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## 规格承认书

### Specification Approval Sheet

型号: CR9V 1200mAh  
Model: CR9V 1200mAh

制作 Typed	赵世敏 Zhao shimin
审批 Approved	杨光 Yang guang
日期 Date	2025-03-27

客户确认 Customer approval	签字 Signature	日期 Date
公司名称 Company name	公司印章 Company stamp	

备注: 1. 如果样品通过, 请签署以上表格并回传我司;  
2. 如果样品未能达标, 请尽可能与我司联系, 谢谢!

Note: 1. Kindly please sign on the above and send it back to us if the sample is approved;  
2. Kindly please contact us as soon as possible if the sample isn't approved. Thanks.

## 修正记录

## Amendment Records

版本 Revision	描述 Description	编制 Prepared by	审核 Prepared By	日期 Date
A0	首版 First Publish	赵世敏 Zhao shimin	杨光 Yang guang	2025-03-27

## 1. 范围/Scope

本规格适用于鹏辉能源的锂-二氧化锰（Li-MnO<sub>2</sub>）电池的性能。

This specification is suitable for the performance of the GREAT POWER Lithium and Manganese Dioxide battery.

## 2. 产品型号/Model

CR9V 1200mAh

## 3. 参考文件/Reference Document

IEC60086-4: 2019 Primary batteries - Part 4: Safety of lithium batteries

IEC60086-2: 2021 Primary batteries - Part 2: Physical and electrical specifications

GB/T 8897.2-2021 Primary batteries - Part 2: Physical and electrical specifications

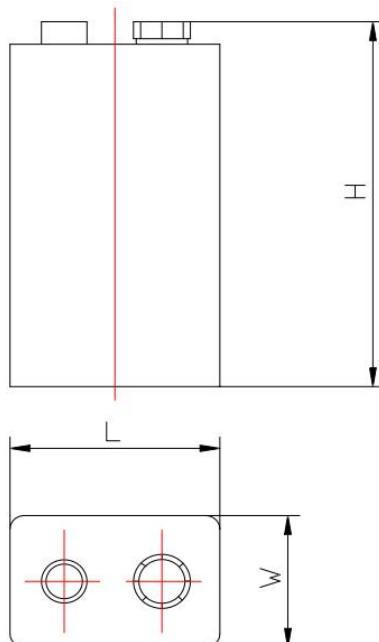
## 4. 电池规格参数表/Battery specification and parameter table

No.	项目 Items	规格 Specifications	备注 Remark
1	电池系统 Battery system	锂和二氧化锰电池 Lithium and Manganese Dioxide Battery (Li/MnO <sub>2</sub> )	/
2	电池类型 Type of battery	原电池 Primary battery	不可充电 Non rechargeable
3	标称电压 Nominal Voltage	9.0 V	/
4	交货电压 Delivery voltage	9.30~9.90 V	开路电压 Open circuit voltage
5	标称容量 Nominal Capacity	1200mAh	在 25±5°C 环境下, 1mA 连续放电至 5.4V Discharge with 1mA to 5.4V at 25±5°C
6	最小容量 Minimum Capacity	1150mAh	在 25±5°C 环境下连续放电至 5.4V Discharge continuously to 5.4V at 25±5°C
7	最大持续放电电流 Maximum discharge current	1000mA	在 25±5°C 环境下连续放电至 5.4V Discharge continuously to 5.4V at 25±5°C
8	最大脉冲放电电流 Maximum pulse discharge current	1500mA	在 25±5°C 环境下脉冲循环放电, 放 3s 停 27s, 放电至 5.4V Pulse cycle discharge at 25±5°C, 3s on 27s off, discharge to 5.4V

No.	项目 Items	规格 Specifications	备注 Remark
9	重量 Weight	约 45 g Approx. 45 g	/
10	工作温度 Operating Temp.	-40 °C to 60 °C	电池在低温环境下性能会下降 The performance of the battery will decrease under low temperature
11	储存寿命 Storage life	5 年 5 years	储存环境: 温度 25±5°C, 湿度≤ 65%RH Storage environment: 25±5°C, ≤ 65%RH

## 5. 结构尺寸 (单位: 毫米 (英寸))

Drawing (unit: mm(inches))



项目/Items	尺寸/Dimension
L	24.5-26.5
W	15.5-17.5
H	46.5-48.5

## 6. 测试条件和性能/Test Conditions and Performance

### 6.1 测量仪器/Measuring Instrument or Apparatus

#### 6.1.1 尺寸测量仪器/Dimension Measuring Instrument

尺寸测量应使用相同或更高精度 0.01mm 的卡尺来执行。

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

#### 6.1.2 电压表/Voltmeter

标准等级在国家标准或更敏感的类别内具有超过  $10k\Omega / V$  的内部阻抗。

Standard class specified in the national standard or more sensitive class having inner impedance more than  $10 k\Omega / V$ .

#### 6.1.3 电流表/Ammeter

标准类别在国家标准或更敏感的类别中指定。 包括电流表和导线在内的总外部电阻小于  $0.01 \Omega$ 。

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

### 6.2 标准测试条件/Standard Test Conditions

测试和测量应在  $25 \pm 5^\circ C$ ，相对湿度为  $\leq 65\%$  的环境下进行。除非特殊指定外。

Testing and measurement should be conducted in an environment with a temperature of  $25 \pm 5^\circ C$  and a relative humidity of  $\leq 65\%$ . Unless otherwise specified.

### 6.3 目视检查/Visual inspection

不得存在划伤，瑕疵，裂缝，渗漏等可能对电池商业价值产生不利影响的缺陷。

There shall be no such defect as scratch, flaw, crack, and leakage, which may adversely affect commercial value of cell.

### 6.4 可靠性测试/Reliability test

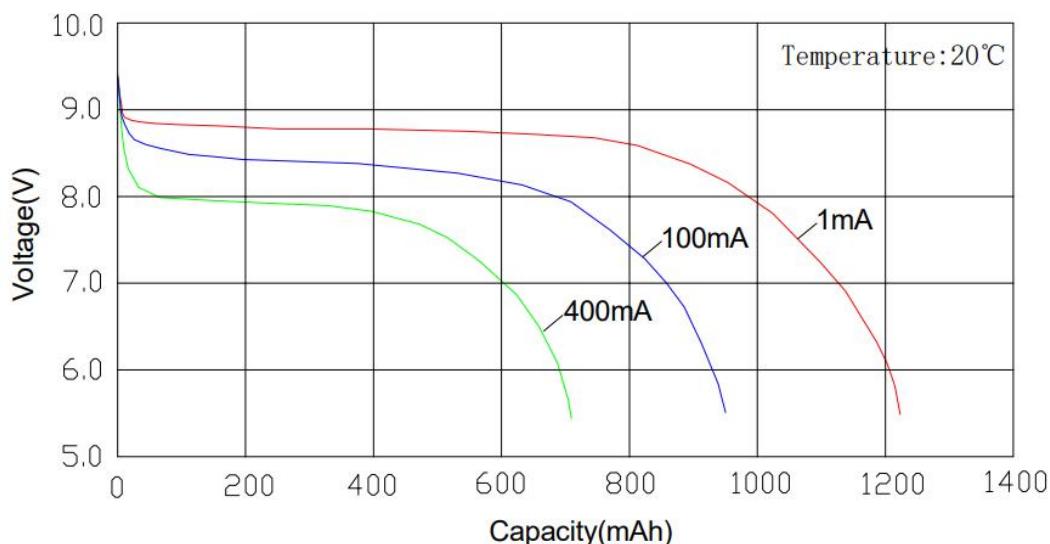
No.	项目 Items	测试方法及条件 Test Method and Condition	标准 Criteria
1	自由跌落 测试 Free fall test	满电电池从 1.0m 高度跌落电池到一个水泥地面，随机跌落三次。 The battery to be fully charged in accordance with standard charge condition, then drop the battery three times from a height of 1.0 m onto a concrete floor. The batteries are dropped so as to obtain impacts in random orientations.	不起火，不爆炸 No Fire, No explosion

No.	项目 Items	测试方法及条件 Test Method and Condition	标准 Criteria
2	振动测试 Vibration test	将满电电芯固定在振动台上, 沿 X、Y、Z 三个方向各振动 15 分钟, 振幅 0.8~1.6mm, 振动频率为由 7Hz~200Hz~7Hz  <i>After standard charging, fixed the cell to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 7Hz~200Hz~7Hz, the excursion of the vibration is 0.8~1.6mm. The cell shall be vibrated for 15 minutes per axis of XYZ axes.</i>	无泄漏, 不起火, 不爆炸 No leakage, No fire, No explosion
3	高温热冲击测试 Thermal exposure test	满电的电池温度稳定到常温后, 放置入循环空气烘箱里, 从常温以 5 ° C/分± 2 ° C/分的速率升至 130 ° C 后, 在 130 ° C 放置 10 分钟  <i>Each fully charged cell, stabilized at room temperature, is placed in a circulating air-convection oven. The oven temperature is raised at a rate of 5 ° C/min ± 2 ° C/min to a temperature of 130 ° C ± 2 ° C. The cell remains at this temperature for 10 min before the test is discontinued</i>	无起火, 无爆炸 No Fire, No explosion
4	短路测试 Short test	在室温 55±5°C 把满电的电池的正负极用不超过 100mΩ 的负载连接起来, 连接起来使电池外部短路, 测试完成后电池静置 6 小时观察  <i>The test cell or battery shall be stabilized at an external case temperature of 55±5 ° C and then subjected to a short-circuit condition with a total external resistance of less than 0.1 Ω at 55±5 ° C. There shall be no excessive temperature rise, no rupture, no explosion and no fire during this test and within the 6 h of observation.</i>	无起火, 无爆炸 表面温度不超过 150°C No Fire, No explosion Surface temperature does not exceed 150 ° C
5	强制放电测试 Forced discharge test	将完全放完电的电池与 3 个同型号满电电池串联, 用电阻小于 0.1 Ω 的导线连接短路。电池短路结束条件: 电池起火、爆炸、漏液或电池完全放电至 0.1V 并且电池外壳温度降到环境温度  <i>Each test battery shall be discharged to 100% depth of discharge. It shall then be connected in series with three undischarged additional batteries of the same type and the circuit load is lower than 0.1 Ω stop the test when battery temperature come back to The environment temperature</i>	无起火, 无爆炸 No Fire, No explosion
6	过充电测试 Over charge test	取满电荷电池, 用直流电源对电池充电, 充电电流为规定的最大充电电流 $I_c=5mA$ 的 3 倍 ( $5mA \times 3=15mA$ ), 保持 12 小时  <i>Charge the battery with full charge and charge it with dc power supply. The charging current is 3 times (<math>5mA \times 3=15mA</math>) of the specified maximum charging current <math>I_c= 5mA</math> and keep it for 12 hours</i>	无爆炸, 无起火 No Fire, No explosion

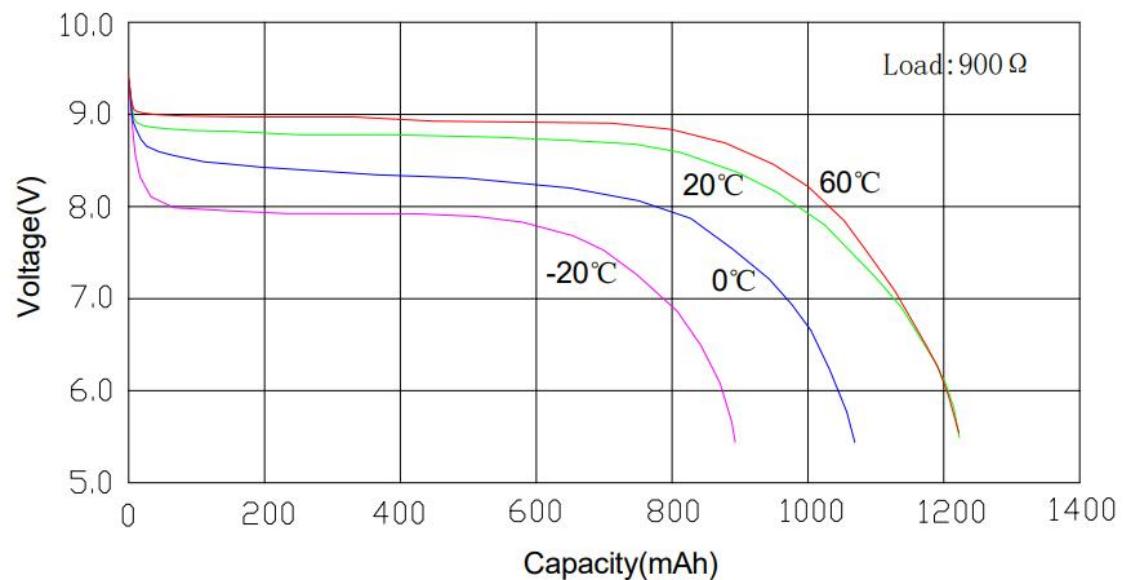
No.	项目 Items	测试方法及条件 Test Method and Condition	标准 Criteria
7	挤压 Crush	将电池平躺放在压力机的两平面钢板中间, 开启阀门在电池上施加 $13kN \pm 0.78kN$ 的压力, 此压力一旦达到即可释放压力  <i>Each fully charged cell is crushed between two surfaces. The force for the crushing is applied by a hydraulic ram exerting a force of <math>13kN \pm 0.78kN</math>. crushing is performed in a manner that will cause the most adverse result. Once the maximum force has been applied, or an abrupt voltage drop of one-third of the original voltage has been obtained, the force is released</i>	无爆炸, 无起火 No Fire, No explosion
8	高低温循环测试 High and low temperature cycle test	将电池置于 $72^{\circ}\text{C}$ 下储存 6 小时, 再转至 $-40^{\circ}\text{C}$ 储存 6 小时, 中间间隔不超过 30 分钟, 循环 10 次后常温静置观察 24 小时 (测试电池使用进行过跌落测试的电池进行测试)  <i>Test cells and batteries shall be stored for at least 6 h at a test temperature of <math>72^{\circ}\text{C}</math> followed by storage for at least 6 h at a test temperature of <math>-40^{\circ}\text{C}</math>. The maximum time for transfer to each temperature shall be 30 min. Each test cell and battery shall undergo this procedure 10 times. This is then followed by storage for at least 24 h at ambient temperature.</i>  <i>The test shall be conducted using the test cells and batteries previously subjected to the altitude test</i>	无漏液, 无生锈, 无起火, 无爆炸 No leakage, no rust, no Fire, no explosion

## 7. 放电测试/Discharge test

Different current discharge characteristics



## Typical Discharge vs. Temperature



## 8. 使用注意事项/Cautions in use

为保证正确使用电池, 请在使用前详细阅读以下使用指南。

To ensure proper use of the battery please read the manual carefully before using it.

### ▪ 操作/Handling

➤ 请勿将电池暴露于或投入火中。

Do not expose to, dispose of the battery in fire.

➤ 请勿将电池反极放入充电器或设备中。

Do not put the battery in a charger or equipment with wrong terminals connected.

➤ 避免将电池短路。

Avoid shorting the battery.

➤ 避免剧烈的振动与冲击。

Avoid excessive physical shock or vibration.

➤ 不能解剖或破坏电池。

Do not disassemble or deform the battery.

➤ 请勿将电池投入水中。

Do not immerse in water.

➤ 请勿将不同生产商、不同规格、不同型号的电池混合使用;

Do not use the battery mixed with used or other different make, type, model batteries.

➤ 请将电池远离儿童。

Keep out of the reach of children.

### ▪ 处置/Disposal

➤ 电池处理法规因国家不同而不同。

Disposal Regulations vary for different countries.

➤ 电池因按当地的法规进行处理。

Dispose of in accordance with local regulations.

## 9. 电池操作说明/Battery operation instruction

### 9.1 放电电流/Discharging current

放电电流不得超过本规范书规定的最大放电电流，超大电流放电可使电池容量降低并导致电池发热的作用。

The discharging current does not have to surpass this specification book stipulation the biggest discharging current, the over sized electric current electric discharge can cause the battery capacity play to reduce and to cause the battery heat.

### 9.2 放电温度/Electric discharge temperature

必须在本规格书规定的环境温度范围内进行电池放电。

The battery discharge must carry on in the ambient temperature scope which this specification book stipulated.

### 9.3 存放电池/Storing the Batteries

电池应存放在产品规格书规定的温度范围内。如果未按规定超过六个月以上的长时间储存，电池容量将会下降。

The battery should store in the product specification book stipulation temperature range. If has surpasses above for six months the long time storage, the discharge capacity will decrease sharply.

## 10. 保质期/Period of Warranty

电池的保质期从出货之日起为一年。如果电池的缺陷是在制造过程中形成的而不是由于用户滥用及错误使用造成，本公司负责退换电池。

The period of warranty is one year from the date of shipment. Great Power guarantees to give a replacement in case of cells with defects proven due to manufacturing process instead of the customer abuse and misuse.

## 11. 其他化学反应/Other Chemical Reaction

由于电池原理为化学反应，所以即使长期存放而未使用，电池性能也会随着时间推移而恶化。另外，如果诸如放电，环境温度等各种使用条件未被保持在规定范围内，则电池的预期寿命可能缩短，或者使用电池的装置可能由于电解质泄漏而被损坏。请及时更换电池。

Because batteries utilize a chemical reaction, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, if the various usage conditions such as discharge, ambient temperature, are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage. Please change the battery in time.