



东莞市上科电业有限公司
DONGGUAN SUNCORP ELECTRONIC CO.,LTD

Lithium-ion Rechargeable Battery
Specification Sheet

二次锂离子电池承认书

PROJECT NAME 产品名称:
ICR18650 5200mAh 3.7V

该产品环保要求: ☒HSF ☐HS ☐其它_____

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History of specification

规格书修订记录

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1. Scope 适用范围

This specification should be applied to Lithium-ion rechargeable battery pack of ICR18650 (1S1P) which is manufactured by Suncorp Electronic Co., Ltd. The products satisfy ROHS requirements

本规格书适用于东莞市上科电业有限公司生产的 ICR18650。产品满足 ROHS 要求。

2. Specification 主要技术参数

NO	Items	Criteria	Remarks
2.1	Typical Capacity 标称容量	5200mAh	Discharge:0.2CmA cut-off voltage:3.00V
	Minimum Capacity 最小容量	5100mAh	0.2CmA 放电至 3.00V 截止
2.2	Energy 能量	19.24Wh	
2.3	Nominal Voltage 标称电压	3.70V	
2.4	Open Circuit Voltage 出厂电压	3.80V~4.00V	
2.5	Load Voltage 负载电压(10Ω)	≥3.75V	
2.6	Impedance Resistance 内阻	≤100mΩ	PACK
2.7	Charge voltage 充电电压	4.20V	
2.8	Standard charge current 标准充电电流	1040mA	0.2C
2.9	Max. charge current 最大充电电流	2600mA	0.5C
2.10	Standard discharge current 标准放电电流	5200mA	1.0C
2.11	Max. discharge current 最大放电电流	13000mA	2.5C
2.12	Discharge cut-off voltage 放电截止电压	3.00V	
2.13	Operating Temperature 工作温度	0~+45℃	Charging 充电
		-10~+60℃	Discharging 放电
2.14	Storage Temperature 贮存温度	+35℃~+45℃	Less than 1 month 小于一个月
		-10℃~+35℃	Less than 6 months 小于六个月
2.15	Weight 重量	约 106g	PACK

3.Battery configuration 电池组成

NO	Item	Criteria	Remarks
3.1	Cell 电芯	ICR18650 2600mAh	2P
3.2	PCM 保护板	DW01+8205*2	
3.3	Line wire 线	1571 16#,长度 100mm	Red and black
3.4	tape 高温胶纸	65*6*0.05mm	

4.Cell Performance Criteria 电芯性能检查及测试

4.1 Appearance 外观和结构

There shall be no scratch, bur and other mechanical scratch, and the connector should be no rust dirt.

The structure and dimensions see attached drawing of the battery.

电池的表面应无明显的划痕毛刺及其它机械划伤，外露的金属端子应无锈蚀污垢。结构尺寸见电池的外形尺寸图；

4.2 Standard Test Conditions 标准测试条件

Test should be conducted with new batteries within one month after shipment from our factory and the cells shall not be cycled more than five times before the test. Unless otherwise defined, test and measurement shall be done under temperature of $23\pm 2^{\circ}\text{C}$ and relative humidity of 45~75%.

测试电池必须是本公司出厂时间不超过一个月的新电池，且电池未进行过五次以上充放电循环。除非其它特殊要求，本产品规格书规定的测试条件为：温度 $23\pm 2^{\circ}\text{C}$ ，相对湿度 45%~75%。

4.3 Measurement Apparatus 测试设备要求

(1) Dimension Measuring Instrument 尺寸测量设备

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.

测量尺寸的仪器的精度应不小于 0.01mm

(2) Voltmeter 电压表

Standard class specified in the national standard or more sensitive class, impedance not less than 10 K Ω /V.

国家标准或更灵敏等级,内阻不小于 10 K Ω /V.

(3) Ammeter 电流表

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01 Ω .

国家标准或更灵敏等级，外部总内阻包括电流表和导线应小于 0.01 Ω .

(4) Impedance Meter 内阻测试仪

Impedance shall be measured by a sinusoidal alternating current method (AC 1kHz LCR meter).

内阻测试仪测试方法为交流阻抗法(AC 1kHz LCR).

4.4 Standard Charge 标准充电

Standard charge current 标准充电电流 0.2CmA=520mA

Max. Charge Current 最大充电电流 1.0CmA=2600mA

Full charge condition: Constant current 0.2CmA to 4.2V, Constant voltage 4.2V to 0.02C in all at $23\pm 2^{\circ}\text{C}$.

满充条件：0.2C 恒流充至 4.2V，然后 4.2V 恒压充电至截止电流为 0.02C，在 $23\pm 2^{\circ}\text{C}$ 环境下充电；

4.5 Initial Performance Test 初始性能测试

Item 项目	Measuring Procedure 测试方法	Requirements 要求
(1) Open-Circuit Voltage 开路电压	The open-circuit voltage shall be measured within 24 hours after standard charge. 标准充电后，24 小时内测量开路电压	$\geq 4.15V$
(2) AC Impedance Resistance 内阻	The Impedance shall be measured in an alternating current method (1kHz LCR meter) after standard charge at $23\pm 2^{\circ}C$. 标准充电后，在 $23\pm 2^{\circ}C$ 采用交流法测量内阻	$\leq 60m\Omega$ (cell)
(3) Minimum Capacity 最小容量	30min rest period after standard charge, then 0.2C (38mA) discharge to a cut-off voltage of 3.00V at $23\pm 2^{\circ}C$. 标准充电后，搁置 30min，在 $23\pm 2^{\circ}C$ 条件下 0.2CmA (520mA) 放电至 3.0V，测试电池容量	$\geq 2550mAh$

4.6 Electrical Performance 电性能测试

4.6.1 Temperature Dependence of Capacity (Discharge) 不同温度放电特性

Standard charge at $23\pm 2^{\circ}C$, and then cooling or heating within 30 minutes to test temperature.

Discharge after the battery maintained at this temperature for 4 hour, low-temperature discharge current of 0.2CmA, high temperature discharge current of 0.5CmA, the battery at room temperature for 2h and then standard charge at ($23 \pm 2^{\circ}C$) after completed an experimental temperature, the request is as follows:

电池在 $23\pm 2^{\circ}C$ 标准充电，然后在 30 分钟内冷却或加热到测试温度。放电前电池在此温度下保持 4 小时，低温放电电流为 0.2CmA，高温放电电流为 0.5CmA，做完一个温度实验后，电池在室温下放置 2h 然后进行充电 ($23\pm 2^{\circ}C$)，要求如下：

Discharge Temperature 放电温度	-10 $^{\circ}C$	25 $^{\circ}C$	55 $^{\circ}C$
Discharge Capacity 放电容量	60%	100%	95%

4.6.2 Cycle Life 循环性能

10min rest period after 0.5C charge, 0.5C discharge to a cut-off voltage of 3.00V, 10min rest period; the test shall be terminated when Discharging Capacity $\leq 80\%$ of Minimum Capacity in three consecutive cycles. Standard charge and discharge at $23\pm 2^{\circ}C$.

0.5C 充电后，搁置 10min，0.5C 放电至 3.00V，搁置 10min，重复上述步骤进行循环，直至电池放电容量连续 3 次 $\leq 80\%$ 最小容量，测试温度 $23\pm 2^{\circ}C$ （影响电池循环性能的重要参数），要求如下：

Cycle time ≥ 300 times 循环次数 ≥ 300 次

4.6.3 Shelf Life 荷电保持能力

Item 项目	Measuring Procedure 内容	Requirements 备注
Storage Characteristics 1 贮存特性 1	1 The capacity on 0.5CmA discharge shall be measured after standard charge and then storage at $23\pm 2^{\circ}\text{C}$ for 30 days (Remaining capacity). 标准充电后电池在 $23\pm 2^{\circ}\text{C}$ 的环境中贮存 30 天，测试 0.5CmA 放电容量。（保持容量）	Remaining Capacity $\geq 90\%$ 容量保持 $\geq 90\%$
	2 After measured remaining capacity, testing max discharge capacity with standard current discharge for 3 consecutive cycles. (Recovery capacity). 测试过上述条件的保持容量后，再测试电芯在标准电流下循环 3 次的最大放电容量。（恢复容量）	Recovery capacity $\geq 95\%$ 容量恢复 $\geq 95\%$
Storage Characteristics 2 贮存特性 2	The capacity on 1CmA discharge shall be measured after standard charge and then storage at $60\pm 2^{\circ}\text{C}$ for 7 days. (Remaining capacity) 标准充电后电池在 $60\pm 2^{\circ}\text{C}$ 的环境中贮存 7 天，测试 1CmA 放电容量。（保持容量）	Remaining Capacity $\geq 60\%$ 容量保持 $\geq 60\%$
	After measured remaining capacity, testing max capacity with standard discharge in three consecutive cycles. (Recovery capacity) 测试过上述条件的保持容量后，再测试电芯在标准电流下循环 3 次的最大放电容量。（恢复容量）	Recovery capacity $\geq 80\%$ 容量恢复 $\geq 80\%$

4.6.4 Long Time Storage Characteristics 长期贮存性能

The production date of experimnted battery must within 3 months. After about half charge after a period of storage at $23 \pm 2^{\circ}\text{C}$ for one year (365 days). The recovery available capacity is $\geq 85\%$ C₅. The capacity is determined with the capacity of the by the most of preceding three cycles.

进行该项实验的电池应选生产日期到实验日期不足 3 个月的电池，贮存前给电池充入 50% 的容量，然后开路搁置 365 天，在 $23\pm 2^{\circ}\text{C}$ 的环境条件下 0.2CmA 循环 3 次，测试恢复容量（3 周循环的最大放电容量），要求如下：容量恢复 $\geq 85\%$ 。

4.7 Mechanical Performance 机械特性

Item 项目	Measuring Procedure 测试方法	Requirements 要求
Vibration test 振动	After standard charge, the battery is to be tested as following conditions: Amplitude:0.19mm Frequency:10~55Hz(sweep:1Hz/min) Direction: X/Y/Z axis for 30min. The battery is to be tested in three mutually perpendicular to each axis. 标准充电后, 将电池安装在振动台上, 在 X、Y、Z 三个垂直方向进行实验, 振动频率在 10~55Hz 间以 1Hz/min 的速度变化, 位移振幅: 0.19mm, 往复振动 30min。	No fire, no explosion, no smoking is obtained. 电池无漏液、冒烟或爆炸,
Drop Test 自由跌落	Drop the battery in the shipment condition(full-charge)from 1m height On the concrete slab on it 1 times each of obverse and inverse directions at 23±2℃ 电池振动试验结束后按下列条件进行自由跌落试验: 跌落高度: 1.0m; 承接物: 混凝土板上; 跌落方向: 沿水平方向正反面各跌落一次。	No fire, no explosion, no smoking is obtained. 电池无漏液、冒烟或爆炸
Constant Humidity and Temperature Characteristics 恒定湿热	Under the temperature of 23±2℃, after charging the battery with 0.2C, then put the battery into the constant temperature and humidity oven with 40±2℃ and 90~95% for 48h, the battery should be no obvious deformation, leakage, rust, smoking and explosion. After testing take out the battery then rest for 2h under the temperature of 23±2℃, discharge with 0.2C to 3.0V. 在 23±2℃ 条件下, 电池按 0.2C 充电结束后, 放入 40±2℃, 湿度 90~95% 的恒温恒湿箱内 48h, 电池应无明显变形、漏液、生锈、冒烟或爆炸, 试验结束后将电池取出搁置 2h, 在 23±2℃ 条件下, 以 0.2C 放电至 3.0V。	Discharge capacity≥60% 放电容量≥60%

4.8 Safety Performance 安全性能

Item 项目	Measuring Procedure 内容	Requirements 备注
Impact 重物冲击	A $\varnothing 15.8 \text{ mm} \pm 0.2 \text{ mm}$ diameter bar is inlayed into the bottom of a $9.1 \text{ kg} \pm 0.1 \text{ kg}$ weight. And the weight is to be dropped from a height of $610 \text{ mm} \pm 25 \text{ mm}$ onto a sample battery and then the bar will be across the center of the sample. The battery should be no fire and explosion. 用一条直径为 $15.8 \pm 0.2 \text{ mm}$ 的圆棒放置在电池中央，将一 $9.1 \text{ Kg} \pm 0.1 \text{ kg}$ 的重锤从 $610 \text{ mm} \pm 25 \text{ mm}$ 的高度垂直落下在电池的中心位置，电池应不起火、不爆炸。	No explosion, no fire. 不爆炸，不起火
Heating Test 热冲击测试	A battery is to be heated in a gravity convection or circulating air oven. The temperature of the oven is to be raised at a rate of $5 \pm 2^\circ \text{C}/\text{min}$ to a temperature of $130 \pm 2^\circ \text{C}$ at which temperature the oven is to remain for 30 minutes before the test is discontinued. 电池放于热箱中，温度以 $(5 \pm 2^\circ \text{C})/\text{min}$ 的速率升至 $130 \pm 2^\circ \text{C}$ 并保温 30min。	No explosion, no fire. 不爆炸，不起火
Over-charging Test 过充电测试	After standard charge, the battery is subjected to a charging current by connecting it to a dc-power supply. The beginning current is 3.0C, which is to be obtained by connecting a resistor of specified size and rating in series with the battery; the voltage of the dc-power supply is 4.60V. The test time is 7 hours. 标准充电后，电池及滑动变阻器串联于一恒流恒压源，电压调节为 4.60V，通过滑动变阻器调节电流至 3.0CmA，然后对电池以 3.0CmA 充电。测试时间为 7H。	No explosion, no fire. 不爆炸，不起火
Over-discharge Test 过放电测试	Discharge at a current of 0.2C to 3.00V. Then charge in opposite current of 1C for 1.5h. There should be no fire and explosion. 电池以 0.2C 放电至 3.00V，然后以 1C 的电流对电池进行反向充电，要求充电时间 1.5h，要求试验过程中电池不起火、不爆炸。	No explosion, no fire. 不爆炸，不起火
Short-circuit Test 短路测试	After fully charge, shorted battery for 1h (load $80 \pm 20 \text{ m}\Omega$). There should be no fire and explosion. ($55 \pm 5^\circ \text{C}$) 电池充满电后，($55 \pm 5^\circ \text{C}$) 将电池正负极短路（外接电阻 $80 \pm 20 \text{ m}\Omega$ ）持续 1h，要求试验过程中电池不起火、不爆炸。	No explosion, no fire The Temperature of the surface of the Cells are lower than 150°C 不爆炸，不起火，电池表面温度应低于 150°C

4.9 Rest Period 搁置时间

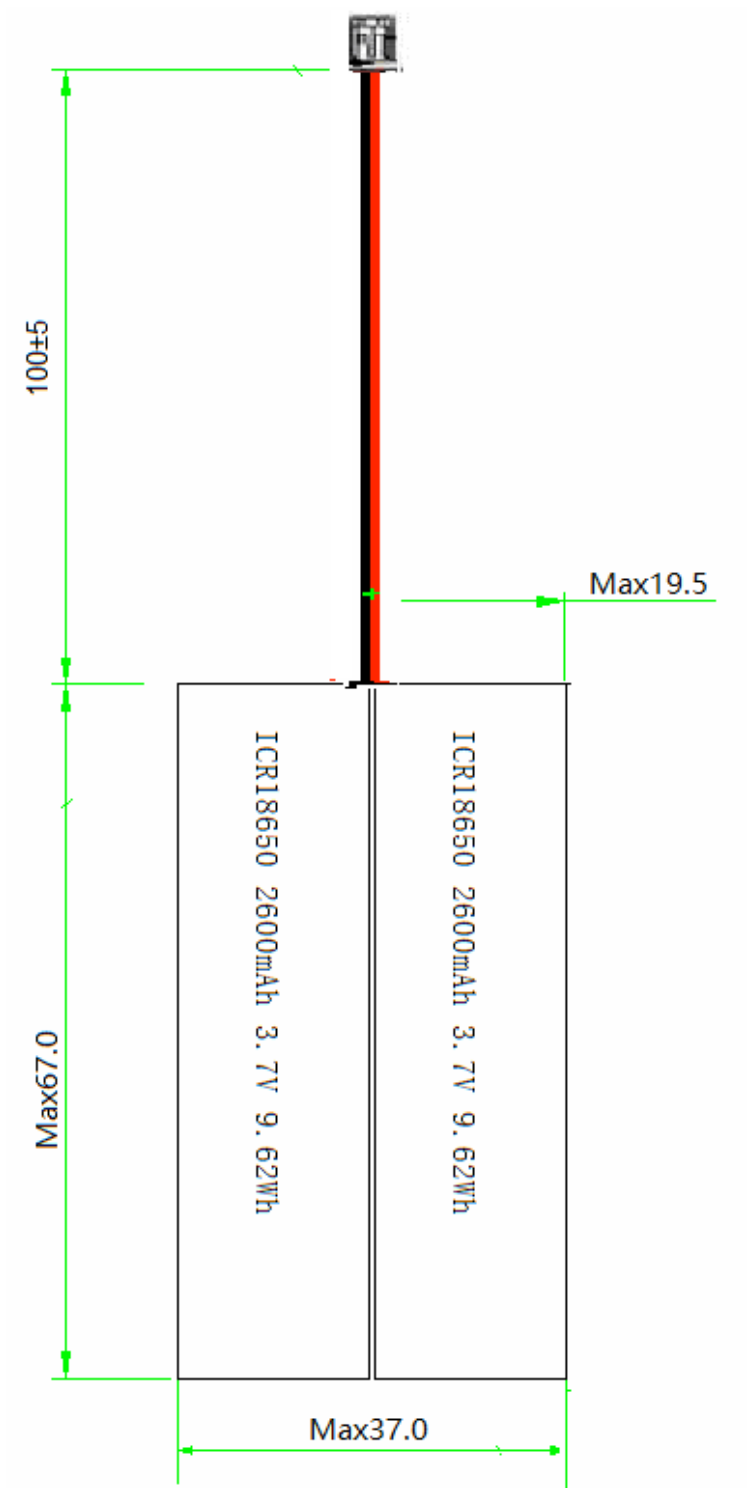
Unless otherwise defined, 10min, rest period after charge, 10min, rest period after discharge.

如无特殊要求，电池充放电间隔为 10min。

5.Cell coding rules 电芯喷码规则

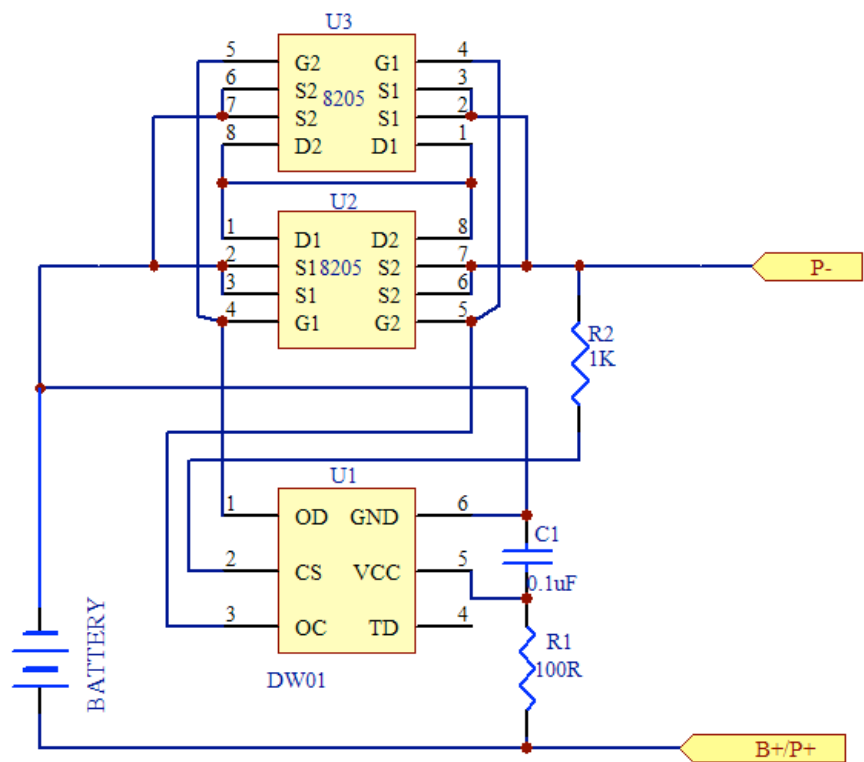
Battery code according to company's rule 电池喷码根据我司内部喷码规则

6.Dimensional Drawing 产品规格图纸



7.Protection Circuit 保护电路

7.1 Circuit Diagram 电路原理图



7.2PCMBOM 物料表

序号	元件编号	元件名称	元件规格	封装形式	数量	备注
1	U1	IC	DW01	SOT-23-6	1	
2	U2	MOS	8205-8	TSSOP8	1	
3	U3	MOS	8205-8	TSSOP8	1	
4	R1	电阻	SMD 100Ω±5%	0603	1	
5	R2	电阻	SMD 1KΩ±5%	0603	1	
6	C1	电容	SMD 0.1μF±20%	0603	3	
7	B+B-	镍片	无	方块		
8	PCB	印制电路板	25*4.2*0.6	1	1	

项目	符号	详细内容	标准
过充保护	V_{DET1}	过充电检测电压	$4.28\pm0.08V$
	tV_{DET1}	过充电检测延迟时间	200ms (MAX)
	V_{REL1}	过充电解除电压	$4.08\pm0.10V$
过放保护	V_{DET2}	过放电检测电压	$2.4\text{ V}\pm0.10V$
	tV_{DET2}	过放电检测延迟时间	100ms (MAX)
	V_{REL2}	过放解除电压	$2.9V\pm0.10V$
过流保护	V_{DET3}	过电流检测电压	$150\pm30mV$
	I_{DP}	过电流保护电流	6—14A
	tV_{DET3}	检测延迟时间	20ms (MAX)
		保护解除条件	断开负载
短路保护		保护条件	外部电路短路
	T_{SHORT}	检测延迟时间	100 μ s (MAX)
		保护解除条件	断开短路电路
内阻	R_{DS}	主回路通态电阻	$R_{DS}\leq65m\Omega$
消耗电流	I_{DD}	工作时电路内部消耗	6.0 μ A (MAX)

Appendix 附录

Handling Precautions and Guideline

For LIP (Lithium-ion Polymer) Rechargeable Batteries

聚合物锂离子充电电池操作指示及注意事项

Preface 前言

This document of 'Handling Precautions and Guideline LIP Rechargeable Batteries' shall be applied to the battery cells manufactured by Dongguan Suncorp Electronic Co., Ltd.

本档“聚合物锂离子充电电芯操作指示及注意事项”仅适用于东莞市上科电业有限公司生产电芯。

Note (1) : 声明一

The customer is requested to contact Dongguan Suncorp Electronic Co., Ltd. in advance, if and when the customer needs other applications or operating conditions than those described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

客户若需要将电芯用于超出本规格书规定以外的设备，或在本规格书规定以外的使用条件下使用电芯，应事先联系东莞市上科电业有限公司，因为需要进行特定的实验测试以核实电芯在该使用条件下的性能及安全性。

Note (2) : 声明二

Dongguan Suncorp Electronic Co., Ltd. will take no responsibility for any accident when the cell is used under other conditions than those described in this document.

对于在超出本规格书规定以外的条件下使用电芯而造成的任何意外事故，东莞市上科电业有限公司概不负责。

Note (3): 声明三

Dongguan Suncorp Electronic Co., Ltd. will inform, in a written form, the customer of improvement(s) regarding proper use and handling of the cell, if it is deemed necessary.

如有必要，东莞市上科电业有限公司会以书面形式告知客户有关正确操作使用电芯的改进措施。

1. Charging 充电

1.1 Charging current 充电电流

Charging current should be less than maximum charge current specified in the Product Specification. Charging with higher current than recommended value may cause damage to cell electrical, mechanical, and safety performance and could lead to heat generation or leakage.

充电电流不得超过本规格书中规定的最大充电电流。使用高于推荐值电流充电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，并可能会导致发热或泄漏。

1.2 Charging voltage 充电电压

Charging shall be done by voltage less than that specified in the Product Specification (4.20V/cell). Charging beyond 4.23V, which is the absolute maximum voltage, must be strictly prohibited. The charger shall be designed to comply with this condition.

充电电压不得超过本规格书刊号中规定的额定电压（4.20V/电芯）。4.23V 为充电电压最高极限，充电器的设计应满足此条件。

It is very dangerous that charging with higher voltage than maximum voltage may cause damage to the cell electrical, mechanical safety performance and could lead to heat generation or leakage.

电池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。电池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。

1.3 Charging temperature 充电温度

The cell shall be charged within the range in the Product Specification.

电池必须在本规格书要求的环境温度范围内进行充电。

1.4 Prohibition of reverse charging 禁止反向充电

Reverse charging is prohibited. The cell shall be connected correctly. The polarity has to be confirmed before wiring. In case of the cell is connected improperly, the cell cannot be charged. Simultaneously, the reverse charging may cause damaging to the cell which may lead to degradation of cell performance and damage the cell safety, and could cause heat generation or leakage.

正确连接电池的正负极，严禁反向充电。若电池正负极接反，将无法对电芯进行充电。同时，反向充电会降低电芯的充放电性能、安全性，并会导致发热、泄漏。

2. Discharging 放电**2.1 Discharging current 放电电流**

The cell shall be discharged at less than the maximum discharge current specified in the Product Specification. High discharging current may reduce the discharging capacity significantly or cause over-heat.

放电电流不得超过本规格书规定的最大放电电流，大电流放电会导致电芯容量剧减并导致过热。

2.2 Discharging temperature 放电温度

The cell shall be discharged within the range specified in the Product Specification.

电池必须在本规格书要求的环境温度范围内进行放电。

2.3 Over-discharging 过放电

Over-discharging may causes loss of cell performance, characteristics, or battery functions
过放电会导致电芯性能、电池功能的丧失。

The charger shall be equipped with a device to prevent further discharging exceeding a cut-off voyage specified in the Product Specification. Also the charger shall be equipped with a device to control the recharging procedures as follows: The cell battery pack shall start with a low current (0.01C) for 15 - 30 minutes, i.e. pre-charging, before rapid charging starts. The rapid charging shall be started after the (individual) cell voltage has been reached above 3.00V within 15 - 30 minutes that can be determined with the use of an appropriate timer for pre-charging. In case the (individual) cell voltage does not rise to 3.00V within the pre-charging time, then the charger shall have functions to stop further charging and display the cell/pack is at abnormal state.

充电器应有装置来防止电池放电至低于本规格书规定的截止电压。此外，充电器还应有装置以防止重复充电，步骤如下：电池在快速充电之前，应先以一小电流（0.01C）预充电 15~30 分钟，以使电池的电压达到 3.00V 以上，再进行快速充电。可用一计时器来实现该预充电步骤。如果在预充电规定时间内，电池的电压仍未升到 3.00V 以上，充电器应能够停止下一步快速充电，并显示该电芯/电池正处于非正常状态。

3.Storage 贮存

If the battery has to be storied for a long time, the environmental condition should be:
Temperature: $23\pm 2^{\circ}\text{C}$, Humidity: $65\pm 20\%\text{RH}$

长期存储电池须置于温度为 $23\pm 2^{\circ}\text{C}$ 、湿度为 $65\pm 20\%\text{RH}$ 的环境中。

The voltage for a long time storage shall be 3.70V~3.95V range.

贮存电压为 3.70V~3.95V。

We recommend that batteries be charged about once per half a year to prevent over discharge.

如长时间储存，建议每半年充一次电以防止电池过放电。

4.Handling Instructions 电池的注意事项

Read and observe the following warnings and precautions to ensure correct and safe use of Li-ion polymer batteries.

认真阅读下面的注意事项，确保正确使用聚合物锂离子电池。东莞市上科电业有限公司对违反下述注意事项而产生的任何问题不予负责。

Danger!

危 险！

- 1 Do not immerse the battery in water or allow it to get wet.
- 1 勿将电池投入水中或将其弄湿！
- 1 Do not use or store the battery near sources of heat such as a fire or heater.
- 1 禁止在火源或极热条件下给电池充电！勿在热源（如火或加热器）附近使用或贮存电池！如果电池泄漏或发出异味，应立即将其从接近明火处移开；
- 1 Do not use any chargers other than those recommended.
- 1 请使用专用充电器！
- 1 Do not reverse the positive (+) and negative (-) terminals.
- 1 勿将正负极接反！
- 1 Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
- 1 勿将电池直接连接到墙上插座或车载点烟式插座上！
- 1 Do not put the battery into a fire or apply direct heat to it.
- 1 勿将电池投入火中或给电池加热！
- 1 Do not short-circuit the battery by connecting wires or other metal objects to the positive (+) and negative (-) terminals.
- 1 禁止用导线或其它金属物体将电池正负极短路，禁止将电池与项链、发夹或其它金属物体一起运输或贮存！
- 1 Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
- 1 禁止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！
- 1 Do not strike, throw or subject the battery to sever physical shock.
- 1 禁止撞击、投掷或者使电池受到机械震动
- 1 Do not directly solder the battery terminals.
- 1 禁止直接焊接电池端子！
- 1 Do not attempt to disassemble or modify the battery in any way.
- 1 禁止以任何方式分解电池！
- 1 Do not place the battery in a microwave oven or pressurized container.

- 1 禁止将电池置入微波炉或压力容器中！
- 1 Do not use the battery in combination with primary batteries (such as dry-cell batteries) or batteries of different capacity, type or brand.
- 1 禁止与一次电池（如干电池）或不同容量、型号、品种电池组合使用！
- 1 Do not use the battery if it gives off an odor, generates heat, becomes discolored or deformed, or appears abnormal in any way. If the battery is in use or being recharged, remove it from the device or charger immediately and discontinue use.
- 1 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；如果电池正在使用或充电，应立即从用电器中或充电器上取出并停止使用！

Caution!

注 意！

Do not use or store the battery where is exposed to extremely hot, such as under window of a car in direct sunlight in a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.

不要使用处于极热环境中的电池，如阳光直射或热天的车内。否则，电池会过热，可能着火（点燃），这样就会影响电池的性能、缩短电池的使用寿命。

If the battery leaks and electrolyte gets in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.

如果电池漏液后电解液进入眼睛，不要擦，应用水冲洗，立即寻求医疗救助。如不及时处理，眼睛将会受到伤害。

5.Amendment of this Specification 产品规格书的修订

This specification is subject to change with prior notice. Any matters that this specification does not cover should be conferred between the customer and Suncorp.

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前东莞市上科电业有限公司将会通知客户。任何本说明书中未提及的事项，需经双方协商确定。