



LR03 battery specification

1. Type designation: IEC LR03

JIS: AM-4

ANSI:AAA

2.Chemical system:

Electrolyte-zinc-manganese dioxide (mercury & cadmium free)

3.Dimension: Diameter: 9.5-10.5

Height: 43.3-44.5

4.Nominal voltage: 1.5Volts

5.Nominal:

The weight of each battery is approximately: **11.2 g**

6.Heavy Metal content (%):

| Mercury content | Cadmium | Lead |
|-----------------|---------|--------|
| ≤1ppm | ≤10ppm | ≤40ppm |

7.Appearance and terminal:

Battery shall be clean and have no dirt, no leakage, and no deformation which may affect their performance and actual use and shall have clearly visible markings.

8.Battery capacity: (Test environment : 20°C±2,60%±15%R.H)

(Load resistance:**75ohms**, Daily period:**24h/d**, Cut off voltage:**0.8V** ; According to as the above the same discharge condition, the capacity of each battery is approximately:**1120mAh**)

9.Storage characteristics:

After 12 months storage at 20°C, 90% capacitance of fresh cells.

After 24 months storage at 20°C, 85% capacitance of fresh cells.



10. Electrical characteristics:

(Test environment: 20°C±2, 60%±15%R.H)(Load resistance: **3.9ohms**, Measure time: **0.3S**)

(All samples shall be normalized for a minimum of 8 hours at the above environment prior to measurement)

| | OCV (V) | CCV (V) | SCC (A) |
|-------------------------|---------|---------|---------|
| Initial | ≥1.59 | ≥1.45 | ≥8 |
| After 12 months storage | ≥1.57 | ≥1.42 | ≥6 |

Remark: OCV: Open Circuit Voltage; CCV: Close Circuit Voltage; SCC: Short Circuit Current

11. Discharge test (service life) (Test environment: 20°C±2, 45%--75%R.H)

| LOAD Resistance | 75 Ω | 24 Ω | 5.1 Ω | 10 Ω | 600mA |
|-------------------------|-------|----------------|-------------------|---------------|---------------|
| Daily Period | 4h/d | 15s/min, 8h/d | 4min/h, 8h/day | 1h/day | 10s/min, 1h/d |
| Cut off Voltage | 0.9V | 1.0V | 0.9V | 0.9V | 0.9V |
| Initial | 71.0h | 20.0h | 230min | 8.2h | 350cycles |
| After 12 months storage | 68.0h | 19.0h | 215min | 7.7h | 320cycles |
| Application | radio | Remote control | Portable lighting | Digital audio | Photo flash |

Remark: The initial discharge test shall commence within 30 days of manufacture.

The discharge time is the minimum average duration (MAD).

Test quantity: n=9pcs (for per discharge test)

12. Leakage-proof structure:

- ① The top seal is made of imported special nylon from DUPONT, has a much stable vent pressure.
- ② The sealing location of the battery is provided with double beading scores to make the structure tighter.
- ③ Using imported special sealing glue, with more reliable leakage-proof performance.



13. Safety test (Test environment: 20°C±2,60%±15%R.H)

| Test item | Test method | Test pcs | Requirements |
|---|--|----------|----------------------------|
| Over-discharge leakage test | 20ohms (24h/d) 48hours | 9pcs | No leakage |
| | 5.1ohms (4min/h,8h/d) to 0.6V | 9pcs | No leakage |
| | 600mA (10s/min, 1h/d) to 0.6V | 9pcs | No leakage |
| | 10ohms (1h/d) to 0.6V | 9pcs | No leakage |
| | 75ohms (4h/d) to 0.6V | 9pcs | No leakage |
| | 24ohms (15s/mn, 8h/d) to 0.6V | 9pcs | No leakage |
| High temperature test | 60±2°C,RH:90±5%, after 20 days storage, the cells shall be stored in an ambient temperature of 20±2°C,RH:60±5%, for 4-24hours. | 40 | No leakage |
| One piece of battery Short circuit test | The terminal of an un-discharged battery is connected by wire. The circuit is completely for 24hours or until the case temperature has return to environment. | 10 | No explosion |
| Reversible charge | 4 pieces of battery are in series connected and one of them is under incorrect polarity for 24 hours or until the case temperature has return to environment.. | 40 | No explosion |
| Over discharge | One battery discharge 75ohms to 0.6V, then in series connect with 3 pieces of new battery with 20ohm 24h | 36 | No explosion |
| Free fall test | The battery free drops from one-meter height for 6 times, then store for 1h | 10 | No explosion |
| Impact under high and low temperature | Un-discharged battery store in test box under 70±2°C for 24h,then change to -20°C for 24h, repeat the above condition for 10 cycles. | 20 | No explosion |
| Storage after partial discharge | 50% discharged battery stored under 45±5°C for 30days | 9 | No leakage No explosion |

14.Expiry period: 7years



15. Expiry period marking :

① Expiry date marked on the bottom plate of finished battery . For example: 2008-08 means the production date is August 2008.