



Power-Station

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Specification

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锂锰针管电池规格书

Lithium Manganese Pin Type Cell Technical Specification

型号: CR435
Model: CR435

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文件变更记录 Amendment Records

版本 Edition	日期 Date	描述 Description
A/0	2013-07-01	新编制 First Edition
A/1	2013-10-01	修订放电曲线 Revise Discharge Curve
A/2	2016-1-18	修改版本

1. 范围 Scope

此规格书适用于动力源生产的锂锰针管电池, 型号: CR435

The specification applies to the lithium manganese pin type battery that supplied by Shenzhen Power Stations Limited, the model is CR435.

1.1 Reference Standard

IEC 60086-1: 2011 原电池 第1部分: 总则

Primary batteries- Part 1: General

IEC 60086-2: 2011 原电池 第2部分: 外形尺寸和电性能要求

Primary batteries- Part 2: Physical and Electrical Specifications

IEC 60086-4: 2011 原电池 第4部分: 锂电池的安全要求

Primary batteries- Part 4: Safety of lithium batteries

2. 化学构成 Chemical Composition

锂-二氧化锰 Lithium Manganese Dioxide

3. 电池性能 Battery Performance

3.1 标称电压 Rated Voltage: 3.0V

3.2 标称容量 Rated Capacity: 50mAh(负载 1mA, 终止电压 2.0V)

50mAh(load current 0.5mA, and cut-off voltage 2.0V)

3.3 标称质量 Standard Weight: 0.95g

3.4 保质期 Shelf Life: 6个月(温度 20±5℃, 相对湿度 65±15% RH)

6month(temperature 20±5℃, relative humidity 60±15% RH)

3.5 外观 Appearance: 目测检查电池表面光洁、无变形。

Through visual measurement, the batteries are smooth and clean, no deformation.

4. 主要技术参数 Main Technical Data

项目 Item	单位 Unit	技术指标 Technical Index	条件 Conditions
标称电压 Rated Voltage	V	3.0	
标称容量 Rated Capacity	mAh	50	负载 1mA, 终止电压 2.0V load current 1mA, and cut-off voltage 2.0V
瞬间短路电流 Instant short circuit current	mA	≥40	测试时间≤0.5S Test time ≤0.5S
开路电压 Open-circuit voltage	V	≥3.0	
贮存温度 Storage temperature	℃	0-40	

适用温度 Operating temperature	°C	-20-60	
标准重量 Standard weight	g	0.95	
自放电率 Self discharge rate	%/year	5	

注: 本产品之电化学体系、尺寸等要求执行 IEC 60086-1:2011 标准。

Remarks: The electrochemistry system, dimension and other requirements of this product are according the IEC 60086-1:2011 standard.

5. 产品检验规范和测试方法 Product Standard and Test Methods

除非特别说明, 所有对产品的测试均需在下列条件下进行:

Unless otherwise indicated, all the tests on the product are proceeded under the below condition:

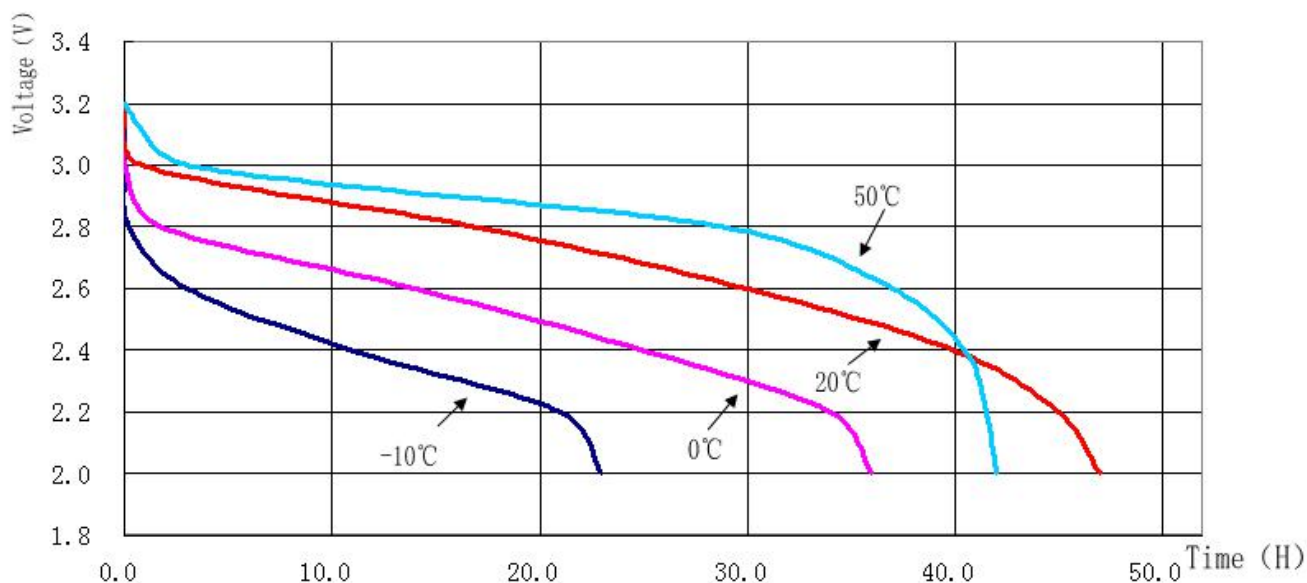
- (1) 环境温度: $20\pm 2^{\circ}\text{C}$; Temperature: $20\pm 2^{\circ}\text{C}$,
- (2) 相对湿度: $65\pm 15\%$ 。Relative humidity: $60\pm 15\%$.
- (3) 所测试电池必须是三个月以能的电池

测试项目 Test content	测试方法 Test method	质量标准 Standard
1. 外形尺寸 Dimension	用精度不小于 0.02 mm 的游标卡尺测试, 测试时需卡尺的接触面上粘贴绝缘材料, 防止短路。 Use slide caliper, accuracy $\geq 0.02\text{mm}$. During test, insulate the contact area of the caliper to avoid short circuit.	外径(mm): 4.02 ± 0.02 高度(mm): 35.5 ± 0.15 Diameter(mm): 4.02 ± 0.02 Height(mm): 35.5 ± 0.15
2. 开路电压 Open-circuit voltage	用精度不低于 0.25%、内阻大于 $1\text{M}\Omega$ 的数字万用表。 Use digital multimeter, the accuracy $\geq 0.25\%$, and the internal resistance $> 1\text{M}\Omega$.	$\geq 3.0\text{V}$
3. 瞬间短路电流 Instant short circuit current	用指针式万用表测试, 每次时间不超过 0.5S, 却必须避免重复测试, 再次测试时间间隔应在 0.5 小时以上。 Use pointer multimeter, and cannot contact more than 0.5S, if test again, should wait for at least 0.5h later.	$\geq 40\text{mA}$

4.外观 Appearance	目测 Visual measurement	整洁, 无变形、锈蚀、漏液。 Clean, no transformation, no rusting and leakage.
5.放电时间 Discharge time	在标准温度 $20\pm 2^{\circ}\text{C}$, 相对湿度 $\leq 75\%$, 载为 1mA , 终止电压为 2.0V 的情况下。 Under the condition: temperature: $20\pm 2^{\circ}\text{C}$, relative humidity $65\pm 15\% \text{ RH}$, current: 1mA , cut-off voltage: 2.0V	$\geq 47\text{H}$
6.高温耐漏液性能 High temperature leakage resistance performance	在 $45\pm 2^{\circ}\text{C}$ 的条件下贮存 30 天。 Store the batteries for 30 days under $45\pm 2^{\circ}\text{C}$.	漏液率 $\leq 6\%$ Leakage rate $\leq 6\%$
7. 过放电耐漏液性能 Over discharge leakage resistance performance	在终止电压到 2.0V 时, 持续放电 5 小时。 Continue to discharge the batteries for 5 hours after the cut-off voltage is 2.0V .	无漏液 No leakage
<p>备注: 1、本产品之外形尺寸和性能执行 IEC 60086-2: 2011 标准。 Remarks: The dimension and performance of this product are according to the IEC 60086-2: 2011 standard.</p> <p>2、上述测试已经过大量的试验得到证实。 The above tests are confirmed by plenty of experiments.</p>		

6. 放电曲线 (以 1mA 连续放电, 终止电压 2.0V)

Discharge Curve: (1mA , 24H/D , 2.0V)



7. 注意事项 Cautions:

警告 Warning	危害 Damages
①请勿将电池浸入水中 Don't put the batteries into water	以免电池发热或生锈。 To avoid battery getting heated or rusting.
②请勿将电池投入火中或加热 Don't put the batteries into fire or heat the batteries.	以免电池发生破裂起火等。 To avoid battery rupture and being on fire.
③使用过程中，勿将+、-极反接 Don't reverse the "+", "-" pole during operation.	以免电池过充或过放而损坏电池，甚至漏液、发热、破裂或起火。 To avoid over-charge or over-discharge of the battery which cause damage to the battery, even leakage, heating, rupture or fire.
④请勿给电池充电 Don't charge the batteries.	以免引起漏液、发热，甚至爆炸及起火。 To avoid leakage, heating, even explosion and fire.
⑤若电池漏液、变色等异常现象，请停止使用 Please stop using if leakage, discoloration or other abnormal phenomenon happened.	以免发生意外。 To avoid accident.
⑥a. 请在-20~60℃的温度范围内使用 Operation temperature: -20~60℃ b. 请在 20±5℃的温度范围内贮存 Storage temperature: 20±5℃	a. 不在此范围内，可能会使电池漏液或发热，影响电池性能； If not in the limits, it may cause leakage, heating which will damage the battery performance; b. 不在此范围内，可能会影响电池性能，缩短电池寿命。 If not in the limits, it may damage battery performance and shorten battery life.



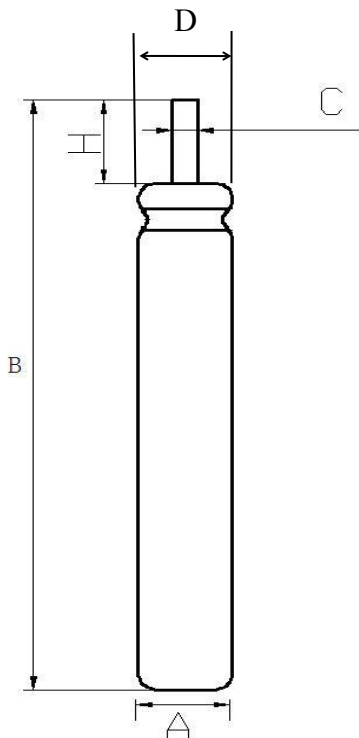
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⑦请勿将新、旧电池混用 Do not mix and use new battery and old battery together	以免造成电池短路或发热。 To avoid short circuit or battery getting heated.
⑧请勿与不同类型或品牌的电池混用 Do not mix and use batteries with different types or different brands together.	以免造成电池发热、漏液或爆炸。 To avoid battery getting heated, leakage or explosion.
⑨请勿将电池置于婴幼儿手可触及的地方 Please keep the batteries away from children.	以免误吞食; 万一吞食, 请立即就医。 To avoid swallow ; in case of swallow, please see doctor immediately.

附录: 电池尺寸:

Appendix : Battery dimension



代码 Code	尺寸规格 (mm) Dimension
A	4.02±0.02
B	35.5±0.2
C	1.0±0.02
D	3.90±0.05
H	5.0-5.5