

## 鋰錳電池

# SPECIFICATIONS FOR LITHIUM MANGANESE DIOXIDE BATTERY

## 2CR5

接收人 RECEIVED BY :

制作人 Prepared by 黃明聰

核準人 Approved by \_\_\_\_\_

日期 Date : MAY 2024

松柏電池廠有限公司  
CHUNG PAK BATTERY WORKS LIMITED  
香港寫字樓:香港九龍油塘灣草園街四號華順工業大廈二樓B室  
Unit B, 2/F., Wah Shun Industrial Building, 4 Cho Yuen Street, Yau Tong Bay,  
Kowloon, Hong Kong  
電話 TEL : (852) 27171338 傳真 FAX: (852) 27727727  
電子郵件 E-MAIL: cpgsales@chungpak.com 網址 Website: [www.vinnic.com](http://www.vinnic.com)

松柏(廣東)電池工業有限公司  
CHUNG PAK (GUANG DONG) BATTERY INDUSTRIAL CO.,LTD  
廠址: 中國廣東省佛山市順德區陳村鎮佛陳公路紺村路段  
Gan Cun Section, Fo Chen Road, Chen Cun County, Shun De District, Fo Shan City, Guang Dong  
Province, China  
電話 TEL: (86 757) 23312338 傳真 FAX: (86 757) 23312339  
電子郵件 E-MAIL: cpgsales@chungpak.com 網址 Website: [www.vinnic.com](http://www.vinnic.com)

本公司保留更改產品規格書任何資料的權力, 且無須預先通知。  
We reserve all rights for the change of product specification and any information without any prior notice.

## 目录 Catalogue

|                                                |   |
|------------------------------------------------|---|
| 1. 适用范围 Application Scope .....                | 1 |
| 2. 标准参数 Standard Parameters .....              | 1 |
| 3. 电池性能标准 Performance Standard .....           | 2 |
| 3.1 外观 Appearance .....                        | 2 |
| 3.2 标准测试环境 Standard testing conditions .....   | 2 |
| 3.3 耐漏液性能 Leakage Resistance .....             | 2 |
| 3.4 放电曲线图 Discharge Curve .....                | 2 |
| 3.5 安全性能 Safety Performance.....               | 3 |
| 3.6 机械安全性能 Mechanical Safety Performance ..... | 4 |
| 4. 使用注意事项 Precautions for used .....           | 5 |
| 5. 重要注意事项 Important Notes .....                | 5 |
| 6. 电池外形尺寸 Battery Dimension.....               | 6 |
| 7. 电池包装方式 Battery Packing.....                 | 7 |

## 鋰錳電池 Lithium manganese dioxide battery 2CR5

### 1. 适用范围 Application Scope

本规格书描述电池之标称参数、电气特性、安全性能、环境适应性及其实验和判定、使用说明和安全规程。

The specification describes standard parameters, electrical characteristics, safety performance, environmental adaptability, test and judgment, operation instructions and safety regulations of the battery.

### 2. 标准参数 Standard Parameters

| 序号<br>No. | 内容<br>Item                                       | 参数<br>Parameter                            | 备注<br>Notes |
|-----------|--------------------------------------------------|--------------------------------------------|-------------|
| 1         | 容量 Capacity                                      | 1700mAh                                    |             |
| 2         | 放电电流<br>Discharge current                        | 20mA                                       |             |
| 3         | 终止电压<br>Cut-off voltage                          | 3.0V                                       |             |
| 4         | 开路电压<br>Open-circuit voltage                     | 6.00~6.80                                  |             |
| 5         | 最大连续放电电流<br>Max. continuous discharge<br>current | 1500mA                                     |             |
| 6         | 最大脉冲放电电流<br>Max. pulse current                   | 3000mA                                     |             |
| 7         | -20℃放电 discharge<br>(20mA/1.5V)                  | >1200mAh                                   |             |
| 8         | 工作温度<br>Operating Temperature                    | -40℃~70℃                                   |             |
| 9         | 贮存温度<br>Storage Temperature                      | -20℃~40℃                                   |             |
| 10        | 重量 Weight                                        | 38g                                        |             |
| 11        | 尺寸（直径*总高）<br>Dimension (dia *height)             | (16.7±0.2) * (44.7±0.5) *<br>(33.8±0.3) mm |             |
| 12        | 储存寿命<br>Shelf life                               | 10 年 Years                                 |             |

## 鋳錳電池 Lithium manganese dioxide battery 2CR5

### 3. 電池性能測試規範 Performance Standard

#### 3.1 外觀 Appearance

電池外表面清潔，無電解液泄漏，無明顯的划痕及機械損傷，無變形，無影響電池價值的其它外觀缺陷。

The surfaces of the batteries are clean. There should not be deformation、rust、stain or leakage.

#### 3.2 標準測試環境 Standard testing conditions

除非特別說明，本標準書中所有測試均在以下環境條件下

溫度：25±5℃ 濕度：45～75% 大氣壓力：86～106kpa

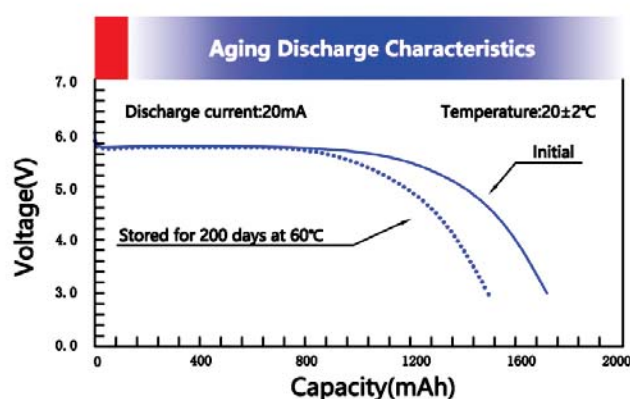
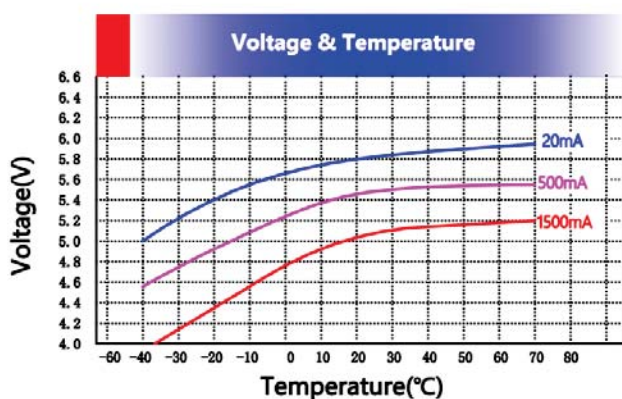
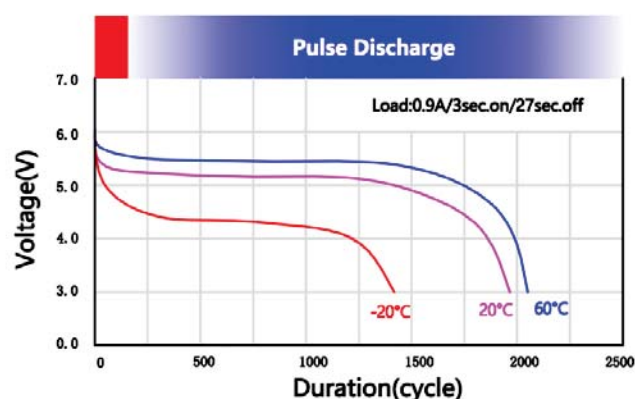
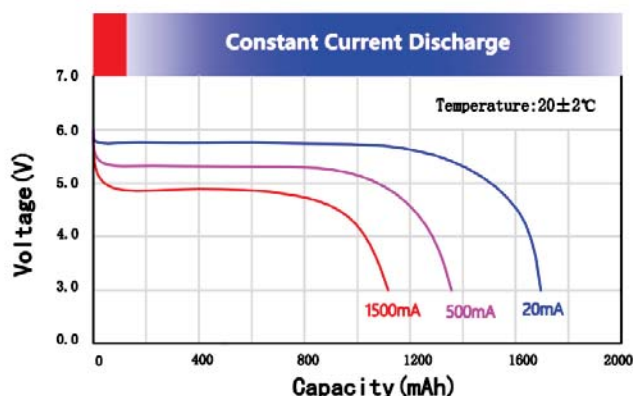
Unless otherwise specified elsewhere, tests should be conducted at

Temperature: 25±5℃ Humidity: 45～75% barometric pressure: 86～106kpa

#### 3.3 耐漏液性能 Leakage Resistance

70℃ 高溫 24 小時後在常溫下將電池放置 8 小時進行目視檢驗，無漏液、無爆炸、無起火。

#### 3.4 放電曲線圖 Discharge Curve



## 锂锰电池 Lithium manganese dioxide battery 2CR5

### 3.5 安全性能 Safety Performance

| 项目 Item                                                     | 测试方法 Test method                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 标准 Standard                                                 |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 外部短路<br>External short-circuit<br>(55℃)                     | 在被检电池的外壳温度稳定在 55℃后，在此温度下对电池进行外部短路，外电路的总阻值应小于 0.1Ω，持续短路至电池外壳温度回落到 55℃后至少再继续短路 1h。继续观察被检样品 6h。<br>After the shell temperature of the tested battery is stable at 55 °C, conduct external short circuit to the battery at this temperature, and the total resistance of the external circuit shall be less than 0.1 Ω. The short circuit shall be continued for at least 1 h after the temperature of the battery shell falls back to 55 °C. Continue to observe the samples for 6 hours.   | 无爆炸<br>无起火<br>No explosion<br>No fire                       |
| 自由跌落<br>Free Fall                                           | 未放过电的电池从 1 m 的高度跌落在混凝土表面上，每个电池应跌落 6 次，在 x、y、z 轴三个方向各跌落两次，然后将受检电池放置 1 h。<br>The battery without being discharged falls on the concrete surface from a height of 1 m, each battery shall be dropped 6 times, twice in X, y and Z axes, and then the tested battery shall be placed for 1 h.                                                                                                                                                                                                | 无泄放<br>无爆炸<br>无起火<br>No leakage,<br>No explosion<br>No fire |
| 高温<br>(热滥用)<br>High temperature                             | 将检验电池置于烘箱内，以 5℃/min 的速度升温至 130℃并在此温度下保持 10min。<br>Put the test battery in the oven, raise the temperature to 130 °C at the speed of 5 °C / min, and keep at this temperature for 10 min.                                                                                                                                                                                                                                                                                                 | 无泄放<br>无爆炸<br>无起火<br>No leakage,<br>No explosion<br>No fire |
| “3+1”反充<br>(单电芯)<br>“3+1”reverse charge<br>(single battery) | 一个受检电池和 3 个未放过电的、相同型号的内含一个单体电池的附加电池串联连接，受检电池与其他电池反向连接。回路的电阻应不大于 0.1Ω。接通该电路 24 h，或者直至电池外壳的温度恢复到环境温度。<br>The tested battery is connected in series with three non discharged batteries of the same model containing a single battery, and the tested battery is connected in reverse with other batteries. The resistance of the circuit shall not be more than 0.1 Ω. Turn on the circuit for 24 hours ,or until the temperature of the battery shell returns to the ambient temperature. | 无爆炸<br>无起火<br>No explosion<br>No fire                       |
| 热冲击<br>Heat shock                                           | 被检电池在温度为 75℃的环境下至少放置 6h，然后在-40℃的环境下至少放置 6h。不同温度的转换时间应不超过 30min。每个被检电池进行 10 个循环后，在环境温度下至少放置 24h。<br>The tested battery was placed at 75 °C for at least 6 hours, and then at - 40 °C for at least 6 hours. The conversion time of different temperatures should not exceed 30 min. After 10 cycles, each battery was placed at ambient temperature for at least 24 h.                                                                                                                     | 无泄放<br>无爆炸<br>无起火<br>No leakage,<br>No explosion<br>No fire |

## 锂锰电池 Lithium manganese dioxide battery 2CR5

### 3.6 机械安全性能 Mechanical safety performance

| 项目 Item                | 测试方法 Test method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 标准 Standard                                                            |                          |                                              |                          |                                              |              |                       |      |     |   |                                                 |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------|----------------------------------------------|--------------------------|----------------------------------------------|--------------|-----------------------|------|-----|---|-------------------------------------------------|
| 振动测试<br>Vibration test | <p>以能如实传递振动但不致电池变形的的方式将被检电池牢牢地固定在振动设备的振动平台上。对被检电池进行正弦波振动-振幅为 0.8mm。在三个相互垂直固定的方位上每个方位各进行 12 次循环，每个方位循环时间共计 3h。其中的一个方位应垂直于电池的极端面。</p> <p>The tested battery shall be firmly fixed on the vibration platform of the vibration equipment in such a way that the vibration can be truly transmitted without deformation of the battery. The vibration amplitude of sine wave was 0.8mm. In three mutually perpendicular fixed directions, 12 cycles were carried out in each direction, and the cycle time of each azimuth was 3 h. One of the orientations should be perpendicular to the end face of the battery.</p>                                                                                                                                                                        | <p>无泄放<br/>无爆炸<br/>无起火<br/>No leakage<br/>No explosion<br/>No fire</p> |                          |                                              |                          |                                              |              |                       |      |     |   |                                                 |
| 挤压测试<br>Crush Test     | <p>通过台钳或具有圆柱形活塞的液压油缸加压力，使受检电池的长轴在两个平面之间被挤压。从最初的接触点开始，以约 1.5 cm/s 的速度持续进行挤压，直至挤压力达到大约 13kN 立即释压。可通过活塞直径为 32 mm 的液压油缸施加压力，直至压力达到 17 Mpa（13 kN）。每一个单体电池或单元电池只挤压一次。观察电池至少 6 h 以上。</p> <p>The long axis of the tested battery is squeezed between the two planes by applying pressure through a vise or a hydraulic cylinder with a cylindrical piston. From the initial contact point, the extrusion is carried out continuously at a speed of about 1.5 cm / s until the extrusion force reaches about 13 kn and the pressure is released immediately. The pressure can be applied through a hydraulic cylinder with a piston diameter of 32 mm until the pressure reaches 17 MPa (13 KN). Each single cell or cell battery is extruded only once. Observe the battery for at least 6 h.</p> | <p>无泄放<br/>无爆炸<br/>无起火<br/>No leakage<br/>No explosion<br/>No fire</p> |                          |                                              |                          |                                              |              |                       |      |     |   |                                                 |
| 冲击测试<br>Shock test     | <p>用能支撑被检电池所有固定面的刚性支座将被测电池固定在检测设备上，每只被检电池在三个相互垂直固定的方位各经受 3 次冲击，共计 18 次。</p> <p>The tested battery is fixed on the testing equipment with a rigid support which can support all fixed surfaces of the tested battery. Each battery is subjected to three times of impact in three mutually perpendicular fixed directions, a total of 18 times.</p> <p>冲击参数 Impact parameters</p> <table><tr><td>电池类型<br/>Battery type</td><td>波形<br/>waveform</td><td>峰值加速度<br/>peak acceleration</td><td>脉冲持续时间<br/>pulse duration</td><td>每个半轴冲击次数<br/>Number of impacts per axle shaft</td></tr><tr><td>小电池<br/>Small</td><td>半正弦<br/>half-sine wave</td><td>150g</td><td>6ms</td><td>3</td></tr></table>                                                                                              | 电池类型<br>Battery type                                                   | 波形<br>waveform           | 峰值加速度<br>peak acceleration                   | 脉冲持续时间<br>pulse duration | 每个半轴冲击次数<br>Number of impacts per axle shaft | 小电池<br>Small | 半正弦<br>half-sine wave | 150g | 6ms | 3 | <p>无爆炸<br/>无起火<br/>No explosion<br/>No fire</p> |
| 电池类型<br>Battery type   | 波形<br>waveform                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 峰值加速度<br>peak acceleration                                             | 脉冲持续时间<br>pulse duration | 每个半轴冲击次数<br>Number of impacts per axle shaft |                          |                                              |              |                       |      |     |   |                                                 |
| 小电池<br>Small           | 半正弦<br>half-sine wave                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 150g                                                                   | 6ms                      | 3                                            |                          |                                              |              |                       |      |     |   |                                                 |

## 鋰錳電池 Lithium manganese dioxide battery 2CR5

### 4. 使用注意事項 Precautions for Used

電池自身有防爆結構，但仍要注意以下的事項，因為有易燃物料，如在電池內含有鋰金屬和有機電解液。  
The battery has an explosion resistant construction. But the following cautions should be taken, because combustible materials such as lithium metal and organic electrolyte are contained in the battery.

- \* 應在適用的設備上使用 Do not use except inapplicable model or equipment
- \* 不能多於三粒電池使用 Do not connect more than three cells in series
- \* 不能混合其他類型的電池使用 Do not mix different types (chemistries) of batteries
- \* 不能短路 Do not short circuit
- \* 不要把電池棄置於火中 Do not dispose in fire
- \* 不能充電 Do not charge
- \* 不能拆解 Do not disassemble
- \* 不能正、負極放反 Do not connect the wrong polarity (+,-)

### 5. 重要注意事項 Important Notes (Warranty)

#### 5.1 警告 Warning:

遠離火源。切勿充電、短路、過放電、壓碎、拆卸、加熱至 100℃(212°F)以上或焚燒。電池應遠離兒童，放在原包裝內，待用後再取出。及時處理用過的電池。

Fire and burn hazard. Do not recharge, short circuit, over discharge, crush, disassemble, heat above 100℃(212°F) or incinerate. Keep battery far away from children put them in original package until ready to use. Dispose of used batteries promptly.

- 5.2 當客戶在電池上做任何加工時，忽略本規格書中的說明，例如電池表面焊線或焊片；松柏(廣東)電池工業有限公司不能保證電池的任何性能 包括安全性 因此造成的電池損壞由客戶承擔全部責任。  
When customer does any work on the battery ignoring instructions in this specification, for example wire is soldered to the tab or battery surface directly; CHUNG PAK BATTERY WORKS, LTD. cannot warrant any battery performance including safety and the customer should undertake the responsibility of all damage caused by this battery

- 5.3 不要直接焊接電池。過熱可能會導致電池組件如墊圈變形，導致電池膨脹、泄漏、爆炸或着火。高溫長時間可能會導致熱量聚集。

Do not solder the battery directly. Excessive heating may cause deformation of the battery components such as the gasket, which may lead to the battery swelling, leakage, explosion or ignition. High temperature and long time may cause heat gathered.

- 5.4 留意製造商指定的貼標電池的焊接條件。如果需要焊接，請選擇已貼標電池。

過度加熱可能會導致墊圈變形、泄漏或電池性能損壞。

Observe the soldering condition for the tabbed battery to be specified by the manufacturer.

Choose the tabbed battery if soldering is required.

Excessive heating may cause deformation of the gasket, leakage or performance deterioration of the battery.

## 鋰錳電池 Lithium manganese dioxide battery 2CR5

- 5.5 焊片可直接點焊在電池端子上。點焊機的參數必須仔細調整，避免電池穿孔，保證焊接時電池溫度不超過 60℃。

Tabs can be soldered on the battery terminals directly by spot-welding. The parameters of the spot-welder must be adjusted carefully to avoid the battery being perforated, changing voltage and temperature rising above 65℃. Assure not to exceed the battery temperature higher than 60℃ at soldering.

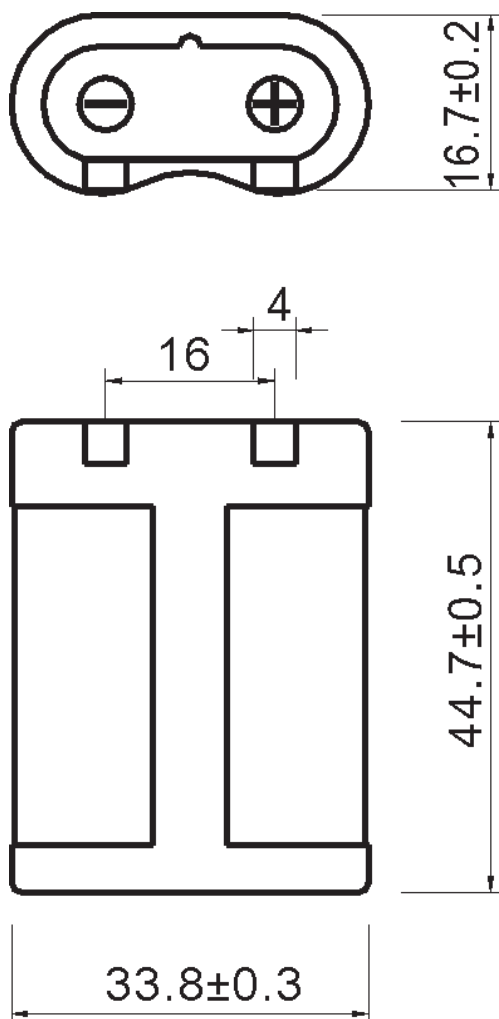
- 5.6 電池特性因類型和等級不同，即使電池大小和形狀相同。更換電池時，一定要仔細檢查每個電池上的符號和數字。

Battery characteristics vary with type and grade, even when batteries are the same size and shape. When replacing batteries with new ones, be sure to carefully check the symbols and numbers on each battery.

- 5.7 請設計合適設備，使嬰兒不能輕易取下電池並吞食。

Please design equipment so that infants cannot easily remove batteries and swallow them.

## 6. 電池外形尺寸 The Battery Dimensions



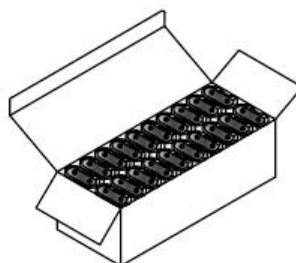
## 鋰錳電池 Lithium manganese dioxide battery 2CR5

### 7. 電池包裝方式 Battery Packing Specification

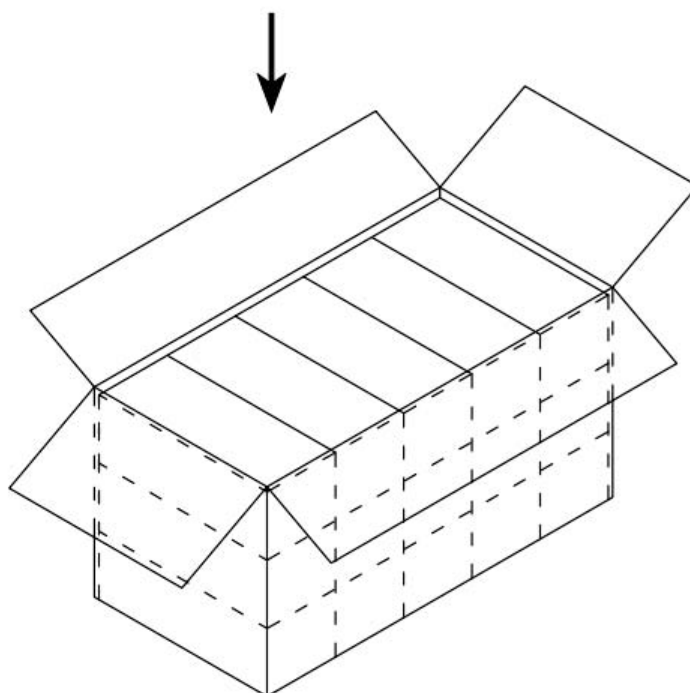
- 1) Two CR123A battery are  
combined into a 2CR5 battery pack



- 2) 20 sets of 2CR5 are packed  
in an inner box  
(20PCS)



- 3) Fifteen inner boxes are  
packed into one outer box  
(300PCS)



Packing list

QTY: 300PCS  
G. W: 12KGS  
N. W: 11KGS  
MEAS: 38X19X20CM