



Shandong Huatai New Energy Battery Co.,Ltd.

SPECIFICATION

HIBAR LR03- E ALKALINE BATTERY

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1. Summary

This specification applies to Economical Performance LR03 AAA AM-4 alkaline battery produced by Huatai Battery Co.,Ltd

1.1 Model No.

IEC: LR03 Other: AAA JIS: AM-4

1.2 Reference Standard:

IEC 60086-1 :2021--- Primary Batteries - Part 1: General
IEC 60086-2 :2021--- Primary Batteries - Part 2: Physical and electrical specification

1.3 Execution Standard:

GB/T 8897.2-2021

2. Electrochemical system

Zinc Powder
KOH
Electrolyte Manganese Dioxide
No Added mercury and cadmium

3. Nominal Voltage: 1.5 Volt

4. Average Weight: 10.4g

5. Nominal Capacity: 1000mAh (Conditions:50mA, 1h/12h, 24h/d, 0.9V, Operating Temperature: 20±2°C)

6. Electrical Performance

Conditions: Load resistance (±0.5%) 3.9Ω

Testing time: 0.3 seconds

Temperature: 20±2°C, 50+20/-40%RH)

	OCV (V)	load voltage (V)	Accepted Levels
New battery (within 30 days of delivery)	≥1.58	≥1.42	MIL-STD105E, II, AQL=0.4

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Storage after 12 months under the normal temperature	≥ 1.56	≥ 1.40	
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7. Discharge Performance

(Conditions: Temperature: $20 \pm 2^\circ\text{C}$,Relative Humidity $50 \pm 20 / -40\%$ RH)

	Discharge conditions			New battery discharge levels	Minimum Average Duration		
	Load	Daily period	End voltage		New battery	With $20 \pm 2^\circ\text{C}$ storage after 12 months	Applications
IEC ITEMS	5.1 Ω	4m/h, 8h/d	0.9V	210min	200min	190min	Portable lighting
	5.1 Ω	1h/d	0.8V	3.7h	3.5 h	3.3 h	Toy
	24 Ω	15s/m, 8h/d	1.0V	18.0h	17.0h	16.0h	Remote control
	50mA	1h/12d, 24h/d	0.9V	19.0h	18.0h	17.0h	Digital audio
	3.9 Ω	24h/d	0.9V	140min	130min	120min	Discharge test

Acceptance method:

- 1) Select 8 batteries for each testing item from a single delivery.
- 2) The conditions of test qualified:
The average result is greater than or equal to the minimum average discharge time, and the quantity of signal battery's discharge time which below minimum average of 80% is less than one.
- 3) It need a retest sampling if the first one unqualified. The second test is passed, it should be judged qualified.
- 4) Discharge rate drop is within 10%, and the leakage rate is controlled 50ppm within one year.

8. Resistance to leakage

Item	Conditions	Testing Time	Results	Accepted Levels
Over discharge test	Discharge continuously under 20 Ω in the condition of $20 \pm 2^\circ\text{C}$ and $55 \pm 20\%$ RH	Continuous discharge for 48hours	The deformation of the battery cannot exceed the size limit and cannot occur the leakage by naked eyes.	N=20, Ac=1, Re=2
Temperature / Humidity test	Temperature: $60 \pm 2^\circ\text{C}$ Relative humidity $90 \pm 5\%$ RH	35days		N=20, Ac=1, Re=2

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9. Safety Performance

Item	Test Conditions	Testing Time	Requirements	Accepted Levels
External short circuit	Temperature:20±2℃	24h	There shall be no explosion during this test.	N=5, Ac=0,Re=1
Incorrect installation	Four undischarged batteries shall be connected in series with one reversed	24 h		N=20, Ac=0,Re=1

10. Identification

The contents of the label:

Model: LR03

Registered Trademark: POWERFLASH

Nominal Voltage: 1.5V

Battery Poloidal: “+” and “-”

Warning words: Install and use correctly. Do not recharge, disassemble, heat and short-circuit.

11. Precaution and Handling:

- (1) Do not recharge the alkaline batteries. May leak or explode if charged.
- (2) To install batteries following the instructions of “+” and “-” .
- (3) Do not short-circuit, heat, dispose in fire or disassemble.
- (4) Do not over-discharge batteries. Over- discharging battery may destroy the appliance.
- (5) Do not mix with used or other battery type at the same time. Make sure use the same brand and replace all batteries.
- (6) Remove batteries from device when it is not in use. Over-discharge may destroy the appliance.
- (7) Do not allow metal objects to contact the battery terminals. It may destroy the battery.

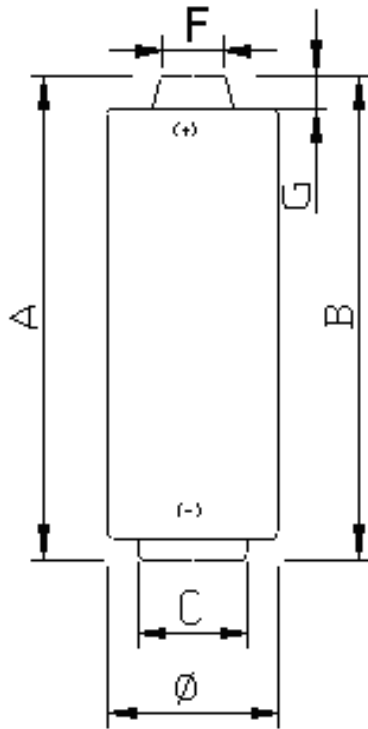
12. Expiry Date

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10 years (Temperature: $20 \pm 2^{\circ}\text{C}$, Relative humidity : $55 \pm 20\%$)

13. Dimension and structure of LR03 AAA AM-4 battery:



MODEL	LR03
DIMENSIONS(MM)	
A (Max)	44.5
B (Min)	43.5
C (Min)	4.3
F (Max)	3.8
G (Min)	0.8
\varnothing (Max)	10.5
\varnothing (Min)	9.8

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