



新能源动力及储能系统专家

NEW ENERGY POWER AND ENERGY STORAGE SYSTEM EXPERT

瑞浦能源有限公司
RUIPU ENERGY CO., LTD.

Production Specification

产品规格书

Battery module 电池型号: CB79148102EA

Cell Type 电芯类型: Lithium-ion

Cell model 电芯型号: CB79148102EA-135Ah

| Manufacturer 编制 | Check 审核 | Approval 批准 |
|-------------------------|----------|-------------|
| | | |
| Customer Approval 客户签收: | | |

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1 Scope 适用范围

This document is applicable to the CB79148102EA-135Ah Li-ion battery produced by REPT co. LTD. This document covers performance requirements, test procedures, transportation and storage requirements and other items need to notice.

本产品规格书规定了 CB79148102EA-135Ah 型锂离子电池的性能要求、试验方法、运输、贮存要求和注意事项等。

2 规范性引用文件

The following documents are essential for this document. For reference documents with date, only dated versions apply to this document. For reference documents with date, the latest version (including all amendments) applies to this document.

下列文件对于本文件的应用是必不可少的。凡是注日期的引用文件，仅注日期的版本适用于本文件。凡是不注日期的引用文件，其最新版本（包括所有的修改单）适用于本文件。

GB/T 31484—2015 Cycle life requirements and test methods for traction battery of electric vehicle

GB/T 31484—2015 电动汽车用动力蓄电池循环寿命要求及试验方法

GB/T 31485—2015 Safety requirements and test methods for traction battery of electric vehicle

GB/T 31485—2015 电动汽车用动力蓄电池安全要求及试验方法

GB/T 31486—2015 Electrical performance requirements and test methods for traction battery of electric vehicle

GB/T 31486—2015 电动汽车用动力蓄电池电性能要求及试验方法

GB/T 19596 Terminology of electric vehicles

GB/T 19596 电动汽车术语

3 Performance Requirements 性能指标

Note: The following specifications are only available to fresh batteries.

注：指标只针对于新电池

| No. 序号 | Item 项目 | Specification 规格 | Comment 备注 |
|-----------|--|---|------------------|
| 3.1 | Nominal Capacity 标称容量 | 136Ah (1/3C) 135Ah (1C) | Room temperature |
| 3.2 | Nominal Voltage 标称电压 | 3.22V (1/3C) 3.20V (1C) | |
| 3.3 | Voltage 工作电压范围 | 2.5-3.65V | |
| 3.4 | Maximum Continuous Discharging Current 最大持续放电电流 | ≤135A | |
| 3.5 | Maximum Discharging Current 峰值放电电流 | ≤405A | @30s |
| 3.6 | Maximum Continuous Charging Current 最大持续充电电流 | ≤135A | |
| 3.7 | Maximum Charging Current 峰值充电电流 | ≤270A | @10s |
| 3.8 | Working Temperature 使用温度 | Charge 充电: 0°C~55°C Discharge 放电: -20°C~55°C | |
| 3.9 | Storage Temperature 贮存温度 | -20°C~55°C | |
| 3.10 | Dimensions 电池尺寸 | Thickness 厚度: 79.22±0.5mm Width 宽度: 149.10±0.6mm Height 肩高: 102.67±0.6mm Total height 总高: 105.31±0.6mm | Figure7 |
| 3.11 | Cathode Material 正极材料 | 磷酸铁锂 Lithium-iron-phosphate | |
| 3.12 | Battery Weight 电池重量 | 2.61±0.15kg | |
| 3.13 | Energy Density 能量密度 | 168Wh/kg 365Wh/L | 1/3C |
| 3.14 | IMP 电池内阻 (1KHz) | ≤0.5mΩ | |

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|------|--|--|---|
| 3.15 | <p>Standard Charging Method 标准充电模式 (CC&CV)</p> | <p>In an ambient temperature of 25±2°C, battery is charged with constant current of 1/3I₁(A) =45A until 3.65V. Then it is charged at a constant voltage of 3.65V until the current is less than 0.05I₁(A), then rest for an hour 在环境温度(25±2)°C条件下, 采用先恒流再恒压方式充电。恒流电流为 1/3I₁(A), 恒压电压为 3.65V, 在恒压过程中当电流降至 0.05I₁(A)终止充电, 静置 1 小时。</p> | |
| 3.16 | <p>Voltage difference 出货容量/压差</p> | <p>~50% SOC Voltage range 压差≤10mV</p> | |
| 3.17 | <p>Discharge Power 室温放电功率</p> | <p>>1800W</p> | <p>25±2°C 50%SOC 405A 10s pulse discharge</p> |
| 3.18 | <p>Discharge Power Density 室温放电功率密度</p> | <p>>680W/kg</p> | <p>25±°C 50%SOC 405A 10s pulse discharge</p> |
| 3.19 | <p>Cycle Life 循环寿命</p> | <p>≥3500 次</p> | <p>25±2°C, 135A CC to 3.65V, 6.75A CV to 3.65V; 135A DC to 2.5V; 80% capacity retention</p> |
| 3.20 | <p>Recommended SOC Range 建议 SOC 使用范围</p> | <p>5%~100%</p> | |

4 Electrical Performance 电性能

4.1 Standard Test Conditions 标准测试条件

The following parameters are only applicable to new products delivered to customers by REPT, not for the products after use. Storage time is less than one month and cycle number is

less than 5 times

电池应为新产品(在制造后少于 1 个月储存), 循环次数少于 5 次。除非另有说明, 本规范中的所有测试条件如下:

Temperature: $25\pm 5^{\circ}\text{C}$, Humidity: 15%~90% RH, Pressure: 86kPa~106kPa. Room temperature is $25\pm 2^{\circ}\text{C}$, $I_{I_1}(\text{A})$ current is 135A in this document.

温度: $25\pm 5^{\circ}\text{C}$, 湿度: 15%~90% RH, 气压: 86kPa~106kPa。规格书中室温指的是 $25\pm 2^{\circ}\text{C}$, $I_{I_1}(\text{A})$ 电流为 135A。

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4.2 测试设备精度

- (1) The accuracy of the multimeter to measure voltage should be not less than grade 0.5.
电压测量精度: ≥ 0.5 级.
- (2) The accuracy of the multimeter to measure current should be not less than grade 0.5.
电流测量精度: ≥ 0.5 级.
- (3) Temperature measurement precision is not lower than $\pm 0.5^{\circ}\text{C}$.
温度测量精度: $\pm 0.5^{\circ}\text{C}$.
- (4) Time measurement precision is not lower than $\pm 0.1\%$
时间测量精度: $\pm 0.1\%$.
- (5) Size dimension accuracy: is $\pm 0.1\%$
尺寸测量精度: $\pm 0.1\%$.

4.3 Electrical Performance Test 测试过程

| 序号 | 项目 | 测试过程 | 标准 |
|-------|--|--|--|
| 4.3.1 | Room Temperature Capacity 室温放电容量 (初始容量) | 1) Test temperature: $25 \pm 2^\circ\text{C}$. 测试温度: $25 \pm 2^\circ\text{C}$. 2) Full charge cell according to No. 3.15. 根据 3.15 将电池充满电. 3) Discharge with a current at $1I_1(\text{A})$ to 2.5V and record as discharge capacity and initial capacity. 将电池以 $1I_1(\text{A})$ 电流放电至 2.5V 并记录放电容量(Ah). | $110\% * \text{Nominal capacity} \geq \text{Discharge capacity} \geq 100\% * \text{Nominal capacity}$ $110\% * \text{额定容量} \geq \text{放电容量} \geq 100\% * \text{额定容量}$ |
| 4.3.2 | Room Temperature Charge Rate 室温倍率充电 | 1) Test temperature: $25 \pm 2^\circ\text{C}$ 测试温度: $25 \pm 2^\circ\text{C}$. 2) Discharge with a current at $1I_1(\text{A})$ to 2.5V and stand by 1 hour. 将电池以 $1I_1(\text{A})$ 放电至 2.5V, 并静置 1h. 3) Charge with a current at $2I_1(\text{A})$ to 3.65V total charge period less than 30 minutes and stand by 1 hour. 将电池以 $2I_1(\text{A})$ 电流充电至 3.65V 总充电时间不超过 30min 并静置 1h. 4) Discharge with a current at $1I_1(\text{A})$ to 2.5V and record discharge capacity. 将电池以 $1I_1(\text{A})$ 电流放电至 2.5V 并记录放电容量(Ah). | $\text{Discharge capacity} \geq 95\% * \text{Nominal capacity}$ $\text{放电容量} \geq 95\% * \text{初始容量}$ |
| 4.3.3 | Room Temperature Discharge Rate 室温倍率放电 | 1) Test temperature: $25 \pm 2^\circ\text{C}$ 测试温度: $25 \pm 2^\circ\text{C}$. 2) Full charge cell according to No. 3.15. 根据 3.15 将电池充满电. 3) Discharge with a current at $2I_1(\text{A})$ to 2.5V and record discharge capacity 将电池以 $2I_1(\text{A})$ 电流放电至 2.5V 并记录放电容量(Ah). | $\text{Discharge capacity} \geq 90\% * \text{Nominal capacity}$ $\text{放电容量} \geq 95\% * \text{初始容量}$ |

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|-------|---|---|---|
| 4.3.4 | <p>High Temperature Discharge Capacity 高温放电</p> | <p>1) Full charge cell according to No. 3.15. 根据 3.15 将电池充满电</p> <p>2) Temperature: $55\pm 2^{\circ}\text{C}$ stand by for 5 hours. 将电池在 $55\pm 2^{\circ}\text{C}$ 静置 5h.</p> <p>3) Discharge with a current at $1I_1(\text{A})$ to 2.5V and record discharge capacity (Ah). 在 $55\pm 2^{\circ}\text{C}$ 下将电池以 $1I_1(\text{A})$ 电流放电至 2.5V 并记录放电容量(Ah).</p> <p>4) Temperature: $25\pm 5^{\circ}\text{C}$ for 12 hours and check the appearance of battery. 将电池在 $25\pm 5^{\circ}\text{C}$ 静置 12h 并检查电池的外观.</p> | <p>No apparent deformation and leakage Discharge capacity $\geq 95\% * \text{Nominal capacity}$ 无变形、膨胀或其他异常情况；放电容量 $\geq 95\% * \text{初始容量}$</p> |
| 4.3.5 | <p>Low Temperature Discharge Capacity 低温放电</p> | <p>1. Full charge cell according to No. 3.15. 根据 3.15 将电池充满电</p> <p>2) Temperature: $-20\pm 2^{\circ}\text{C}$ stand by for 24 hours. 将电池在 $-20\pm 2^{\circ}\text{C}$ 下静置 24h.</p> <p>3) Discharge with a current at $1I_1(\text{A})$ to 2.0V and record discharge capacity (Ah). 在 $-20\pm 2^{\circ}\text{C}$ 下将电池以 $1I_1(\text{A})$ 电流放电至 2.0V 并记录放电容量(Ah).</p> <p>4) Temperature: $25\pm 5^{\circ}\text{C}$ for 12 hours and check the appearance of battery. 将电池在 $25\pm 5^{\circ}\text{C}$ 静置 12h 并检查电池的外观.</p> | <p>No apparent deformation and leakage 无变形、膨胀或其他异常情况； Discharge capacity $\geq 80\% * \text{Nominal capacity}$ 放电容量 $\geq 80\% * \text{初始容量}$</p> |

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|-------|---|---|---|
| 4.3.6 | Cycle Life 循环寿命 | <p>1) Test temperature: 25±2°C. 测试温度: 25±2°C.</p> <p>2) CC at 1.0I₁(A) to 3.65V & CV at 3.65V, terminal current at 0.05I₁(A) and stand by 30min. 恒流电流为以 1.0I₁(A)到 3.65V, 在 3.65V 恒压过程中至电流降到 0.05I₁(A) 即可终止充电, 静置 30min</p> <p>3) Discharge with a current at 1I₁(A) to 2.5V and stand by 30min. 将电池以 1I₁(A)电流放电至 2.5V, 并静置 30min.</p> <p>4) Cycle step 2) and 3) until capacity loss is more than 20% and record cycle number. 重复 2)和 3)步骤, 直到电池容量小于 80% 的初始容量, 并记录循环次数。</p> | Cycle number≥3500 times 循环寿命≥3500 次 |
| 4.3.7 | Room Temperature Storage Capacity Remaining and Recovery 室温存储和恢复 | <p>1) Temperature 25±2°C 测试温度: 25±2°C.</p> <p>2) Cell discharge cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>3) Storage cell battery at temperature of 25±2°C for 28 days 电池在室温下存储 28 天.</p> <p>4) Discharge with a current at 1I₁(A) to 2.5V and record as remaining capacity 将电池以 1I₁(A)电流放电至 2.5V, 并记录剩余容量(Ah).</p> <p>5) Full charge cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>6) Discharge with a current at 1I₁(A) to 2.5V and record as recovery capacity 将电池以 1I₁(A)电流放电至 2.5V, 并记录恢复容量(Ah).</p> | No apparent deformation and leakage 无变形、膨胀或其他异常情况; Capacity loss≤ 5%* nominal capacity. 剩余容量≥95%* 初始容量; Recovery Capacity≥97%* Initial capacity 恢复容量≥97%* 初始容量 |

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|--------|--|---|--|
| 4.3.8 | High Temperature Full-Charged Battery Storage and Recovery test 高温存储和恢复 | <p>1) Full charged cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>2) Storage cell battery at temperature of $55\pm 2^{\circ}\text{C}$ for 7 days. 将电池在 $55\pm 2^{\circ}\text{C}$ 存储 7 天.</p> <p>3) take out the cell and rest for 5h under $25\pm 2^{\circ}\text{C}$, discharge with a current at $1I_1(\text{A})$ to 2.5V, and record as recovery capacity 将电池取出并在 $25\pm 2^{\circ}\text{C}$ 静置 5h 后, 将电池以 $1I_1(\text{A})$ 电流放电至 2.5V, 并记录剩余容量(Ah).</p> <p>3) Full charges cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>5) Discharge with a current at $1I_1(\text{A})$ to 2.5V, and record as recovery capacity 将电池以 $1I_1(\text{A})$ 电流放电至 2.5V, 并记录恢复容量(Ah).</p> | <p>No apparent deformation and leakage</p> <p>无变形、膨胀或其他异常情况;</p> <p>Capacity loss $\leq 10\%$ * nominal capacity. 剩余容量 $\geq 90\%$ * 初始容量;</p> <p>Recovery Capacity $\geq 94\%$ * Initial capacity 恢复容量 $\geq 94\%$ * 初始容量</p> |
| 4.3.9 | Self-Discharge 自放电率 | <p>Within three months of cell battery's shipping. Test temperature: $25\pm 3^{\circ}\text{C}$, 100%SOC storage 出货三个月以内电芯, 标准充电到 100% 的充电状态, 25°C 温度储存</p> | $\leq 2\%$ 30days |
| 4.3.10 | Discharge Temperature rise 持续放电温升 | <p>Discharge cell with a current of $1I_1(\text{A})$ for 10min 每个电池以 $1I_1(\text{A})$ 电流放电 10min</p> | $\leq 15^{\circ}\text{C}$ |
| 4.3.11 | Pulse Discharge Temperature rise 脉冲放电温升 | <p>Discharge cell with a current at $3I_1(\text{A})$ for 30 seconds. 在任何充电状态下, 每个电池以 $3I_1(\text{A})$ 电流放电 30 秒</p> | $\leq 10^{\circ}\text{C}$ |

5 Safety 安全性能

| 序号 | 项目 | 测试过程 | 标准 |
|-----|---------------------------|--|--|
| 5.1 | Temperature Cycle 温度循环 | <p>1) Full charge cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>2) Put the cell into an oven, set temperature based on table 5.1 and figure 5.1 for 5 cycles 将电池放入烘箱.烘箱温度根据表 5.1 和图 5.1 变化 5 次.</p> <p>3) Observe the cell for 1 h 观察电池 1h.</p> | <p>No fire or explosion or leakage、 无着火、爆炸或者泄露</p> |

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| 5.2 | Thermal stability 热稳定性 | 1) Full charge cell according to No. 3.15 根据 3.15 将电池充满电。 2) Put the cell into an oven. The temperature of the oven is raised at a rate of 5°C/min to 130±2°C and remain for 30min. 将电池放入烘箱. 电池温度以 5°C/min 达到 130±2°C并保持 30min. 3) Observe the cell for 1h 观察电池 1h. | No fire or explosion 无着火或爆炸 |
| 5.3 | Drop 跌落 | 1) Full charge cell according to No. 3.15 根据 3.15 将电池充满电。 2) face down the terminal of cell and free drop from 1.5m height to cement floor 将电池正负极端子向下从 1.5m 高度处自由跌落到水泥地面上； 3)Observe the cell for 1h 观察电池 1h. | No fire or explosion Or leakage 无着火、爆炸或者泄露 |
| 5.4 | Vibration 振动 | 1) Full charge cell according to No..3.15 根据 3.15 将电池充满电。 2) Fix the cell on the vibration platform, processing the linear sweep vibration test by following conditions: Discharge current 1/3 I ₁ (A) vibration direction: up and down Vibration rate: 10-55Hz Max accelerate: 30 m/s Sweep cycle: 10 times Vibration time: 3H 将电池固定到振动实验台上, 按下述条件进行线性扫频振动试验: --- 放电电流: 1/3 I ₁ (A) --- 振动方向: 上下单振动 --- 振动频率: 10~55Hz --- 最大加速度: 30m/s ² --- 扫面循环: 10 次 --- 振动时间: 3h 3) Observe the cell 测试过程中观察电池现象. | No current fluctuation. Abnormal voltage 无电流波动, 异常电压; No form change, leakage, or other abnormal 无变形、泄露或其他异常; |

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|-----|----------------------------|--|--|
| 5.5 | Seawater Immersion 海水浸泡 | <p>1) Full charge cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>2) Put battery in NaCl of 3.5% concentration for 2 h 将电池浸入 3.5% NaCl 溶液中 2h.</p> <p>3)depth of water should not over cell 水深应完全没过电池.</p> | No fire or explosion 无着火或爆炸 |
| 5.6 | Low Air-Pressure 低气压 | <p>1) test temperature $25\pm 2^{\circ}\text{C}$ 测试温度: $25\pm 2^{\circ}\text{C}$.</p> <p>2) full charge cell according to No、 3.15 根据 3.15 将电池充满电.</p> <p>2) Put the battery in a low-pressure tank, pressure set as 11.6Kpa, rest for 6 h 将电池放入低气压箱中, 气压保持为 11.6kPa, 静置 6h.</p> <p>3) Observe for 1 h 观察电池 1h.</p> | No fire or explosion Or leakage 无着火、爆炸或者泄露 |
| 5.7 | Over-Charge 过充 | <p>1)test temperature: $25\pm 2^{\circ}\text{C}$ 测试温度: $25\pm 2^{\circ}\text{C}$.</p> <p>3) Full charge cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>4) Charge with current at $1I_1(\text{A})$ for 1h or voltage reach 5.5V 将电池以 $1I_1(\text{A})$ 电流充电 1h 或者电压达到 5.5V.</p> <p>5) Observe for 1 h 观察电池 1h.</p> | No fire or explosion 无着火或爆炸 |
| 5.8 | Over-Discharge 过放 | <p>1) Test temperature: $25 \pm 2^{\circ}\text{C}$ 测试温度: $25\pm 2^{\circ}\text{C}$.</p> <p>2) Full charge cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>3)discharge with current at $1I_1(\text{A})$ for 90 min 将电池以 $1I_1(\text{A})$ 电流放电 90min.</p> <p>3) Observe for 1 h 观察电池 1h.</p> | No fire or explosion Or leakage 无着火、爆炸或者泄露 |

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| 5.9 | Short Circuits 短路 | <p>1)test temperature: 25±2°C 测试温度: 25±2°C.</p> <p>2)full charge cell according to No.3.15 根据 3.15 将电池充满电.</p> <p>3)external short circuit cell 10 mins , resistance of external circuit no larger than 5mΩ 将电池经外部短路 10min, 外部线路的电 阻 ≤5mΩ.</p> <p>4)observe cell for 1h 观察电池 1h.</p> | No fire or explosion 无着火或爆炸 |
| 5.10 | Crush 挤压 | <p>1) Full charge cell according to No. 3.15 根据 3.15 将电池充满电.</p> <p>Crush direction: perpendicular to the direction of the battery monomer plate, or the same direction that the battery monomer is most likely to be crushed in vehicle; Form of crush plate: semi-cylinder with a radius of 75mm, the length (L) of the semi-cylinder is greater than the size of the extruded battery monomer; speed: no more than 2 mm/s; terminal condition: voltage reaches 0V or the deformation reaches No fire or explosion</p> <p>2) 无着火或爆炸 15% or force reaches 100 kN or 1000 times the weight of cell. 挤压方向: 垂直于电池单体极板方向 施压, 或与电池单体在整车布局上最容易 受到挤压的方向相同; 挤压板形式: 半径 75 mm 的半圆柱体, 半圆柱体的长度 (L) 大于被挤压电池单体的尺寸; 挤压速度: 不大于 2 mm/s; 挤压程度: 电压达到 0 V 或变形量达到 15%或挤压力达到 100 kN 或 1000 倍试验对象重量后停止挤压;</p> <p>3) Hold for 10 minutes</p> <p>4) 保持 10 min</p> | No fire or explosion 无着火或爆炸 |

表 5.1 温度循环中时间和温度的变化

| 温度(°C) | 时间间隔 (min) | 累计时间(min) | 温度变化速率(°C/min) |
|--------|------------|-----------|----------------|
| 25 | 0 | 0 | 0 |
| -40 | 60 | 60 | 13/12 |
| -40 | 90 | 150 | 0 |
| 25 | 60 | 210 | 13/12 |
| 85 | 90 | 300 | 2/3 |
| 85 | 110 | 410 | 0 |
| 25 | 70 | 480 | 6/7 |

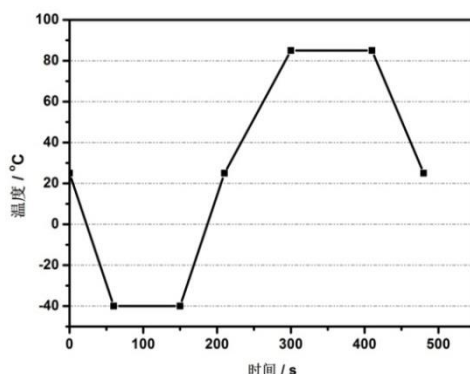


图 5.1 温度循环中温度时间曲线

6 Battery Transportation and Storage 运输和存储

6.1 Transportation 运输

Transport the battery in forms of package by truck, railway, ship or airplane. Severe vibration, impact, crush, exposure to the sun and rain during transportation should be avoided. The SOC of battery should be kept between 10-30%.

应根据运输的目的地和运输方式，选定合适的电池包包装方式。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，可使用车、火车、轮船、飞机等交通工具进行运输，在运输过程中应保持 10-30% 的电量。

6.2 Storage 存储

Transport the battery in forms of package by truck, railway, ship or airplane. Severe vibration, impact, crush, exposure to the sun and rain during transportation should be avoided. The SOC of battery should be kept between 10-30%.

电池应存储允许环境温度为-20~55℃，建议保存温度为-10~40℃，相对湿度为10%RH ~90%RH 的条件下。电池应避免与腐蚀性物质或磁性环境接触，电池存储在清洁、干燥、通风的环境中，远离火源及热源。电池不使用时，连续存放建议不超过3个月。

7 Overall Dimensions 外形尺寸

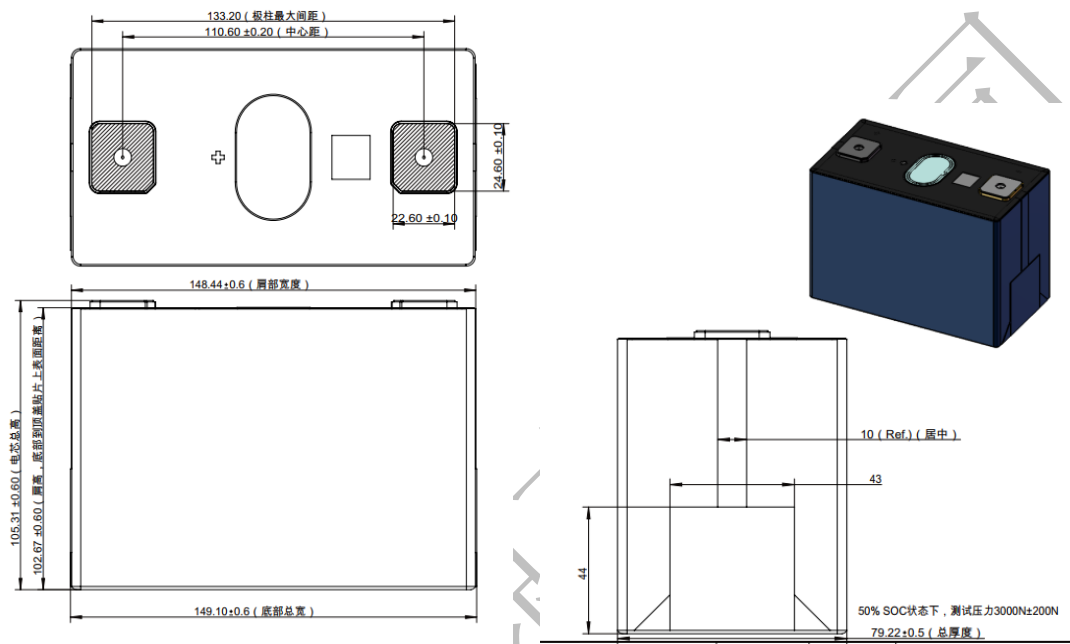


图7 电池尺寸/mm

8 Quality Assurance 质量保证

The warranty period follows the contract. However, even though the problem occurs within warranty period, REPT won't replace a new cell for free as long as the problem is not due to the failure of REPT's manufacturing/shipping process, but due to customer's misuse.

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

REPT will not undertake responsibility under the following situations.

瑞浦能源有限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) Issues and safety accidents caused due to the violation of safety instruction.

违反安全使用指南所产生的问题及安全事故；

- 2) Bad battery cell during assembling by customer after delivery.

出货后用户在电池组装过程中产生的不良电池；

- 3) Issues caused due to the connection of battery, circuit and battery charger.

电池与电路、电池组和充电器搭配使用所产生的问题。

For safety consideration, the customer should contact REPT in advance if other special applications are needed, especially equipment design, Li-ion cell system circuit protection, high current and so on.

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，请先咨询瑞浦能源有限公司相关事宜。

9 Safety Instruction 安全使用指南

Read the following advice carefully to ensure the right use of REPT Prismatic lithium ion module.

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：

CAUTION 警告!



- 1) Risk of fire, explosion, and burns. Do not disassemble, crush, heat the cell or dispose it 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；

- 2) Keep the cell out of reach of children and don't remove the original package before use.

Dispose the used battery according to local recycling or waste disposition 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；

- 3) Replace the battery manufactured by the same manufacture only. Mixed use of battery from other manufacture might cause 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；

- 4) Do not throw the battery into water or make it wet;

- 勿将电池投入水中或将其弄湿；
- 5) Do not connect positive and negatives with metal cover; ‘
勿将电池正负极与金属壳体同时接触；
- 6) Do not make the cell short circuit, over-charge or over-discharge;
勿将电池短路、过充或过放；
- 7) Do not use or store the cell near the heat source (such as fire or heater):
勿在热源(如火或加热器) 附近使用或贮存电池；
- 8) Do not connect the position (+) and negative (-) terminals in the opposite way;
勿将电池正负极接反；
- 9) Do not put the battery together with coin, metal jewelry and 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；
- 10) Do not put the battery together with coin, metal jewelry and other metal objects;
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；
- 11) Do not weld the battery directly;
勿直接焊接电池；
- 12) Do not disassemble or modify the battery in any way;
勿擅自以任何方式拆卸或修整电池；
- 13) Do not disassemble or modify the battery in any way;
勿撞击、投掷或者使电池受到机械震动及自然跌落；
- 14) Mixed use of different types, brand of battery are forbidden;
勿将不同种类、不同品牌的锂离子电池混合使用；
- 15) Do not connect the negative pole with the shell which is positive;
勿将负极柱与壳体(正电性)相连；
- 16) Stop use the battery and relocate the battery to a safe place it if battery gives off peculiar smell, temperature increase, deforms, color change or any other abnormal phenomena.
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；

- 17) If battery catch fire, use dry powder, foam fire extinguisher or sand to extinguish flames and remove it from the operating 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。

10 Shipment Status 出货状态

The batteries should be shipped with 50% SOC if customer has no special requirements.

客户若无特殊要求，电池出厂时具有 50%左右的电量。

11 Technical Consultant 制造商信息

Manufacturer: REPT energy co. LTD.

制造商: 瑞浦能源有限公司

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