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TECHNICAL SPECIFICATION  
FOR  
MAXIMUM POWER LR44 ALKALINE COIN BATTERY

**ALLMAX<sup>®</sup>**

LR44-Alkaline



**PROMULGATE DATE: January, 2022**

**SPEC. No.: TS-ZnMn-LR44**

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The Manufacturer reserves the right to modify product specification and data stated herein without any prior notice and the right to finally interpret this technical specification.

### 1. Scope

This specification defines the technical requirements for LR44 alkaline button battery.

|                  |        |      |      |       |           |
|------------------|--------|------|------|-------|-----------|
| Cross Reference: | Allmax | IEC  | JIS  | ANSI  | Common    |
|                  | LR44   | LR44 | LR44 | 1166A | AG13, A76 |

### 2. Purpose

To assure that any Allmax Maximum Power LR44 Alkaline Coin Battery will meet and exceed our customers' expectation.

### 3. Normative Reference

- IEC 60086-1: 2021 *Primary Batteries - Part 1: General*
- IEC 60086-2: 2021 *Primary Batteries - Part 2: Physical and Electrical Specification*
- IEC 60086-3: 2021 *Primary Batteries - Part 3: Watch batteries*
- IEC 60086-5: 2021 *Primary Batteries - Part 5: Safety of batteries with aqueous electrolyte*
- GB 24427-2021 *Content limitation of mercury, cadmium and lead for zinc anode primary battery*

### 4. Fundamental Parameter

| Item            | Data   |
|-----------------|--|
| Item NO.        | LR44   |
| Chemical System | Alkaline Zinc-Manganese Dioxide<br>(Potassium hydroxide electrolyte) |

| Item                                    | Data  |
|---|---|
| Primary Component                       | Zinc, Manganese dioxide, Graphite,<br>Potassium hydroxide |
| Nominal Voltage                         | 1.5 volt  |
| Average Weight                          | 2.00 g  |
| Jacket                                  | Full Metal Jacket   |
| Nominal Capacity                        | 190 mAh <sup>a</sup>                                      |
| Hazardous Material Content <sup>b</sup> | Hg≤5 ppm, Cd≤20 ppm, Pb≤40 ppm                            |
| Packing                                 | 10 batteries/blister card <sup>c</sup>                    |

Note:

a) Discharge condition: 6.8KΩ 24 h/d, end point voltage 0.8V at 20±2 °C.

b) No Hg, Cd or Pb is added in the products during manufacturing.

c) We can make various kinds of packages as per the customers' request.

### 5. Electrical Characteristics

| /                    | Open-circuit<br>Voltage | Load Voltage | Acceptance Standard                                |
|----------------------|-------------------------|--------------|--|
| Initial <sup>a</sup> | ≥1.580 V                | ≥1.490 V     | GB/T 2828.1-2012<br>commonly I sampling<br>AQL=0.4 |
| After 12 months      | ≥1.535 V                | ≥1.480 V     |  |

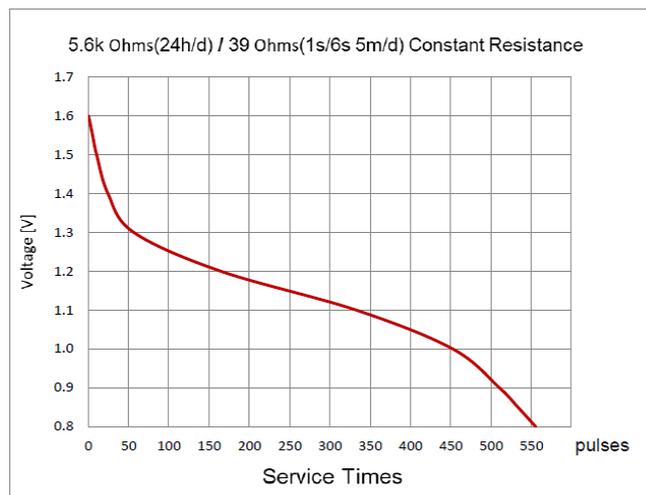
Note:

a) Initial means that within 60 days after manufacture date, at temperature  $20\pm 2\text{ }^{\circ}\text{C}$ , with relative humidity of  $(55\pm 20)\%$ .

## 6. Service Time



Application: Service Output Test



Application: Automatic Camera Acceleration Application

Note:

a) Condition: temperature  $20\pm 2\text{ }^{\circ}\text{C}$ , relative humidity  $(55\pm 20)\%$ .

Explanation:

- 1) The result of the average discharging time under each discharge condition shall be equal to or more than the average minimum time.
- 2) 8 batteries were tested under each discharge condition.

### 7. Using Advice

The battery is applicable for watches, medical equipment, laser pointers, calculators, various small electronic products and toys, etc.

### 8. Electrolyte Leak Proof Characteristics

| Item  | Condition  | End Period   | Result  | Acceptance Standard  |
|---|--|--|---|----------------------|
| Over-discharge                                | 6.8 KΩ 24 h/d<br>discharge at<br>20±2 °C,<br>(55±20)% RH | Discharge to<br>0.6V, then<br>continue to<br>discharge for<br>48 hours | There shall be no<br>deformation<br>exceeding the<br>specified dimensions,<br>nor leakage <sup>a</sup><br>recognized by human<br>eye. | N=8<br>Ac=0<br>Re=1  |
| Leakage test<br>under different<br>conditions | At temperature<br>20±2 °C,<br>(55±20)% RH                | 24 months  |   | Less than<br>50 ppm  |
|   | At temperature<br>45±2 °C,<br>(90±5)% RH                 | 20 days  |   | N=40<br>Ac=1<br>Re=2 |

Note:

a) Leakage means unplanned escape of electrolyte, gas or other material from a battery.

### 9. Caution for Use

a) Since this battery is non-rechargeable, it is risky if the battery is charged / recharged and it may lead to electrolyte leakage or damage to the device.

b) The battery should be inserted with regards to polarity (+ and -).

c) Short circuit, heating, forcing discharging, disposing of in fire, welding/soldering and

dismantling the battery are prohibited.

d) Replace all batteries of a set at the same time. Different electrochemical systems, grades or brands should not be mixed together. Otherwise, it may lead to leakage.

e) Keep batteries out of the reach of children.

f) The battery should not be dismantled and deformed.

g) Remove exhausted batteries promptly.

## **10. Shelf Life and Expiry Date Marking**

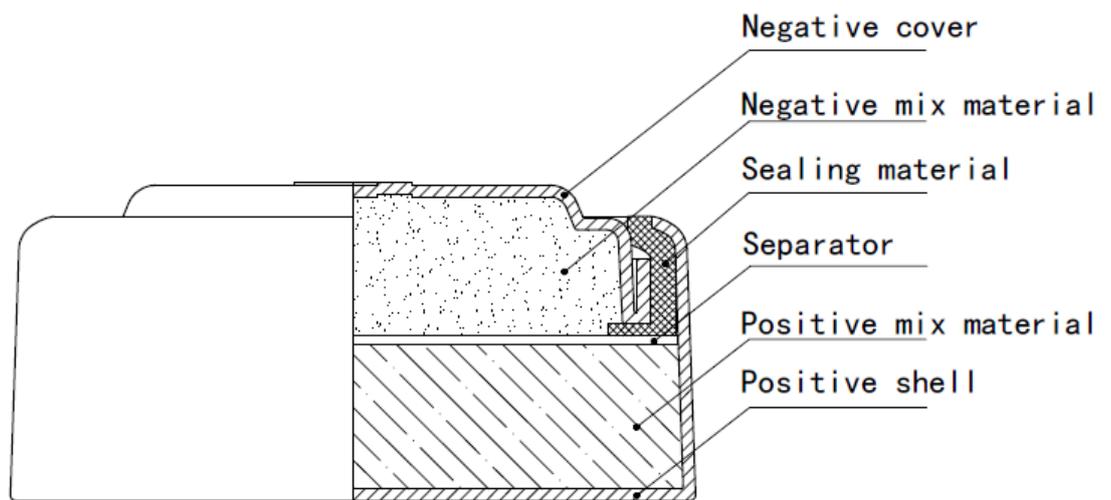
Shelf Life: 3 years after production under proper storage condition.

Expiry Date Marking: show on packages.

## **11. Battery Structure (Page 6)**

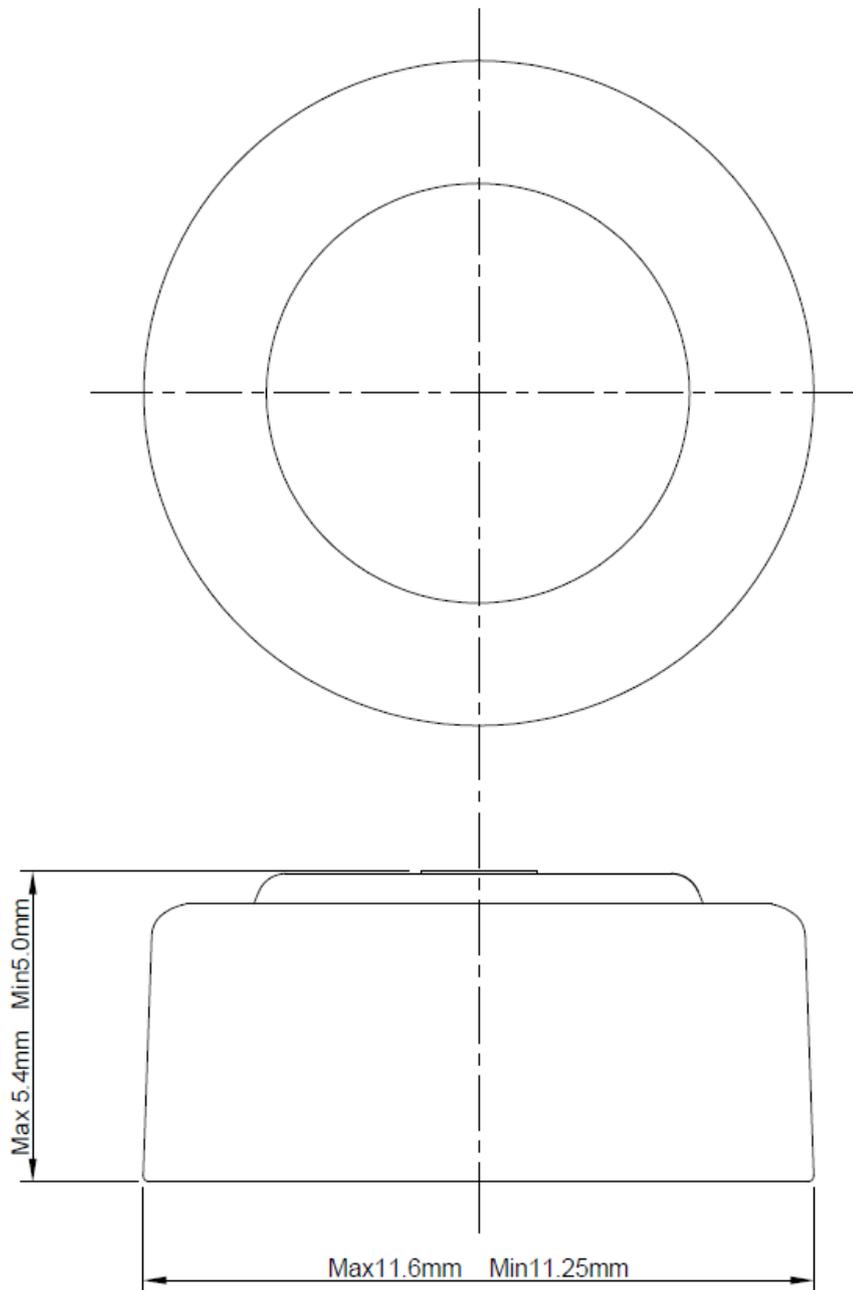
## **12. Battery Dimension (Page 7)**

# Battery Structure



## Battery Structure AG13-LR44

# Battery Dimension



Battery Dimension  
AG13-LR44