

SPECIFICATION FOR APPROVAL

承认书


客户 / CUSTOMER	:	
客户型号 / CUSTOMER P/N	:	
产品名称 / ITEM	:	RCR123 2槽3.6V磷酸铁锂电池充电器 2channels 3.6V LiFePO4 RCR123 battery charger
产品种类 / DESCRIPTION	:	槽 充 Slot-type battery charger
本公司产品型号 / OUR MODEL NO.	:	CH-RLF051-01
标准 / STANDARD	:	
额定 / RATING	:	I/P:DC 12V500mA O/P:DC3.6V 250mA×2CH
备注 / REMARKS	:	

注意:在贵司出单前,请确认签回以下项目/ Attention: Before placing orders, please confirm to sign back the followings:

- ☐ 产品规格(首页) /Production Spec(Front Page)
- ☐ 铭牌规格(如有) /Nameplate Spec(if any)
- ☐ 包装规格(如有) /Packing Spec(if any)

版本 REV	描述/DESCRIPTION	日期 DATE
A0	首次发行/FIRST EDITION	2018-01-31
A1	修改格式修改格式格式/CHANGE FORMAT	2019-01-17

瑞鼎电子/ Ryder Electronics	
	批准/Approved by
签名 Signature	衣绍鹏
日期/DATE	2019-01-17

客户/ CUSTOMER	
确认	
Approved by	
	(签字或公司盖章)
日期/DATE	

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1 产品特点 Features

- 本机是一款 2 槽 RCR123 磷酸铁锂电池充电器，2 槽独立充电，恒流恒压充电方式，确保充电的质量及安全。
This is a 2 slots RCR123 LiFePO4 battery charger; 2 independent charging channels for individual charging and detection; CC&CV charging mode make sure the safety and high performance of the charger.
- 外置适配器 100-240VAC 50/60Hz 宽电压输入，适应全球。
External adaptor with wide AC input voltage 100 - 240V 50/60HZ, Designed for worldwide usage.
- 外置车载头输入。
External car adaptor input.
- 双色发光 LED 指示充电状态，显示直观。
Bicolor LED display.

注意：请不要拿本充电器充适应范围以外的其它电池及电池包，本规格书所提及的电池均指 **RCR123A 磷酸铁锂电池**。

Note: Don't charge other types of battery except RCR123A LiFePO4 Battery mentioned in this datasheet.

2 电气性能 Electrical characteristics

2.1 外置适配器输入输出特性 Input & output Characteristics of adaptor

2.1.1 输入电压 Input Voltage

输入电压 Input Voltage : AC 100V~240V 50Hz/60Hz

2.1.2 输出直流空载电压 Non-loading DC output voltage

输出 DC (DC Output): 12.0V $\pm 5\%$

2.1.3 输出电流 Output current

输出电流 Output current: 0.5A

2.2 外置车载头输入输出特性 input & output Characteristics of car adaptor

2.2.1 车载输入电压 input voltage of car adaptor

DC 12.0V

2.3 本充电器输出特性 Output characteristics of the charger

2.3.1 输出空载电压 Non-loading output voltage

空载电压 Non-loading output voltage : 5.00V $\pm 0.3V \times 2CH$

2.3.2 额定充电电流：(正常充电条件下) Rated Charging Current (Normal Charging)

额定充电电流 Rated charging current: 250 ± 50 mA $\times 2CH$ @CV=3.2V

2.3.3 输出纹波 Output ripple

输出纹波 Output ripple: $\leq 150mV$ @CC= 200mA

2.3.4 充电电压范围 Charging voltage range

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充电电压范围 Charging voltage range: 1.00V-3.65V × 2CH

2.3.5 充满转灯电压 Full-charge voltage

充满转灯电压 Full-charge voltage: 3.60V±0.05V

The LED will turn to green when battery is fully charged.

2.3.6 最大安全充电时间 Max. Safety charging time : 3H

2.3.7 温度保护 Temperature protection

当电池温度超过 55 摄氏度时，停止充电

When the temperature reaches to 55℃, the charger stops charging

2.3.8 充电方式 Charging Mode

采用恒流恒压充电方式 Constant current & Constant voltage charging mode

2.3.9 短路电流 Short-circuit protection current

当充电器输出端短路，充电器进入短路保护状态，指示灯黄灯闪烁，短路保护

Once the output terminal short-circuited, charger will enters short-circuit protection status, LED flashing yellow lights for warning. Short circuit protected.

2.3.10 正向漏电电流 Positive leakage Current

充电器正向漏电电流 Positive leakage Current: ≤1mA /CH

3 充电方式及 LED 指示状态 Charging Characteristics & LED Indication

3.1 LED 指示 LED Indication

不接电池 Non-loaded

充电指示灯 LED indicator-----OFF

电池电压低于 1V 时 Battery voltage≤1V

充电指示灯 LED indicator-----黄灯长亮 Solid yellow

电池温度高于 55 度时 Battery temperature>55℃
fast flashing

充电指示灯 LED indicator-----红灯快闪 red lights

电池充电 30 分钟后，After 30 minutes of charging,

电池电压低于 2.5V 时 Battery voltage≤2.5V
flashing

充电指示灯 LED indicator-----红灯慢闪 red lights slow

正常充电状态 Normal charging status

充电指示灯 LED indicator——红灯长亮 Solid red

电池充满状态 Full charged status

充电指示灯 LED indicator——绿灯长亮 Solid green

输出短路 Short Circuit

flashing

充电指示灯 LED indicator ——黄灯闪烁 Yellow lights fast

充电 3H 后 After 3H of charging,

flashing

充电指示灯 LED indicator-----绿灯慢闪 Green lights slow

4 适用环境 Adaptive Environment

4.1 工作温度 Operating Temperature

0~+40℃

4.2 工作湿度 Operating Humidity

Operating Humidity: ≤90% （不结露 no condensation）

4.3 贮存温度 Storage Temperature

Storage Temperature: -20~+80℃

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4.4 存储湿度 Storage Humidity

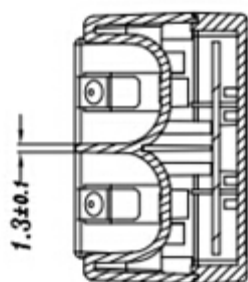
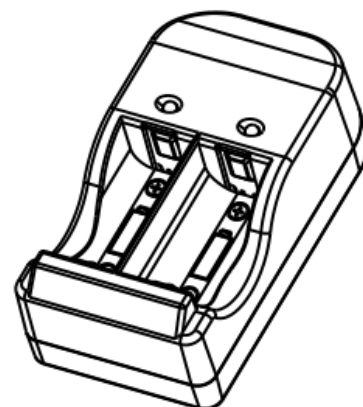
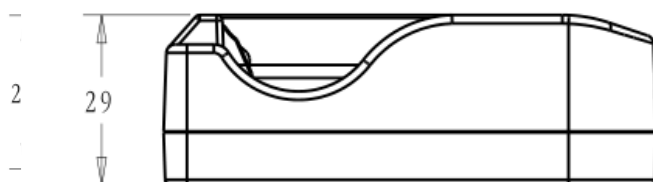
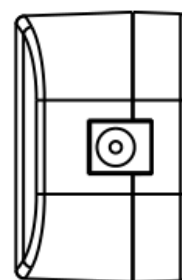
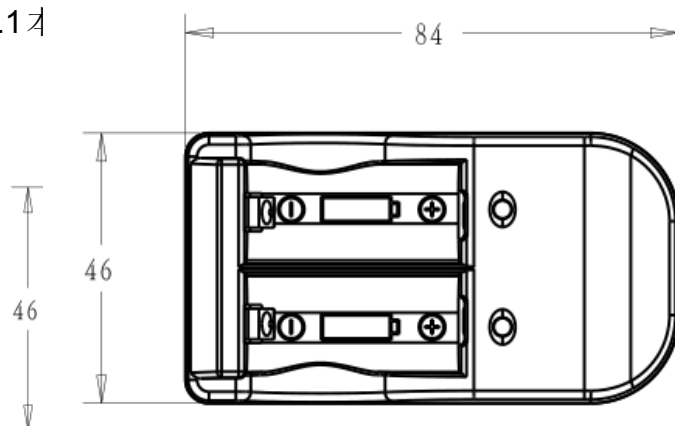
相对湿度 Relative Humidity: $\leq 85\%$

4.5 大气压力 Atmospheric Pressure

大气压力 Atmospheric Pressure: 70~106KPa

5 机械 Mechanical Requirements

5.1 尺寸



center barrier thickness is 1.3 ± 0.1 mm, and the

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height is the same as the charger surface。

充电器底部设计排水槽 Design drain port at the bottom of the charger

电路板设计三防漆 Circuit board with conformal coating

具体外观颜色及印字按客户要求定制 Color and printing content can be custom-made.

5.2 本充电器铭牌标贴 Nameplate /label

铭牌具体规格可按客户要求订制 Nameplate content can be custom-made according to customer's requirement

5.3 适配器 Adaptor

外置适配器具体外观颜色及 AC 输入插头标准按客户要求定制。

Color and AC connector can be custom-made according to the requirement.

5.4 车载头 car-adaptor

外置车载头具体外观颜色按客户要求定制。

Appearance Color can be custom-made according to the requirement.

6 可靠性能 Reliability

高温试验: 实验温度为 $65^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ，产品不包装，持续时间为 5 小时。在常温下放置待恢复后对其外观、指示功能及电气性能进行重新测试。外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分不应有锈蚀； LED 指示功能及电气性能正常。

High Temperature Test: Place the unpacked product into the test chamber and leave it at the temperature of $65^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 5 hours, then take it out and let it cool down to room temperature. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unaccepted.

低温试验: 实验温度为 $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ，产品不包装，持续时间为 8 小时。在常温下放置待恢复后对其外观、指示功能及电性能进行重新测试外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分不应有锈蚀； LED 指示功能及电气性能正常。

Low Temperature Test: Place the unpacked product into the test chamber and leave it at the temperature of $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 8 hours, and then take it out and let it recover back to room temperature. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unaccepted.

恒定湿热试验: 实验温度为 $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ，湿度为 90%~95%，产品不包装，持续时间为 48 小时。测试后对其外观、指示功能及电性能进行重新测试。外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分不应有锈蚀； LED 指示功能及电气性能正常。

Constant Temperature and Moisture Test: Place the unpacked product into the test chamber and leave it at the temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and humidity of 90%~95% for 48 hours and then take it out. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unaccepted.

振动试验: 频率为 10~55HZ，振幅为 0.35mm，每个方向上扫频循环次数为 10 次。实验后对其外观、指示功能及电性能进行重新测试。外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分

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不应有锈蚀； LED 指示功能及电气性能正常。

Vibration Test: Test the charger at the frequency of 10~55Hz and amplitude of 0.35mm for 10 sweep cycles from each direction. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unacceptable.

跌落试验：高度为 1 米，实验台厚度为 20mm 的硬木板，6 个表面，每个方向 1 次。实验后对其外观、绝缘强度、指示功能及电性能进行重新测试，电性能应满足要求。外观无破损，内部无异响。

Drop Test: Free fall from the height of 1m onto a 20mm thick hard wood surface from 6 different corners of the charger. Check its appearance, dielectric strength, indication and electrical performances. Any damages, malfunctions or abnormal sound inside the charger are unacceptable.

7 外观要求 Appearance Requirement

充电器外壳表面平整无划痕，毛刺及其它机械损伤，丝印完整清晰，外露金属部份无锈蚀。

Charger surface should be smooth without any scratches, glitches or other mechanical damages. Silk print should be clear and intact. No corrosion should be on the exposed metal parts.

8 体积与重量 Volume & Weight

8.1 体积 Volume

L84 * W46 * H29 mm³

8.2 重量 Weight

净重 Net Weight: 45g

9 抽样标准 Sampling Standard

产品抽样检验参照 MIL-STD-105E 标准制定满足本公司产品品质检验之抽样计划，并严格督导实施。当客户或合同有特殊要求时。可按客户和合同要求执行。

The default QA inspection is based on MIL-STD-105E standard and strictly implemented. Special procedure can be arranged upon contract or customer's request.

10 包装 Package

产品包装方式按客户要求订制。Package can be customized according to customer's requirement

11 使用注意事项 Cautions

1. 不可以拿本充电器充适应范围以外的电池。

DO NOT use it to charge inapplicable batteries.

2. 不可在超过 40℃ 环境使用本充电器对电池充电。

DO NOT operate the charger when the temperature is higher than 40℃

3. 为了安全，建议使用 TENERGY 公司的 RCR123 3.2V 磷酸铁锂电池。

FOR SAFETY suggest using RCR123 3.2V LiFePO4 battery pack made by TENERGY.

4. 充电时请远离热源和火源。

Keep it away from heat and combustion source during charging.

5. 请勿在酸、碱、和有腐蚀的环境中使用本充电器及电池

DO NOT use charger and batteries in any acidic, alkaline or corrosive environment.

6. 请勿将充电器进水或淋雨，以免引起安全问题。

DO NOT expose charger to rain, snow, water, gas, oil, etc.

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7. 请勿自行拆开充电器和电池，以免发生危险。

DO NOT disassemble charger or battery.

8. 不得让小孩单独使用本充电器。

DO NOT let children use charger without adult supervision.

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