

锂 锰 电 池 产 品 规 格 书

Lithium Manganese Dioxide Battery product specification

客户名称:
Customer Name

产品名称:
Model Name 可充电纽扣电池

规格型号:
Product model ML1220 18mAh 3.0V

日期:
Date 2025 年 04 月 28 日

◆ 出厂签章:

工程部 PIE	品质部 QA	业务部 B&D	批准 Approved
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规格书修订记录

Revision history

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1. 适用范围 Scope

本份规格书适用于远阳公司生产的锂-二氧化锰扣式电池的产品性能指标。

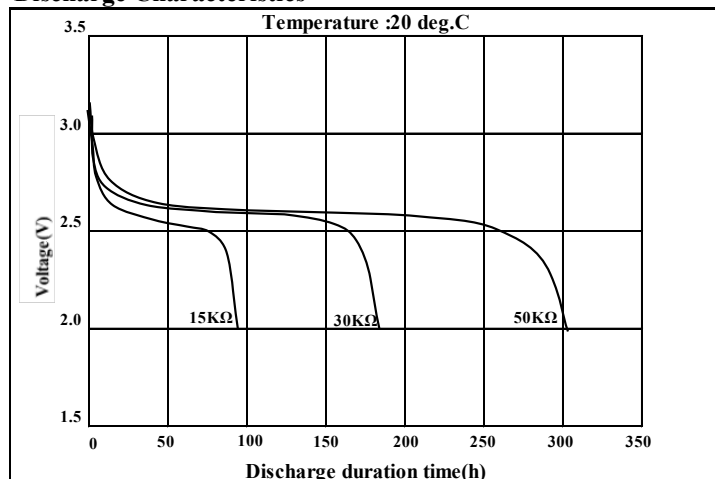
This specification sheet is applicable to the performance indicators of lithium manganese dioxide button batteries produced by FLYOUNG Company.

2. 电池规格 Battery Specifications

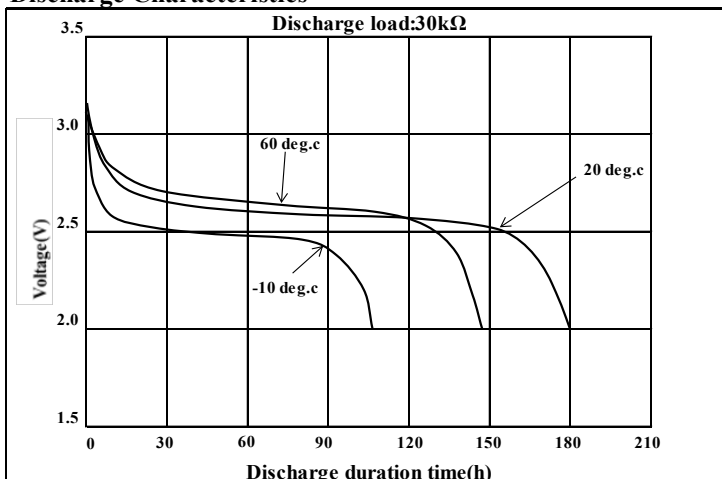
型号 Model	ML1220	
标称电压 Nominal Voltage	3V	
容量 Nominal Capacity	18mAh	
标准放电电流 Nominal Discharge current	0.1mA	
连续标准负载 Continuous standard load	30K Ω	
标准充电电流 Nominal Charge current	1mA	
工作温度 Operating temperature (不可在极限温度长时间持续充放电) Do not charge and discharge at the limit temperature for a long time	-20~70℃	
储存温度 Storage temperature range	0~30℃	
储存湿度 Storage humidity range	35%~75%RH	
重量 Weight	0.8g	

3. 放电曲线 Discharge characteristics on load

Discharge Characteristics



Discharge Characteristics



4. 外观检查 Visual inspection

目测检查电池表面光洁、无破损、变形，标志清晰

Will be free from flaw, stain, deformation, uneven tone, electrolyte leakage and other defects which impair the value of the commodity

5. 测试条件 Test Conditions

5.1 标准测试条件 Standard Test Conditions

除非特别说明，本标准书中所有测试均在以下环境条件下进行：

温度：20±2℃ 湿度：≤55%RH±20℃

Unless otherwise specified, all tests stated in this Product Specification are conducted at below condition:

Temperature: 20±2℃ Humidity: ≤55%RH±20℃

5.2 标准充电方式 Standard Charge Method

“标准充电”即在环境温度为 20℃±2℃ 的条件下，先以恒定电流 1mA 充电至 3.25V±0.01V，再以 3.25V 的恒压充电 4 小时。

Standard charging "refers to charging with a constant current of 1mA to 3.25V ± 0.01V at an ambient temperature of 20 ° C ± 2 ° C, and then charging with a constant voltage of 3.25V for 4 hours.

5.3 标准放电方式 Standard discharge method

“标准放电”即在环境温度为 20℃±2℃ 的条件下，以标准负载 30KΩ 放电到 2.0V。

Standard discharge "refers to discharging to 2.0V with a standard load of 30K Ω at an ambient temperature of 20 ° C ± 2 ° C..

6. 性能检查及测试 Performance Criteria

序号 NO.	项目 Items	测试方法 Test Method	标准 Criteria	
1.	开路电压 Open circuit voltage	用精度不低于 0.25%、内阻大于 1MΩ 的数字万用表。 Precision is 0.25% or more precise、resistance of internal circuit is bigger than 1 MΩ DDM	初始 Initial 2.8V~3.2V 12 个月后 After 12 month 2.5V~3.2V	
2.	温度特性 Temperature Characteristics	按照标准负载 30KΩ 放电的情况下连续放电至 2.0V Continuously discharge to 2.0V under standard load of 30K Ω	初始 Initial	12 个月后 After 12 month
			60℃ ± 2℃ ≥ 145Hrs	60℃ ± 2℃ ≥ 115Hrs
			20℃ ± 2℃ ≥ 180Hrs	20℃ ± 2℃ ≥ 150Hrs
			-10℃ ± 2℃ ≥ 100Hrs	-10℃ ± 2℃ ≥ 70Hrs
3.	高温储存后使用寿命 Service life after high-temperature storage	1.在 60℃ ± 2℃ 的环境中储存 20 天。 2.在 20 ± 2℃ 用标准负载 30KΩ 的情况下连续放电至 2.0V。 1. Store in an environment of 60 ° C ± 2 ° C for 20 days. 2. Continuously discharge to 2.0V at 20 ± 2 ° C with a standard load of 30K Ω .		≥ 150Hrs
4.	循环寿命 Cycle Life	测试条件：先用 5.2 方法将电池充电，再以标准负载 30KΩ 放电至 2.0V 截止，每个步骤中间间隔 10 分钟，当放电容量降至初始容量的 10% 时，所完成的循环次数定义为该电池的循环寿命。 Test conditions: First, use method 5.2 to charge the battery, then discharge it to 2.0V with a standard load of 30K Ω, with a 10 minute interval between each step. When the discharge capacity drops to 10% of the initial capacity, the number of cycles completed is defined as the cycle life of the battery.		≥ 300 次 ≥ 300Times

5.	高温耐漏液性能 High temperature-resistant of weeping performance	在 45±2℃的条件下贮存 30 天。 Storage 30 days Under 45±2 conditions	无漏液 No leakage
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7. 电路设计 Circuit design

保护电阻必须按照以下计算公式设计

Protection resistance R must exceed the value calculated in the following formula:

$$R \geq \frac{V \text{ (Main power source voltage)}}{I \text{ (Maximum allowable charge current per battery)}}$$

8. 安装注意事项 Precautions for Mounting

8.1 重叠电池 Overlapping Batteries

锂二氧化锰电池具有暴露的正极 (+) 和负极 (-) 金属表面, 它们之间有一个薄的圆柱形密封件, 称为垫片。当电池以无序的方式重叠或混合在一起时, 它们的正极 (+) 和负极 (-) 端子会相互接触, 导致短路 (如图)。

Lithium Manganese Dioxide Battery has exposed positive(+)and negative(-) metallic surfaces with a thin cylindrical seal, called the gasket, inbetween them.

When the batteries are overlapped or mixed together in a disorderly way, their positive(+)and negative(-)terminals touch each other, causing short-circuits(as shown in the image)



8.2 电池放置 Battery placement

与重叠电池问题类似, 当电池放在金属容器或金属板上时, 它们的正极 (+) 和负极 (-) 端子可能会通过导电表面短路, 具体取决于电池的位置。

Similar to the overlapping battery problem, when the batteries are put in a metallic container or on a metallic plate, their positive(+)and negative(-)terminals may short-circuit through the conductive surface, depending on how the batteries are position.

8.3 焊接组装电池 Welding and assembling batteries

焊接将导致电池热量升高、密封圈损坏和锂融化而损坏电池。可能导致渗漏、过热、爆炸或引起火灾。电池不应该直接焊接到设备上,它必须通过连接片或导线连接。烙铁温度不能超过 340 摄氏度和焊接时间不得超过 3 秒;重要的是要保持温度低、时间短。不焊接时, 不要将电池投放在焊接池中, 不应该将烙铁搁置在电池上。焊接时应当避免多次焊接,因为它通过连接片或导线等同于对电池进行充电或短接电池。

The welding will cause heat and occasion lithium melted or insulating material damaged in the battery. As a result, the distorting, leakage, overheating, explosion, or fire would be caused. The battery should not be soldered directly to equipment which it must be done only on tabs or leads. The temperature of soldering iron must not be over 340 degree C and the soldering time must not be more than 3 seconds; it is important to keep the temperature low and the time short. The soldering bath should not be used as the board with battery could stop on the bath or the battery could drop into the bath. It should avoid taking excessive solder because it could go to unintended portion on the board resulting short or charge of the battery.

8.4 电池极性安装不当 Improper Battery Mounting Polarity

当电池的正极 (+) 和负极 (-) 端子相对于电池安装的极性标记颠倒时, 电池可能会放电, 具体取决于电路的类型。

When the battery's positive (+)and negative (-)terminals are reversed with respect to the battery mounting's polarity marks, the battery may be discharged, depending on the type of electric circuit.

9. 警告 Warn

请仔细阅读并遵守以下事项

Please read and observe the following precautions thoroughly.

9.1 锂锰电池含有易燃物质，如有机溶剂。电池处理不当可能会导致电池泄漏、发热、爆炸或着火，从而导致人身伤害或产品故障。

Lithium Manganese Dioxide Battery contains flammable materials, such as organic solvent. Improper battery handling may cause leakage, heating, explosion or ignition of the battery, which may lead to injury or product failure.

9.2 请勿将电池放入微波炉或烘干机中。

Do not put the battery into microwave oven or drying machine.

9.3 不要掉落、过度损坏或使电池变形。

Do not drop, apply excessive damage or deform the battery.

9.4 不要将旧电池与新电池或不同类型的电池混合在一起。

Do not mix the used battery together with the new battery or different type of batteries.

9.5 不要将电池存放在高温高湿的地方以及电池暴露在阳光下的地方，以避免电池性能下降、膨胀或泄漏。

Do not store the battery in high temperature and high humidity location and where the battery is exposed to sunlight to avoid performance deterioration, swelling or leakage, of the battery.

10. 质保期限 Warranty

质保是从出厂日期（喷码）开始起十二个月。

Warranty period for this product is 12 months starting from the date when the products left the door of manufacturer.

自出货之日起，电池的质保期限依合同而定，但是在此期限内，如果非远阳公司的制程原因而是客户的误用造成的电池质量问题，远阳公司不承诺免费更换。

The warranty period of cell is made according to business contract. However, even though the problem occurs within this period, FLYOUNG won't replace a new cell for free as long as the problem is not due to the failure of FLYOUNG manufacturing process or is due to customer's abuse or misuse.

> 远阳公司对违反安全守则操作所产生的问题不承担任何责任。

FLYOUNG will not be responsible for trouble occurred by handling outside of the precautions in instructions.

> 出货后客户在产品组装过程中产生的不良电池不在远阳公司质量保证的范围之列。

FLYOUNG will be exempt from warranty any defect cells during assembling after acceptance.

> 规格书所未包含的其它条款由双方协议解决。

Any other items which are not covered in this specification shall be agreed by both parties.