如裂纹、裂缝、泄漏等。

4.4 Standard environmental test condition

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

Temperature: 23±5℃

Humidity: 65±20%RH

标准测试环境

除非特别说明，本标准书中所有测试均在以下环境条件下进行：

温度：23±5℃

湿度：65±20%RH

5.Storage and Others

贮存及其它事项

a) Long Time Storage

If the Cell is stored for a long time, the cell's storage should be 3.6~3.9V and the cell is to be stored in a condition as No.4.4.

长期贮存

长期贮存的电池（超过 3 个月）须置于干燥、凉爽处。贮存电压为 3.6~3.9V 且贮存环境要求如 4.4。

b) Others

Any matters that this specification does not cover should be conferred between the customer and BAIGUAN.

其它事项

任何本说明书中未提及的事项，须经双方协商确定

6. Drawing (all unit in mm, not in scale)
外形尺寸 (单位: mm;未按比例)



| Items | Description | Dimension and Spec |
|-------|----------------|--------------------|
| H | Height 电芯高度 | 65.0mm Max |
| D | Diameter 直径 | 18.3mm Max |