REPT BATTERO 瑞浦兰钧

NEW ENERGY POWER AND ENERGY STORAGE SYSTEM EXPERT

REPT BATTERO ENERGY CO., LTD.

Production Specification

Cell model ： CB84

Cell Type ： Lithium-ion

Manufacturer	Check by	Approval by
RQ Chai	TJ Bai	YC Zhang
Customer Approval：		

Catalog

1 Scope

This document is applicable to the CB84-345Ah Li-ion cell produced by REPT BATTERO Energy Co., Ltd. This document covers performance requirements, test procedures, transportation and storage requirements and other items.

2 Reference Documents

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.

GB/T 36276-2023 Lithium-ion battery for electrical energy storage

GB/T 19596 Terminology of electric vehicles

GJB 4477-2002 General specification for Li-ion batteries

GB 2900.41-2008 Electrotechnical terminology primary and secondary cells and batteries

3 Performance Requirements

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

3. 1 General Information

No.	Item	Specification	Comment
3.1.1	Nominal Capacity	345Ah	25±2℃，0.25P/0.25P
3.1.2	Nominal Voltage	3.2V	
3.1.3	Nominal Energy	1104Wh	
3.1.4	Operating Voltage	2.5~3.65V	T>0 ℃
		2.0~3.65V	T≤0°C
3.1.5	Standard Charging Power	276W	25±2℃
3.1.6	Standard Discharging Power	276W	
3.1.7	Working Temperature	Charge： 0°C~60°C Discharge： -20°C~60°C	
3.1.8	Storage Temperature	-30°C~60°C	≤85%ROH
3.1.9	Dimension	Thickness : 71.75±0.8mm Width : 174.0±0.8mm Shoulder Height： 204.4±0.8mm Total Height : 206.8±0.8mm	Figure7
3.1.10	Cathode Material	Lithium-iron-phosphate	
3.1.11	Cell Weight	5.85±0.2kg	
3.1.12	Energy Efficiency	≥96%	25±2°C，0.25P
3.1.13	Energy Density	188Wh/kg 427Wh/L	
3.1.14	IMP （1KHz）	≤0.3mΩ	
3.1.15	Shipping capacity	138±3Ah	40%SOC
3.1.16	Cycle Life	≥8,000 cycles	25±2°C, 0.25P/0.25P, 70%SOH

3.2 Charging/Parameter

3.2.1 Standard Charge Condition

No.	Item	Specification	Comment
3.2.1.1	Standard charge power	0.25P	25±2℃
3.2.1.2	Maximum continuous charge power	0.25P	25±2℃
3.2.1.3	Standard charge voltage	3.65V	
3.2.1.4	Standard charging mode	0.25P constant power charge to 3.65V	
3.2.1.5	Standard charge temperature	25±2℃	Cell surface temperature

3.3 Discharging/Parameter 放

No.	Parameter	Specification	Commnet
3.3.1	Standard discharge power	0.25P	25±2℃
3.3.2	Maximum continuous discharge power	0.25P	25±2℃
3.3.3	Standard discharge temperature	25±2℃	Cell temperature
3.3.4	Discharge temperature range	-20-60℃	If the cell surface temperature is beyond this range, the discharge must be stopped

3.4 C-Rate Other charge Condition

Cell Temperature/℃		0	5	10	15	20	25	45	50	55	60
Max charge power(P)	0% ~ < 100% SOC	0.05	0.1	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0

4 Electrical Performance

4.1 Standard Test Conditions

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

Temperature: 25±5℃, Humidity: 15%~90% RH, Pressure: 86kPa~106kPa. Room temperature is 25±2℃, 0.25P power is 276W in this document.

4.2 Accuracy of Test Conditions

(1) The accuracy of the multimeter to measure voltage should be not less than grade 0.5.

(2) The accuracy of the multimeter to measure current should be not less than grade 0.5.

(3) Temperature measurement precision is not lower than ±0.5℃.

(4) Time measurement precision is not lower than 0.1%

(5) Size dimension accuracy: is ±0.1%

4.3 Electrical Performance Test

No.	Item	Electrical Performance Test	Standard
4.3.1	Initial discharge energy	1) Test temperature:25±2℃. 2)Pretreat the cell with standard charge a nd discharge mode. 3) Charge the cell with a power at 0.25P to 3.65V Rest 10min. 4) Discharge the cell with a power at 0.25P to2.5V Rest 10min. 5) The value of the discharge energy is taken as the initial discharge energy.	Initial discharge energy≥1104Wh
4.3.2	High temperature charge-discharge performance	1) Initial discharge the cell in standard discharging mode. 2) Leave the cell at 45±2℃ for 5h . 3) Charge with a power at 0.25P to 3.65V and record charge energy (Wh), rest 10 min. 4) Discharge with a power at 0.25P to 2.5V and record discharge energy (Wh), rest 10 min.	Charge energy ⩾1,104Wh Discharge energ ⩾1,104Wh
4.3.3	Low temperature charge-discharge performance	1) Initial discharge of the cell in standard discharging mode. 2) Leave the cell at 5±2℃ for 20h . 3) Charge with a power at 0.25P to 3.65V and record charge energy (Wh), rest 10 min. 4) Discharge with a power at 0.25P to 2. 5V and record discharge energy (Wh), rest 10 min.	Charge energy ⩾772.8Wh Discharge energ ⩾772.8Wh

4.3.4	Cycle Life	1) Test temperature: 25±2℃. 2) Preload force: 300±20kgf 3) Charge with a power at 0.25P(W) to 3.65V，then stand by 60min. 4) Discharge with a power at 0.25P(W) to 2.5V, then stand by 60min. 5) Cycle step 3) and 4) until its capacity fading to 80% of rated capacity and record cycle number.	Cycle number≥8,000 times
4.3.5	Self-Discharge	Within three months of cell shipping. Test temperature: 25±3℃, 40%SOC storage	≤3%/month

5 Safety

No.	Item	Safety Performance Test	Standard
5.1	Drop	1) Fully charge the cell in standard charging mode. 2）Terminal of cell faces down and free fall from 1.5m height to cement floor. 3) Observe for 1h.	No fire or explosion or smoking
5.2	Over-Charge	1) Test temperature：25±2℃. 1) Fully charge the cell in standard charging mode. 2) Charge with current at 0.5C for 1h or voltage at 5.475V.	No fire or explosion

		3) Observe for 1 h.	
5.3	Over-Discharge	1) Test temperature: 25 ±2℃. 2) Fully discharge the cell in standard discharging mode. 3) Discharge with current at 0.5C for 1.5h or to 0 V. 4) Observe for 1 h.	No fire or explosion or leakage or smoking
5.4	Short Circuits	1) Test temperature：25±2℃. 2) Fully charge the cell in standard charging mode. . 3) Adjust the resistance of the test device for the central position of the connection between the short-circuit test device and the positive electrode of a cell to [0.8, 1.0] mΩ, and adjust the connection between the short-circuit test device and the positive electrode of a cell until the contact resistance of the positive electrode is less than or equal to 0.1mΩ; Adjust the connection between the short-circuit test device and the negative electrode of the cell until the contact resistance of the negative electrode is less than or equal to 0.1mΩ. 4)External short circuit cell for 10 min. 5)Observe for 1h.	No fire or explosion

5.5	Squeeze	1) Fully charge the cell in standard charging mode 2) Squeeze direction: perpendicular to the direction of the cell plate, or the same direction that the cell is most likely to be crushed in vehicle; Dimension of Squeeze plate: semi-cylinder with a radius of 75mm, the length (L) of the semi-cylinder is greater than the size of the extruded cell; speed: 5mm/s; terminal condition: force reaches 50 kN then hold for 10min. 3) Observe for 1h.	No fire or explosion or leakage or smoking
5.6	Thermal Runaway	Test method follows GB/T36276-2023.	No fire or explosion

Description of service conditions: safety test, cycle life test and pack design need to add preload force, and the range of preload force of cell is 1,500N~5,000N, the recommended preload tolerance is ±200N.

6 Cell Transportation and Storage

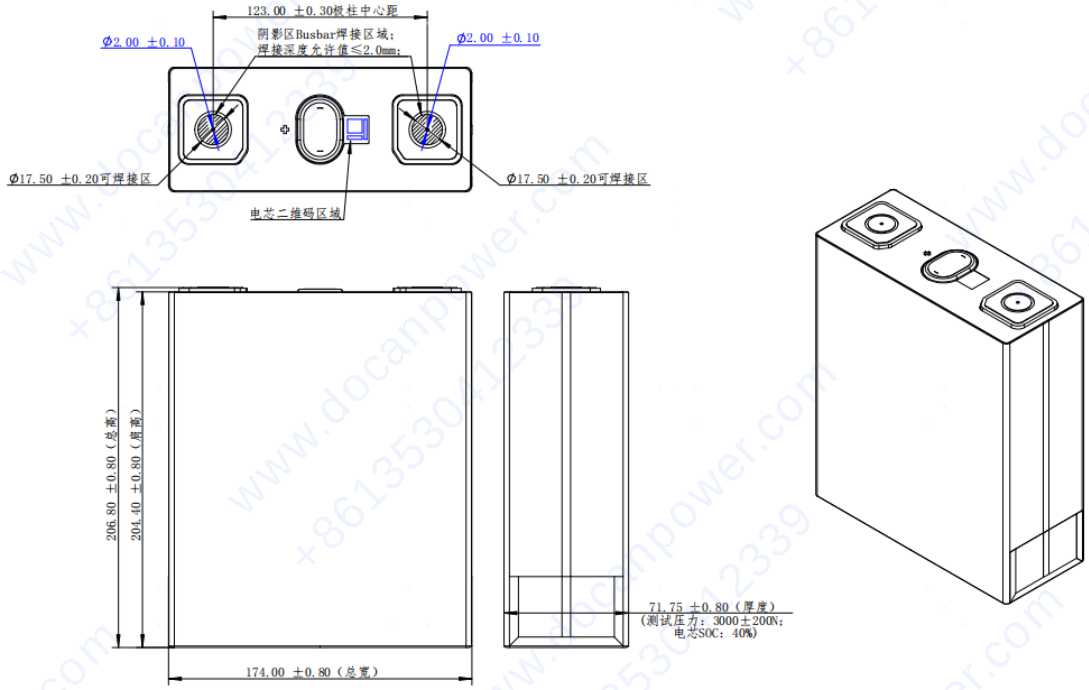
6.1 Transportation

Transport the cell 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 cell should be kept between 30-40%.

6.2 Storage

Store the cell in a clean, dry, and well-ventilated location with ambient temperature between -30℃~60℃, better between -10℃ and 40℃. In addition, relative humidity of 10%RH ~90%RH. Keep away from corrosive materials and magnetic field, fire and heat sources. Do not upside down, crush and press. If battery is not in use, total storage time is not recommended for more than 3 months.

7 Overall Dimensions



7.1 cell size/mm

8 Quality Assurance

The warranty period follows the contract. However, even though the problem occurs within warranty period, REPT will not replace a new cell for free as long as the pro misusage, not the failure of REPT's manufacturing/shipping process, is the cause.

REPT will not undertake responsibility under the following situations.

1) Issues and safety accidents caused by the violation of safety instruction.

2) Bad cell during assembly by customer after delivery.

3) Issues caused by the connection of cell, circuit and cell charger.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.

9 Safety Instruction

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

CAUTION 警告!

1) Risk of fire, explosion, and burns. Do not disassemble, crush, heat the cell or dispose it into fire;
2) Keep the cell out of reach of children and do not remove the original package before use.

Dispose the used cell according to local recycling or waste disposition regulations;

3) Replace the cell manufactured by the same manufacture only. Mixed use of cells from other manufacture might cause fire and explosion;

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

5) Do not connect positives and negatives with metal cover;

6) Do not make the cell short circuit, over-charge or over-discharge;

7) Do not use or store the cell near the heat source (such as fire or heater)

8) Do not connect the position (+) and negative (-) terminals in the opposite way;

9) Do not put the cell together with coin, metal jewelry and other metal objects;

10) Do not pierce the cell with nails or other sharp objects. Do not hammer or stamp on the cell;

11) Do not weld the cell directly;

12) Do not disassemble or modify the cell in any way;

13) Do not hit, throw or cause the cell to suffer mechanical vibration and sudden fall;

14) Do not use different types and brands of cell in one application;

15) Do not connect the negative pole with the shell which is positive;

16) Stop using the cell and relocate the cell to a safe place if the cell gives off peculiar smell, experiences temperature increase, deforms, color change or any other abnormal phenomena.

17) If cell catches fire, use dry powder, foam fire extinguisher or sand to extinguish flames and remove it from the operating environment;

10 Shipment Status

The cells should be shipped with 40% SOC if customer has no special requirements.

11 Technical Support

Manufacturer: REPT BATTERO Energy Co., Ltd.

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