南屋科技
NANWU TECHNOLOGY

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NNL2559142C 5Ah 锂离子单体电池

Lithium-ion NNL2559142C 5Ah

产品规格书

Product Specification

产品型号

Product Model：NNL2559142C 5Ah

制表 Prepared by	审核 Checked by	批准 Approved by

目录

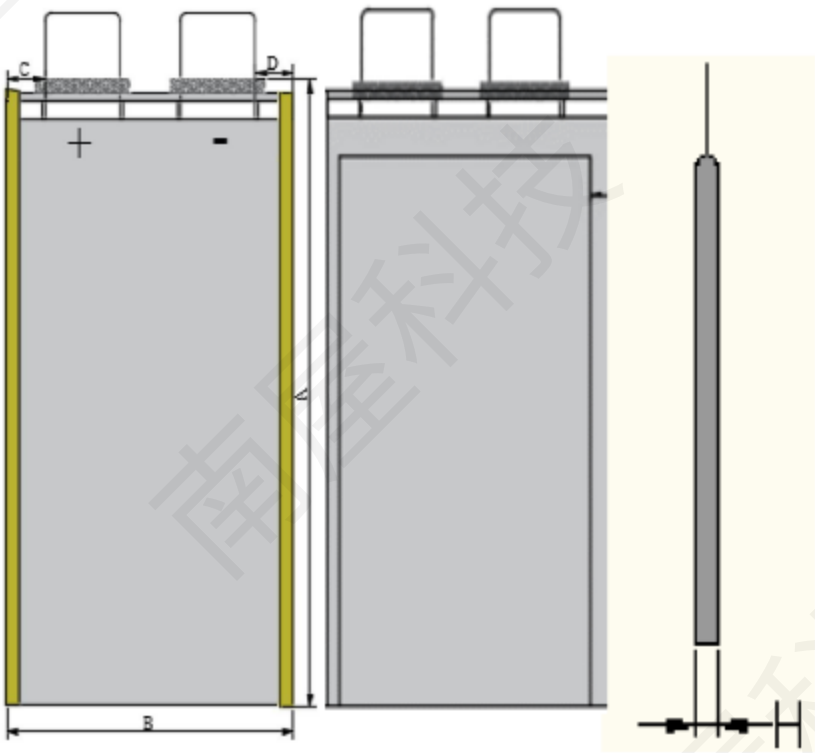
1. 适用范围 Application Scope

本产品规格书描述了 NNL2559142 型号锂离子电池产品性能指标。

This product specification describes the performance of NNL2559142 Lithium-ion Batteries.

2. 产品型号 Product Model

NNL2559142C 5Ah



3. 产品尺寸 Product Size

项目 Items	描述 Description	尺寸 Dimension
1	极耳厚度 (Tab thickness)	0.15±0.02mm
2	正极耳（铝转铜镍）宽度 左 (Cathode tab (Al-CuNi) width, Left)	12±0.2mm
3	负极耳（铜镍）宽度 右 (Anode tab (CuNi) width, Right)	12±0.2mm

4	正极耳到终封边距离 C (Distance from cathode tab to end seal C)	7.0±0.2mm
5	负极耳到终封边距离 D (Distance from anode tab to end seal D)	7.0±0.2mm
6	极耳间距 (Distance between tabs)	20±0.5mm
7	电芯宽度 B (Cell width B)	58.5±0.5mm
8	电芯长度 A (Cell length A)	142±0.5mm
9	电芯厚度 H（30% SOC）(Cell thickness H (at 30% SOC))	3.0±0.3mm

4. 产品规格 Product Specification

No. (序号)	Item (项目)	Specification (规格)	
1	典型容量 Typical Capacity	5.1Ah	0.1C 充电至 4.3V，0.1C 放电至 2.9V 0.1C charge to 4.3V, 0.1C discharge to 2.9V
2	标称容量 Nominal Capacity	5.3Ah	
3	标称电压 Nominal Voltage	3.80V	
4	标准充电方式 Standard Charging Mode	25±2℃ 0.1C 恒流充电至 4.3V, 25±2℃ 0.1C constant current charge to 4.3V	
5	充电电流 Charge Current	标准充电：0.1C Standard charge: 0.1C	
		快速充电：0.2C Rapid charge: 0.2C	
6	充电时间 Charge Time	标准充电：600min Standard charge: 600min	
		快速充电：300min Rapid charge: 300min	
7	充电截止电压 Charge Ending Voltage	4.3V	
8	放电截止电压 Discharge Ending Voltage	2.9V	
	工作环境&最大充电电流	0℃~15℃	0.05C 充电到 4.3V 0.05C charge to 4.3V

9	Max. Charging Current & Operating Environment	15℃~35℃	0.2C 充电到 4.3V 0.2C charge to 4.3V
		35℃~45℃	0.1C 充电到 4.3V 0.1C charge to 4.3V
10	标准放电方式 Standard Discharge Mode	25±2℃ 0.1C 恒流放电至 2.9V 25±2℃ 0.1C constant current discharge to 2.9V	
11	最大持续放电电流 Max. Continuous Discharge	2C	
12	工作环境 Operating Environment	15℃~45℃, max.90%RH	充电
		-10℃~45℃, max.90%RH	放电
13	贮存温度 Storage Temperature	-10℃~35℃, max.85%RH	小于一个月
		0℃~35℃, max.85%RH	小于六个月
14	内阻 Internal Impedance	≤20mΩ	标准充电后 AC 1KHz 测试（SOC30%） AC 1KHz after standard charge（SOC 30%）
15	电芯重量 Cell Weight	47±3g	
16	能量密度 Energy Density	420Wh/kg（Mean）	
17	循环寿命 Cycle Life	0.2C 充 1C 放 20 周≥80% 0.2C charge 1C discharge Cycle Life 20times ≥80%	

5. 电池性能 Battery Performance

序号 NO.	项目 Items	标准 Criteria	测试方法 Test Methods
1	常温放电性能 Normal Temperature Discharge Performance	放电容量/典型容*100% 0.5C≥95% 1C≥92% 2C≥80% The discharge capacity, as a percentage of typical capacity, must meet the following criteria: At 0.5C Rate: ≥ 95% At 1C Rate: ≥ 92% At 2C Rate: ≥ 80%	在标准大气压，环境温度 25±2℃，相对湿度为 75%RH 的条件下，电池 0.2C 标准恒流充满电后分别以 0.5C 、1C 、2C 电流放电，直到放电终止电压 2.9V。允许循环三次，当有一次达到标准，即达到要求。 Under standard atmospheric pressure, an ambient temperature of 25±2°C, and a relative humidity of 75%RH, the battery is first fully charged using a 0.2C standard constant current. Following the charge, the battery is discharged separately at 0.5C, 1C, and 2C currents until it reaches the discharge cut-off voltage of 2.9V. This test may be cycled up to three times; the requirement is considered met if the standard is achieved in any one of the three cycles.
2	低温放电 Low-Temperature Discharge Performance	放电容量不低于常温 0.3C 放电容量 80% Discharge capacity shall be no less than 80% of the 0.3C discharge capacity measured at normal temperature.	1 ：0.2C 恒流充电至电压达到 4.3V； 2：搁置 10min 后，测试样品的内阻、电压、尺寸； 3：将产品放入高低温测试箱中，连接好分容夹具，检 查正常后，设置低温箱温度-10°C; 4：当温度满足后，设置分容工步，静置 12H 后转 0.2C 放电至下限电压 2.3V（80%企业规定下限电压）； 5：取出产品，环境温度下静置 2 小时。 1.Charge the battery with a 0.2C constant current until the voltage reaches 4.3V. 2.After resting for 10 minutes, measure the internal resistance, voltage, and dimensions of the sample. 3.Place the product into a high/low-temperature test chamber, connect the capacity testing fixture, confirm the connection is normal, and set the chamber temperature to -10°C. 4.Once the temperature has stabilized, set the capacity test step. After a 12-hour rest period, discharge at a 0.2C rate to a lower cut-off voltage of 2.3V. 5.Remove the product and let it rest at ambient temperature for 2 hours.

3	高温放电 High-Temperature Discharge Performance	外观应无爆炸、无破裂；放电时间不少于初始容量 95% Appearance: No explosion, no rupture. Capacity: Discharge capacity shall be no less than 95% of the initial capacity.	1：以 0.2C 恒流充电至电压达到 4.3V， 2：搁置 10min 后，测试样品的内阻、电压、尺寸； 3：将产品放入恒温恒湿箱中，连接好分容夹具，检查 正常后，设置恒温恒湿箱温度 45℃; 4：当温度满足后，设置分容工步，静置 6H 后转 0.3C 放电； 5：取出产品，在室温环境下静置 30 分钟； 6：观察记录试验后产品外观情况，测量记录试验后产 品的内阻、电压。 1.Charge with a 0.2C constant current until the voltage reaches 4.3V. 2.After resting for 10 minutes, measure the internal resistance, voltage, and dimensions of the sample. 3.Place the product into a constant temperature and humidity chamber, connect the capacity testing fixture, confirm the connection is normal, and set the chamber temperature to 45°C. 4.Once the temperature has stabilized, set the capacity test step. After a 6-hour rest period, discharge at a 0.3C rate. 5.Remove the product and let it rest at room temperature for 30 minutes. 6.Observe and record the product's appearance after the test. Measure and record its post-test internal resistance and voltage.
4	倍率放电 Rate Discharge Performance	2C 倍率放电时电芯表面温度≤60°C At a 2C discharge rate, the cell surface temperature must be ≤ 60°C	1：在室温环境下，将电池 0.2C 恒流充电至 4.3V； 2：充电结束后，在相同的温度条件下放置 0.5 小时； 3：在室温环境下，以 0.5C、1C、2C 放电至终止电压 2.9V，并监控表面温度。 1.At room temperature, charge the battery with a 0.2C constant current to 4.3V. 2.After charging is complete, let the battery rest for 0.5 hours under the same temperature conditions. 3.At room temperature, discharge the battery at rates of 0.5C, 1C, and 2C down to a cut-off voltage of 2.9V, while monitoring the surface temperature.

5	循环 Cycle Life	常温 20 周循环 保持率≥80% （未加压力） After 20 cycles at normal temperature, the capacity retention rate shall be ≥ 80% (without applied pressure).	1：以 0.2C 恒流充电至电压达到 4.3V； 2：搁置 10min； 3 ：1C 恒流放电至 2.9V； 4：搁置 10min；4 ：1～4 循环 20 周。 1.Charge with a 0.2C constant current until the voltage reaches 4.3V. 2.Rest for 10 minutes. 3.Discharge with a 1C constant current down to 2.9V. 4.Rest for 10 minutes. 5.Repeat steps 1-4 for 20 cycles.

6. 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 the commercial value of the cell.

7. 标准测试环境 Standard Test Conditions

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 in this Product Specification are conducted at below conditions:

温度 Temperature：25±3℃

湿度 Humidity：≤75%RH

大气压 Atmosphere：

1 个标准大气压 1 standard atmospheric pressure

8. 包装 Packaging

8.1 电池的包装应符合防潮防震的要求；

The cell shall be packed in accordance with the requirements of moisture-proof and shock- proof.

8.2 包装箱内应装入随同产品提供的文件：

The packing case shall contain the documents provided with the products:

——装箱单（指一批多箱包装时） Packing list (refers to a batch of multiple boxes);

——产品合格证 Product certificate;

——产品检验报告 Product inspection report.

9. 标识 Identification

9.1 单体电池产品上应有下列标识：

Cell product shall have the following marks:

——额定容量 Rated capacity

——极性符号+ 、- Polar symbol: +/-

——产品条码（信息包含产品型号、批号、生产日期信息）

Product barcode (information including product model, batch number and date of production)

9.2 包装箱外壁应有下列标志：

Each packing case shall be marked with：

——产品名称（锂离子电池）、产品型号、产品批号、产品等级、数量、物料编码

Product name (solid lithium ion cell), product model, product batch number, product grade, quantity, material code

——标明防潮、不准倒置、轻放等标志 Moisture-proof, no upside-down and other signs

——制造商或商标 Manufacturer or trademark

10. 存储及其他事项 Storage and Others

10.1 长期储存 Long Time Storage：

长期储存的电池（超过 3 个月）须置于干燥、凉爽处，每 1 个月对电池进行一次充放电，储存电压为 3.7V，且充放电环境要求如 7 所述。

If the cell is to be stored for a long time (over 3 months), the cell should be stored in dry and cool place. The cell should be charged and discharged every six month. The cell's storage voltage should be 3.7V and the cell is to be stored at the condition as NO.7.

10.2 其他事项 Others：

任何本规格书中未提及的事项，须经双方协商确定。

Any matters which have not been covered in this specification should be conferred between the customer and Nanwu Technology (Guangzhou) Co., Ltd.

11. 保质期及产品责任 Warranty Period and Product Liability

11.1 保质期 Warranty

保质期是从客户验收开始起 12 个月。

Warranty period of this product is 12 months from the production date.

11.2 产品责任 Product Liability

南屋科技（广州）有限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，当本规格书有一些变动时，本公司会通知购买方。

Nanwu Technology (Guangzhou) Co., Ltd is not responsible for the troubles caused by mishandling of the cell which is clearly against the instructions in this specification. Nanwu Technology (Guangzhou) Co., Ltd will notify our customers if there are any changes of the product specification.

12. 文件有效期 Validity Period of Documents

本文件自发布之日至下次修正日止。

The validaiton for this document is from the issue date to the date of the next revision.

13. 保密 Confidentiality

本产品规格书在没有得到南屋科技（广州）有限公司的许可时，不能向第三方泄露，禁止复印或转载。

This product specification shall not be disclosed to any third party without the permission of Nanwu Technology (Guangzhou) Co., Ltd; nor shall it be copied or reproduced.

14. 警告及注意事项 Warnings and Cautions

14.1 不要将电池投入火中或加热；Do not put the cell into the fire or a heater;

14.2 不要将电池分解拆散；Do not dismantle the cell;

14.3 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 cell in water or seawater, keep the cell in a cool dry environment if it stands by;

14.4 禁止将电池放在热源旁，如火、加热器等；

Do not use or leave the cell near sources of heat such as a fire or heater;

14.5 充电时请选用锂离子电池专用充电器；

Use the charger specifically for lithium-ion cell when recharging;

14.6 严禁颠倒正负极使用电池；Do not reverse the position and negative terminals;

14.7 严禁将电池直接插入电源插座；Do not connect the cell directly to an electrical outlet;

14.8 禁止用金属直接连接电池正负极短路；

Do not short-circuit the cell by directly connecting the positive and negative terminals with metal objects;

14.9 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 cell together with metal objects such as hairpins, necklaces, etc;

14.10 禁止敲击或抛掷、踩踏电池等；

Do not strike, trample or throw the cell, etc;

14.11 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 cell and pierce the cell with a nail or other sharp objects;

14.12 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、起火或功能失效、寿命减短；

Do not use or leave the cell at high temperature (for example, under the hot sunlight or in a hot vehicle). Otherwise, it can overheat, catch fire, or suffer from performance and life degradation;

14.13 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 cell in a location with strong electrostatic field or magnetic field. Otherwise, the safety protective device may be damaged, causing safety hazard;

14.14 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； If the cell leaks and the electrolyte gets into the eyes, do not rub the eyes, instead, rinse the eyes with clean water, and immediately seek medical attention so as not to cause more injury to your eyes;

14.15 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 cell 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 cell charger and stop using it;

14.16 废弃之电池应用绝缘纸包住电极以防起火、爆炸；

Be aware that abandoned batteries may cause fire or explosion, tape the cell terminals to insulate them;

14.17 如果电池极柱弄脏，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 cell terminals are stained, clean the terminals with a dry cloth before use. Otherwise performance degredation may be caused due to the poor connection.