深圳市元明电源有限公司

Shenzhen Soshine Battery Co.,LTD

产品规格书

Product Specification

客户名称/Customer Name:

产品型号/Model：16340-550mAh

发行日期/issuing date: 2023-02-23

批　准/approve	审　核/review	制 定/constitute

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1. 范围/range

本规格说明书描述了深圳市元明电源有限公司生产的可充电锂离子电池的产品性能指标The product performance index of the rechargeable rechargeable battery produced by Shenzhen Soshine Battery co., ltd. is described in detail.

2. 产品类别和产品型号/Product category and product model

2.1 类别/category

16340Fe 系列/series

2.2 产品型号/Model

16340-550mAh 产品主要技术参数/MAIN TECHNIQUE IN PRODUCT PARAMETER

NO	项目/item	特性/properties	备注/remarks
3.1	标称容量/Nominal Capacity	**550**mAh	0.5C 恒流放电到 **2.0**V Discharge constant current
3.2	最小容量/Minimum	**550**mAh	0.5C 恒流放电到 **2.0**V Discharge constant current
3.3	标称电压/nominal voltage	**3.2**V	单只电芯/Single Batteries
3.4	充电终止电压/ end-of charge voltage	**3.65**V±0.03V	单只电芯/Single Batteries
3.5	放电终止电压/Discharge	**2.0**V	单只电芯/Single Batteries
3.6	充电方法/Charge Method	GB	
3.7	标准充电电流/Standard charge current	0.5C	0~45℃
3.8	最大持续充电电流/ Max continuous charge	1.0C	
3.9	最大持续放电电流/ Max continuous discharge	**1.0**C	
3.10	工作温度范围/ operating temperature range	充电温度 Charge temperature 0～45℃	环境温度 ambient temperature
3.11	存储温度/Storage Temperature	within a month -10～45℃	
3.12	内阻/internal resistance	≤**40**mΩ	1KHz 交流方法测量/ Exchange method measurement
3.13	电芯重量/Cell Weight	约 **17.0**g	
3.14	存储电压/Storage voltage	**3.30-3.40**V	50%～60%带电量

备注 remarks/:

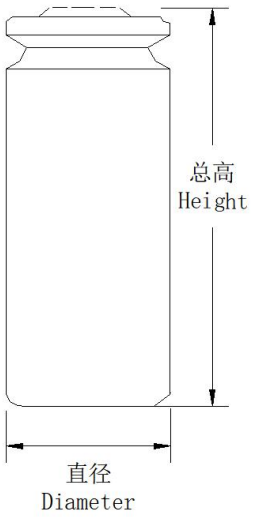
标准充电方法是指用平衡充电器 0.5C 恒定电流对电池进行平行充电，电压到 3.65V 后转为恒压 3.65V 充电，直至电流≤0.02C 为止。

The standard charging method refers to the parallel charge of the battery with a constant current of 0.5 current to the battery, combined voltage to 3.65 to constant pressure 3.65 charging until current 0.02 .

4. 电池外形尺寸,外观及保护板规格（单位：mm，未按比例）

Battery shape, appearance and fender specification (mm, not proportioned)

4.1 成品外形尺寸/Finished product shape



项目/Item	描述/Describe	尺寸/Measurement
1	直径/Diameter	16.45±0.1mm
2	高度/Height	34.00±0.1mm

4.2 保护板功能及参数/ Fender function and parameters

4.3 线路板原件位置图/Location map of circuit board

4.4 外观/exterior

电池外表面清洁，不允许有任何影响电芯性能及价值的外观缺陷，如刮伤、锈斑、污点、泄漏等。

The external surface cleaning of the battery does not allow any appearance defects affecting the performance and value of the battery, such as scratch, pitting, stains, leaks, etc.

5. 电芯性能/Batteries performance

5.1 标准测试条件/Standard Test Conditions

1）测试电池必须是本公司出厂时间在1个月以内的新电池，且未进行过5次以上的充放电循环；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：

温度：25±5℃　　湿度：60±15%

The test battery must be a new battery of the company within 1 month, and has not carried out more than 5 charge-discharge cycles; Unless specifically stated, all tests in this specification are conducted under the following conditions:

Temperature: 25 ℃±5℃ humidity: 60 %±15%

2）测试电流及电压的设备精确度应该不低于0.5级.

The accuracy of test current and voltage shall not be less than 0. 5.

3）内阻仪的测试原理应为交流阻抗法

the measurement principle of internal resistance instrument should be AC impedance method.

4）游标卡尺的精度应不小于0.01 mm

The accuracy of vernier caliper shall not be less than 0.01 mm

5.2 充放电性能

1	实际容量/actual capacity	电池在环境温度为25±5℃的条件下完全充电后静置1~2小时，0.5C放电至2.0V. The battery kept standing for 1 ~ 2 hours after the ambient temperature was 25 ℃, and 0.5C discharged to 2. 0 V.	≥550mAh

2	循环寿命（25℃）cycle life	电池按照标准充电方法充满电后，静置3Min，以1C恒流放电至2.0V，放电结束后，静置3Min，再进行下一充放循环，直至连续三百次放电容量不小于80％的标称放电容量 The battery is charged by the standard charging method, standing for 3 min and discharging at 1C to 2.0V. after discharge, let stand for 3 min, then conduct the next charge-discharge cycle until the initial discharge capacity is less than 80 %..	循环次数≥500次 Cycle times ≥ 500
3	内阻/internal resistance	环境温度(20±5)℃,电池荷电50%状态时以1KHz交流电测得的内部阻抗. When the ambient temperature（20℃±5）, the internal impedance of the battery is 1 khz when the battery is 50 %.	≤40mΩ
4	荷电保持能力/charge retention	完全充电后在（20±5）℃的环境中储存28天，再以0.5C电流恒流放电至2.0V. After fully charged, stored in（20±5）℃ for 28 days, and then discharged to 2.0V with constant current of 0. 5C	剩余容量≥92% Excess capacity ≥ 92 %
5	高温性能/ high-temperature property	完全充电后的电池放入（60±2）℃的高温箱中恒温3h后，以0.5C电流恒流放电至2.0V.After the fully charged battery is placed in（60±2）℃ for 3 h, the constant current is discharged to 2.0 V with 0. 5C current.	剩余容量≥98% Excess capacity ≥ 98 %
6	低温性能/ low-temperature performance	完全充电后的电池放入（-10±2）℃的低温箱中恒温16~24h后,以0.2C电流恒流放电至2.0V. After fully charged battery placed in（-10±2）℃ for 16 ~ 24 h, the battery was discharged to 2.0V with 0.2C current.	放电容量≥70% Discharge capacity ≥ 70 %
7	运输电压/Transport voltage	出货前检验/OQC	3.30-3.40V

5.3 安全特性(以单只测试）/Security feature （ in a single test only ）

序号 No	项目/item	测试方法/test approach	标准/ technical standard
1	过充实验/ Over charge test	单体电池以1C电流恒流放电至2.0V,以电流3C限制电压4.8V的制式充电8小时。 The monomer battery is discharged to 2.0 V by a constant current of 1c current, charging for 8 hours in the mode of current 3 limit voltage 4.8 V.	不爆炸、不起火/ No explosion, no fire
2	过放实验/ Put experiment	电池完全充电后,在环境温度20±5℃的条件下,以3C放电至终止电压后,外接30Ω负载电阻放电24h.After the battery is fully charged, at the ambient temperature of 20 ℃, after discharge to termination voltage, the external 30 Ω load resistance discharge 24h	不爆炸、不起火/ No explosion, no fire
3	短路测试/ short circuit test	将正负极用0.05Ω,电阻器短路1h,将正负极短开. The positive and negative electrode is 0.05 Ω, the resistor short - circuit 1h, will be short and negative.	不爆炸、不起火/ No explosion, no fire
4	热冲击实验/ Heat Shock Test	将充满电的电池放在重力对流或循环空气的烘箱中进行加热，烘箱的温度以5±2℃的速率上升到150±2℃后保温10分钟。 The charged battery is heated in the oven of gravity convection or circulating air, and the oven temperature rises to 150 ℃ for 10 minutes at the rate of 5 ℃	不爆炸、不起火/ No explosion, no fire
5	重物冲击测试/ Impact Test	将电池放置于一平面上，用一直径为15.8mm的圆柱置于电池正下方，用重量9.1KG的重物从610mm高度自由落体到电池中心上方的圆柱上,圆柱落在电池上 Placing the battery on the plane, the cylinder with a diameter stand up for is under the battery, and the weight of 9.1 kg is freely falling from 610 mm to the cylinder above the battery center, and the cylinder falls on the battery.	不爆炸、不起火/ No explosion, no fire

6	振动测试/ Vibration Test	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 1.6mm，振动频率为 10Hz~55Hz，每分钟变化 1Hz。 The Batteries after charging is fixed on the vibration table, vibration 30 minutes in the three directions of x, y, z, amplitude 1.6 mm, vibration frequency of 10 Hz ~ 55 Hz, and change 1 Hz per minute.	无泄漏、不起火/ No leakage, no fire
7	穿刺测试/ Nail Penetration Test	电池在 23±3℃充满电后，用尖端直径小于 0.3mm，穿刺部分最大直径 2.0-5.0mm 在 1S 内快速刺穿电池 The battery is full of dianhou at 23 ℃, with the tip diameter less than 0.3 mm, puncture part of the maximum diameter of 2.0 - 5.0 mm in 1 s fast piercing the battery	无泄漏、不起火/ No leakage, no fire
8	跌落测试/ Drop Test	将标准充电后的电芯从 1 米高度跌落至混凝土地面 2 次 Drop the Batteries after charging standard from 1m to concrete ground 2 times	无泄漏、不起火/ No leakage, no fire
9	挤压测试/ Crush	将充满电后的电池放在两个平面之间，用 3000 磅（13KN)的力度挤压，挤压力度慢慢增加，到达最大力度时结束 Place the battery full of dianhou between two planes, press the strength of 3000 lbs (13 kn), and squeeze slowly to increase, to	不爆炸、不起火/ No explosion, no fire

6. 贮存及保质期/Storage and shelf life

6.1 长期贮存/long-term storage

长期贮存的电池（超过 3 个月）须置于干燥、凉爽处。电池组贮存电压为 **3.30～ 3.40**V 且贮存环境要求如 5.1。

Batteries stored for a long time (more than 3 months) must be placed in a dry and cool place. The storage voltage of the battery pack is **3.30~3.40**V and the storage environment requirements are as shown in 5.1.

6.2 保质期/Shelf Life

电池的保质期为出厂后一年以内，在保质期内由于电池本身的质量问题，我公司将予以调换，如因客户自身操作失误所造成的问题，不予调换。

The shelf life of the battery is within one year after the delivery, due to the quality of the battery within the warranty period, my company will change, such as the problems caused

by the customer's own operation, not to change.

7. 环保要求/RoHS

本产品符合 ROHS 相关要求，具体可参阅我司所提供测试报告。

This product meets the RoHS requirements, specific can refer to my division to provide test report.

本规格书中未提及的事项，须经双方协商确定。

Matters not mentioned in these specifications shall be determined through consultation between the two parties.

锂离子充电电芯操作指示及注意事项
Operation instruction and notice of lithium ion charging

1、前言/preface

本文件“锂离子充电电芯操作指示及注意事项”仅适用于深圳市元明电源有限公司的电芯。

This document" lithium ion charging Batteries operation instruction and notice" only applies to Batteries of Shenzhen Soshine Battery co.,ltd.

声明一/Statement I:

对于在超出文件规定以外的条件下使用电芯而造成的任何意外事故，深圳市元明电源有限公司概不负责。

Shenzhen Soshine Battery co., ltd. shall not be responsible for any accident caused by the use of Batteries under conditions beyond the specified documents.

声明二: Statement ii:

本公司有权对本产品规格书进行修订，在对产品规格书修订后深圳市元明电源有限公司将会通知客户。

The company has the right to revise the product specifications, and the shenzhen Soshine Battery co., ltd will notify the customer after the revision of the

product specifications.

2、电池使用指南/Guide for battery use

认真阅读下面的注意事项，确保正确使用锂离子电池。

Carefully read the following note to ensure proper use of lithium-ion battery.

警　　告 ！/Warning!

不仔细阅读下述事项可能导致电池泄露、爆炸或起火。

Failure to read carefully the following may lead to battery leak, explosion or fire.

- 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。

Failure to read carefully the following may lead to battery leak, explosion or fire.

- 禁止将电池在热高温源旁,如火、加热器等使用和留置。

prohibits the use and retention of batteries near the high heat, such as fire, heater, etc.

- 充电时请选用锂离子电池专用充电器。

Use lithium-ion battery charger when charging.

- 严禁颠倒正负极使用电池。

is strictly prohibited to reverse the positive and negative batteries.

- 严禁将电池直接接入电源插座。

do not connect the battery directly into the power outlet. .

- 禁止将电池丢于火或加热器中。

prohibits leaving batteries in a fire or heater.

- 禁止用金属直接连接电池正负极短路。

prohibits the direct connecting to the battery of positive and negative short circuit.

- 禁止将电池与金属,如发夹、项链等一起运输或贮存。

prohibits the transportation or storage of batteries with metal, such as Barrette or necklaces.

- 禁止敲击或抛掷、踩踏电池等。

prohibit hitting or throwing, pedal battery, etc.

- 禁止直接焊接电池和用钉子或其它利器刺穿电池。

Ban prohibits direct welding of batteries and piercing the battery with nails or other

sharp tools.

- 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,可能会引起电池过热、起火或功能失效、寿命减短。

  prohibits the use or placement of batteries at high temperatures（hot sun or hot cars ）, may cause battery overheat, fire or function failure, and life span.

- 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。

  is prohibited to use in the qiangjingdian and strong magnetic field, otherwise it is easy to damage the battery safety protection device, and bring unsafe hidden trouble.

- 如电池泄露,电解液进入眼睛,请不要揉擦,用清水冲洗眼睛,立即送医治疗,否则会伤害眼睛。

  such as battery leakage, electrolyte into the eyes, please do not rub, wash eyes with water, immediately send medical treatment, or else will hurt the 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 the battery emits an odor, heat, discoloration, deformation or use, storage, and immediately remove the battery from the device or charger and deactivate it.

- 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 electrode is soiled, use dry before use, otherwise it may lead to poor contact function failure.

- 废弃之电池应用绝缘纸包住电极,以防起火、爆炸。

  The discarded battery uses an insulated paper to hold the electrode to prevent fire and explosion.

注　　意/Attention

- 充电电流不得超过本标准书中规定的最大充电电流。使用高于推荐值电流充电将可起电芯的充放电性能、机械性能和安全性能的问题，并可能会导致发热或泄漏。

  the charging current shall not exceed the maximum charging current specified in this standard book. Charging using above recommended current will be available

  The charge-discharge performance, mechanical properties and safety performance of Batteries may cause heating or leakage.

- 充电电压不得超过本标准书中规定的额定电压（3.65V/单体电芯）。3.65V 为充电电压最高极限，充电器的设计应满足这个条件。电芯电压高于额定电压值时，将可能引起电芯的充放电性能、机械性能和安全性能的问题，可能会导致发热或泄漏并引起安全问题，

  The charging voltage shall not exceed the rated voltage specified in this standard book（ 3.65 V/ monomer Batteries ）. 3.65 v is the highest limit of charging voltage, the design of the charger shall meet this condition. When the Batteries voltage is higher than the rated voltage, the problems of charge and discharge performance, mechanical performance and safety performance may cause heating or leakage and cause safety problems,

- 放电电流不得超过本标准书规定的最大放电电流，大电流放电会导致放电芯容量剧减并导致过热。

  discharge current shall not exceed the maximum discharge current specified in standard book, and large current discharge may cause the discharge core capacity implode and lead to overheating.

- 需要注意，在电芯长期未使用期间，它可能会用其自放电特性而处于某种过放电状态。为防止过放电的发生，电芯应定期充电，将其单体电压维持在 3.30V 至 3.40V 之间。

  needs to note that, during the long period of Batteries, it may be in some Guo state with its self-discharge electrical property. In order to prevent the occurrence of Discharge, Batteries should charge regularly, and the monomer voltage is maintained between 3.30 v and 3.40 v.