

**Specification
for
Lithium-ion Rechargeable Cell**

Cell Type: INR18650-2200mAh 4C (不帶PTC)

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1. Preface 前言

This Product Specification describes the technique requirements, test procedure and precaution notes of prismatic type Lithium-ion Rechargeable cell to be supplied to customer by SUNNY BATT

2. Description 说明

2.1 Product 产品: Lithium-ion Rechargeable cell 锂离子可充性电芯

2.2 Model (Type) 电芯型号: INR18650-2200mAh

3. Specification 标准

Item 项目	Specification 标准	Remark 备注
3.1 Normal Capacity 标称容量	2200mAh	0.2C ₅ rate, 2.75V cut-off
3.2 Minimum Capacity 最小容量	2200mAh	0.2C ₅ rate, 2.75V cut-off
3.3 Internal Impedance 内阻	≤35mΩ	AC Impedance, 1000Hz(不含PTC)
3.4 Nominal Voltage 额定电压	3.7V	From 4.20V to 2.75V
3.5 Charging Current (Std.) 充电电流(标准)	0.2C ₅	440mA 0~45°C
3.6 Discharge Current (Std.) 放电电流(标准)	0.2C ₅	440mA -20~60°C
3.7 Charging Current (Max.) 充电电流(最大)	不建议充电	≤0°C
	0.3C ₅	660mA 0~10°C
	0.5C ₅	1100mA 10~25°C
	1.0C ₅	2200mA 25~45°C
3.8 Discharge Current (Max.) 放电电流(最大)	0.5C ₅	1100mA -20~0°C
	1.0C ₅	2200mA 0~20°C
	3.0C ₅	6600mA 20~60°C

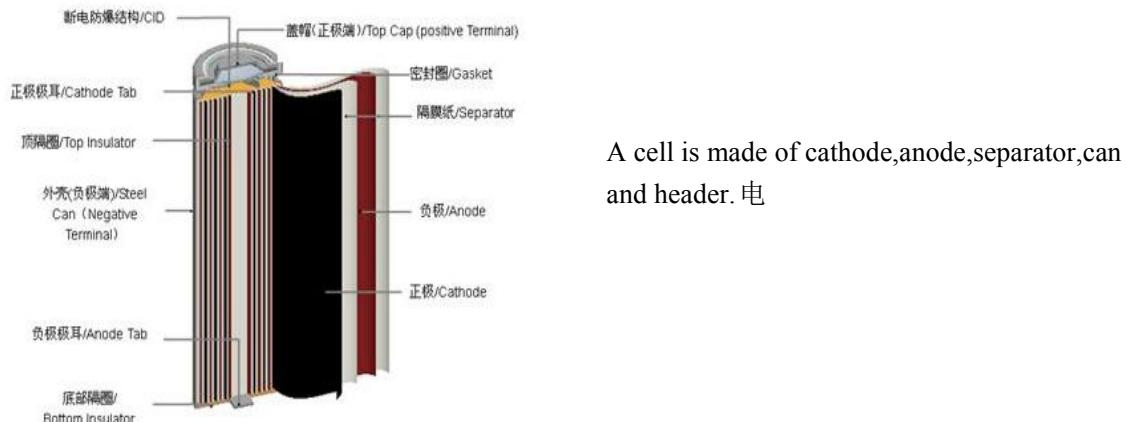
3.9 Maximum Instantaneous Discharge Current (Max.)瞬间放电电流(最大)	5.0C ₅	11000mA 20~60°C
3.10 Rate of discharge efficiency 倍率放电效率百分比	≥97%	0.5C充/1C放
	≥95%	0.5C充/2C放
	≥90%	0.5C充/3C放
3.11 Limited charging Voltage 充电限制电压	4.20V	
3.12 End-of-charge Current 充电终止电流	0.02C ₅	44mA At CV mode
3.13 Discharge Cut-off Voltage 放电截止电压	2.75 V	
3.14 Operating Temperature 工作温度	Charge: 0 to 45°C Discharge: -20 to 60°C	
3.15 weight 重量	Approx. 43.5g	
3.16 Storage Temperature 贮存温度	7 day: -20~60 °C 3month: -20~40 °C 1year: -20~25 °C	
3.17 Casing Color/ Material 套管颜色/材质	170 哑绿色/PET	

4. Dimensions 尺寸

For details,please refer to annex A.

于图

5. Construction 电芯结构



6. Cell bar and explanation

尺寸型号	标称电压	能量	电芯批号	电芯顺序码
INR18650-2200mAh	3.7V	8.14Wh		E8

7. Test Conditions 测试条件

7.1 Standard Test Conditions 标准测试条件

Unless otherwise specified, all tests stated in this Product Specification are conducted at temperature $25^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and humidity $60\%\pm 25\%\text{RH}$.

7.2 Standard Charge Method 标准充电制式

The "Standard Charge" means charging the Cell at a constant current of $0.2\text{C}_5\text{A}$ until the voltage is 4.20V, then charged at a constant voltage of 4.20V until its current is $0.02\text{C}_5\text{A}$.

7.3 Quick Charge Method 快速充电制式

The "Quick Charge" means charging the Cell at a constant current of $0.5\text{C}_5\text{A}$ until the voltage is 4.20V, then charged at a constant voltage of 4.20V until its current is $0.02\text{C}_5\text{A}$.

8. Electrical Characteristics

Test Item 测试项目	Test Method 测试方法	Criteria 检验标准
8.1 High Temperature Performance 高温性能	A cell is charged in accordance with 7.2 and stored in an ambient temperature of $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 4h, then discharged to cut-off voltage at a constant current of $0.2\text{C}_5\text{A}$. 电芯按7.2规定充电结束后，将电芯放入 $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 的高温箱中恒温4h，然后以 $0.2\text{C}_5\text{A}$ 电流放电至终止电压。	Retention: 95% C_5Ah 容量保持率: 95% C_5Ah ;
8.2 Low Temperature Performance 低温性能	A cell is charged in accordance with 7.2 and stored in an ambient temperature of $-20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 4h, then discharged to cut-off voltage at a constant current of $0.2\text{C}_5\text{A}$. 电芯按7.2规定充电结束后，将电芯放入 $-20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 的低温箱中恒温4h，然后以 $0.2\text{C}_5\text{A}$ 电流放电至终止电压。	Retention: 60% C_5Ah 容量保持率: 60% C_5Ah ;
8.3 Charge(Capacity) Retention 荷电保持能力	A cell is charged in accordance with 7.2 and stored in an ambient temperature of $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 30d, then discharged to cut-off voltage at a constant current of $0.2\text{C}_5\text{A}$. 电芯按7.2规定充电结束后，在环境温度为 $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 条件下，将电芯搁置30天，再以 $0.2\text{C}_5\text{A}$ 电流放电至终止电压；	Retention: 85% C_5Ah 容量保持率: 85% C_5Ah ;
	A cell is charged in accordance with 7.2 and stored in an ambient temperature of $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 7d, then discharged to cut-off voltage at a constant current of $0.2\text{C}_5\text{A}$. 电芯按7.2规定充电结束后，在环境温度为 $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 条件下，将电芯搁置7天，再以 $0.2\text{C}_5\text{A}$ 电流放电至终止电压；	Retention: 85% C_5Ah 容量保持率: 85% C_5Ah ;
	The cell is cycled for 3 times using 0.2C . The maximum discharge capacity is tested. 0.2C 循环3次，测试放电容量（3周循环的最大放电容量）	Retention: 95% C_5Ah 容量恢复率: 95% C_5Ah ;
8.4 Cycle Life 循环寿命 ($0.5\text{C}_5\text{A}$ 充/ $1.0\text{C}_5\text{A}$ 放)	At temperature $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, the Cell at a constant current of $0.5\text{C}_5\text{A}$ until the voltage is 4.20V and stored for 10min, then discharged to cut-off voltage, after that, stored 0.5-1h prior to next charge-discharge cycle. The cell shall be continuously charged and discharged for 600 times. 在环境温度为 $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 条件下，电芯 $0.5\text{C}_5\text{A}$ 充电至 4.2V ，而后搁置10min，然后以 $1\text{C}_5\text{A}$ 电流放电至终止电压，放电结束后，搁置0.5-1h，再进行下一次充放电循环，连续进行充放电循环600次。	capacity retention $\geq 80\%$ 容量保持率 $\geq 80\%$