

# Product Specification

Number: L-KLS5-04-CP403054-1500mAh

Name: Primary Lithium Battery

Date: 2025-12-01



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# Primary Lithium Battery

## CP403054

3.0V [Li-MnO<sub>2</sub>]



### BENEFITS

- High Voltage Response, Stable During Most of the Lifetime of the Application
- Energy Density up to 830Wh/L
- Wide Operating Temperature Range (-20°C ~ +70°C)
- Low Self-discharge Rate (less than 1% per year after 1 year of storage at +25°C)

### KEY FEATURES

- Optimized Battery Structure, Full Discharge Capacity
- Long Endurance
- No Passivation
- GB 8897.4-2008、IEC 60086.4:2014 and RoHS

### MAIN APPLICATIONS

- Security System
- Smart Metering
- RFID and Tracking System
- Wireless Transmitting
- Smart Home Devices
- Military Devices

### References Data

#### Electrical characteristics

Open circuit voltage (at 25°C) ≥3.10V

Nominal capacity 1500mAh  
 (At +25°C, battery discharged at continuous current 1mA until

different temperature, discharge current or cut-off voltage.)

Maximum continuous current 600mA  
 (At +25°C, 2.0V cut-off, battery discharged for minimum 50% of rated capacity.)

Maximum pulse discharge current 800mA  
 (At +25°C, 2.0V cut-off, battery discharged for minimum 50% of rated capacity with max pulse for 3 seconds after 27 seconds break. Discharge capacity of the battery will change with the pulse characteristics and ambient temperature as well as storage situation. For more detail, please inquiry KLS.)

Storage (recommended) ≤+30°C  
 (For more severe conditions, consult KLS.) ≤75%RH

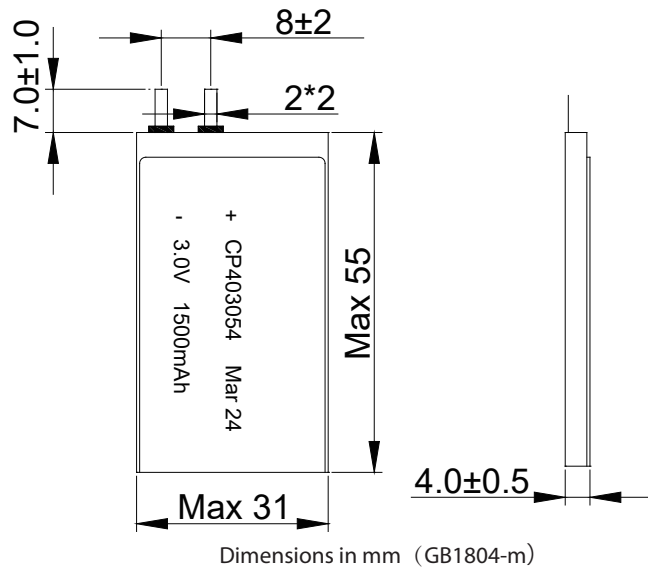
Operating temperature range -20°C ~ +70°C  
 (Operation above ambient temperature may lead to reduced capacity and lower voltage readings at the beginning of pulses, consult KLS.)

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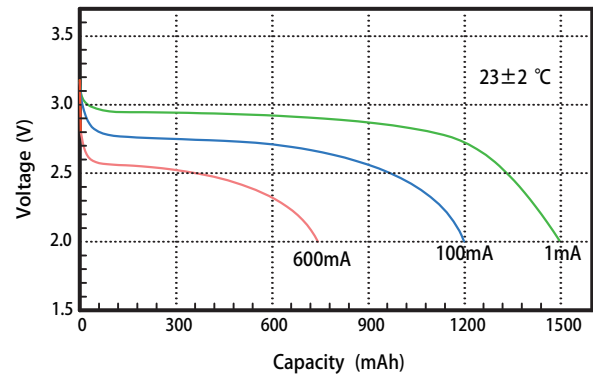
## Physical characteristics

Width	Max 31.0mm
Height	Max 55.0mm
Thickness	4.0±0.5mm
Typical weight	11.2g
Li metal content	0.43g

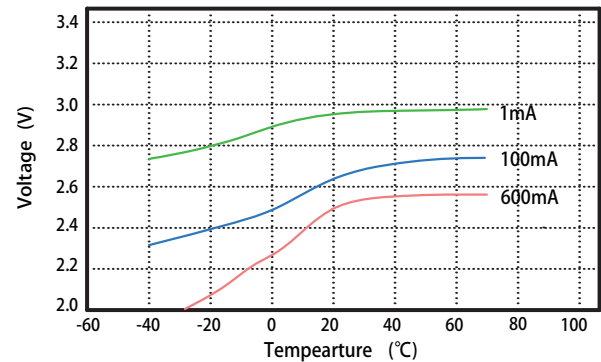
MSDS as per request  
Diode (1N4007, 1N5819)  
PTC (SRS175...)  
Tag, wire, connector, etc. available



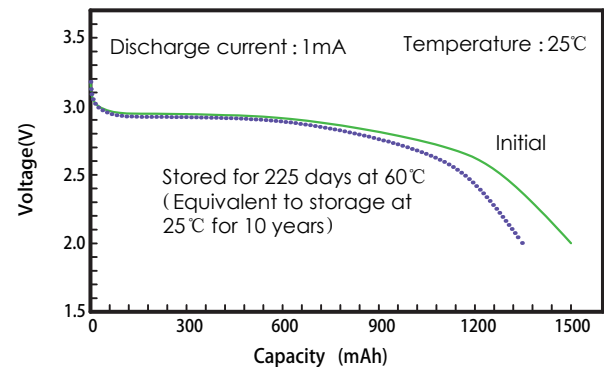
1. Typical discharge profiles at 25°C (at mid-discharge)



2. Voltage plateau versus Current and Temperature (at discharge stable phase)



3. Storage characteristics



## WARNING:

- Do Not Short Circuit
- Do Not Recharge
- Do Not Puncture
- Do Not Crush
- Do Not Dismantle
- Do Not Incinerate
- Do Not Mix New and Used Batteries
- Do Not Heat Above 100°C

This information is generally descriptive only and is not intended to make or imply any representation, guarantee or warranty with respect to any cells and batteries. Cell and battery designs/specifications are subject to modification without notice. Contact KLS for the latest information

## 1. Battery Cell Performance Criteria

### 电芯性能标准

#### 1.1 Standard testing environment

##### 标准测试环境

Unless specifically stated otherwise, tests must be done within one month of delivery.

The following is test conditions:

Test conditions:

Ambient Temperature:  $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$

Ambient Humidity: 45~75%RH

除非另有说明，测试应在电池出货的 1 个月内进行。本产品规格书中的所有测试均在以下环境条件下进行：

温度：  $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$

湿度： 45~75%RH

#### 1.2 The requirement of measure instrument

##### 测量设备要求

- (1) The measurement instrument has been certified by a qualified source.
  - (2) The accuracy of the measuring instrument is less than 0.01mm.
  - (3) The accuracy of multimeter is at least 0.5%.
  - (4) The current accuracy of the battery test system is at least  $\pm 0.1\%$ , isobarically accuracy is  $\pm 0.5\%$ , and timer accuracy is not less than  $\pm 0.1\%$ .
  - (5) The accuracy of the thermometer is at least  $\pm 0.5^{\circ}\text{C}$ .
- (1) 测量设备、仪器需经检定机构检验合格。
  - (2) 测量尺寸的仪器精确度小于 0.01mm。
  - (3) 万用表测量电压及电流的准确度应不低于 0.5%。
  - (4) 电池测试系统的电流精度应在 $\pm 0.1\%$ 以上，恒压精度 $\pm 0.5\%$ ，计时精度不低于 $\pm 0.1\%$ 。(5) 测量温度的仪表准确度应不低于 $\pm 0.5^{\circ}\text{C}$ 。

#### 1.3 Visual inspection

##### 外观检查

Not allowing any visual defects which will affect the electronic characteristics, such as leakage and damage.

不允许有影响电芯性能的外观缺陷，诸如泄漏、损坏等。

#### 1.4 Mechanical Characteristics 机械特性

No. 序号	Item 项目	Testing Conditions and Method 测试方法及条件	Standard 标准
1	<b>Vibration Test</b> 振动测试	After standard charging, the cell is secured to a vibration table and subjected to vibration cycling in which the frequency is varied at the rate of 1Hz per minute between 10Hz and 55Hz; the excursion of the vibration is 0.38mm. The cell shall be vibrated for 30 minutes on each of X, Y, and Z axis. 将标准充电后的电芯固定在振动台上,并沿 X、Y、Z 三个方向各振动 30 分钟, 振幅为 0.38mm, 振动频率为 10Hz - 55Hz, 每分钟变化 1Hz。	UL1642 No explosion, no fire 无爆炸、无起火
2	<b>Drop Test</b> 跌落测试	A battery is dropped from a height of 1 meter two times onto a concrete surface. 标准充电后, 将电芯 2 次从 1 米的高度跌落至混凝土地面。	UL1642 No explosion, no fire 无爆炸、无起火

#### 1.5 Safety Test 安全测试

No. 序号	Item 项目	Testing Conditions and Method 测试方法及条件	Standard 标准
1	<b>Short-circuit</b> 短 路	A battery is short-circuited for 1 hour at 0.04Ω. 将标准充电后的电芯, 用 0.04Ω 电阻器短接 1h。	UL1642 No explosion, no fire 无爆炸、无起火
2	<b>Heat shock</b> 热冲击	The cell is placed in a thermal chamber. Temperature is raised to 130±2°C at the rate of (5±2°C)/min and held for 10 minutes, then cooled to room temperature at the rate of 5±2°C/min. 电池置于热箱中, 温度以 (5±2°C) /min 的速率升至 130±2°C 并保温 10min, 再以 5 ± 2 °C /min 的速度降至室温。	UL1642 No explosion, no fire 无爆炸、无起火
3	<b>Humidity and heat test</b> 湿度和热度测试	A battery is placed in a box for 48 hours where the temperature is 40°C±2°C and the relative humidity is 90% ~ 95% 将电芯放入温度为 40°C±2°C, 相对湿度为 90% ~ 95% 的箱子中, 保持 48h。	UL1642 No explosion, no fire 无爆炸、无起火

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1.6 High and low temperature test 高低温性能测试

No. 序号	Item 项目	Testing Conditions and Method 测试方法及条件	Standard 标准
1	High Temperature 高温性能	A battery is placed in an oven for 2 hours at 55°C±2°C, then discharged at a 1mA current to the termination voltage. 在 55°C±2°C条件下, 将电芯放入高温箱中 2h 后, 再以 5mA 电流放电至终止电压。	Discharge 90 percent of the original capacity. 可放出初始容量的 90%.
2	Low Temperature 低温性能	A battery is placed in a thermal chamber for 2 hours at -10°C±2°C; then discharged at 1mA to the termination voltage. 在-10°C±2°C条件下, 将标准充电后的电芯放入低温箱中 2h 后, 再以 10mA 电流放电至终止电压。	Discharge more than 45 percent of the original capacity. 可放出初始容量的 45% (-10°C) 以上.

2. Storage and others  
贮存及其它事项

2.1 Longterm Storage  
长期贮存

If the cell is to be stored for 3 months or longer it should be held in a dry and cool environment.  
Voltage during storage needs to me maintained between 3.10V~3.25V.  
长期贮存的电池(超过 3 个月)须置于干燥凉爽处, 储存电压应保持在 3.10V~3.25V.

2.2 Any issues not covered in this specification should be discussed.  
本说明书中未提及的任何事项, 须经协商确定。