



WAMA ELECTRONICS TECH CO.,LTD

Alkaline AAA (LR03) Battery

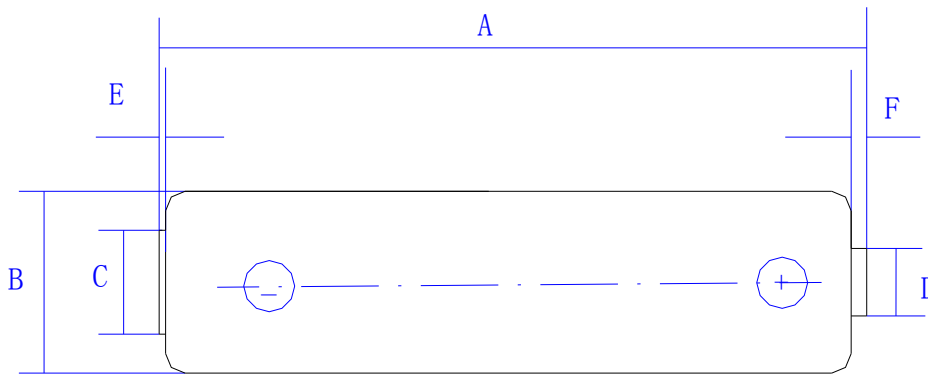
Note:

The technical standards in this specification apply only to the alkaline (Zinc-Mn₂) dry battery provided by WAMA. the cells should meet the rules IEC 60086-1.2 and GB/T 7112 standard.

Discharge Time : 140mins

1. Dimensions

Cell dimensions is as follows



Unite: mm

Dimensions	Max.	Min
A	44.5	43.3
B	10.5	9.5
C	--	4.3
D	3.8	--
E	0.5	--
F	--	0.8

2. Nominal Voltage

Max. 1.650V
Min. 1.500V



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3 Electrical properties

Test is carried on the under condition: Temperature: $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ Relative humidity: $60\pm 15\%RH$

3.1	Load resistance	precision is not lower than $\pm 0.5\%$	10Ω
	Discharge period		24h/d
	Terminal voltage		0.9V
	Minimum average discharge duration		
	Initial period (The battery within 30 days after production is considered as in initial period.)		7.2 h
	Battery is stored for 12 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		6.7 h
	Battery is stored for 24 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		6.2 h
	Battery is stored for 36 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		5.8 h
3.2	Load resistance	precision is not lower than $\pm 0.5\%$.	3.6 Ω
	Discharge period		15s/min 24h/d
	Terminal voltage		0.9V
	Minimum average discharge duration		
	Initial period (The battery within 30 days after production is considered as in initial period.)		550 times
	Battery is stored for 12 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		510 times
	Battery is stored for 24 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		495 times
	Battery is stored for 36 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		440 times
3.3	Load resistance	precision is not lower than $\pm 0.5\%$.	20 Ω
	Discharge period		24h/d
	Terminal voltage		0.9V
	Minimum average discharge duration		
	Initial period (The battery within 30 days after production is considered as in initial period)		17.0 h
	Battery is stored for 12 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		15.8 h
	Battery is stored for 24 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		15.3 h
	Battery is stored for 36 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		13.6 h
	Load resistance	precision is not lower than $\pm 0.5\%$	75 Ω
	Discharge period		4h/d
	Terminal voltage		0.9V
	Minimum average discharge duration		
	Initial period (The battery within 30 days after production is considered as in initial period)		70.0 h
	Battery is stored for 12 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		66.0 h
	Battery is stored for 24 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		63.0 h
	Battery is stored for 36 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		56.0 h
	Load resistance		5.1Ω
	Discharge period		4min/h 8h/d
	Terminal voltage		0.9V
	Minimum average discharge duration		
	Initial period (The battery within 30 days after production is considered as in initial period).		210min
	Battery is stored for 12 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		195 min
	Battery is stored for 24 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		189 min
	Battery is stored for 36 months under $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and $60\pm 10\%$ of relative humidity.		168 min
	Load resistance		600 mA
	Discharge period		15s/min 1h/d
	Terminal voltage		0.9V
	Minimum average discharge duration		
	Initial period (The battery within 30 days after production is considered as in initial period)		250 times



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4. Leakage-resistance property

4.1 Storage test is carried under high temperature and humidity.

Test condition

60 ±2°C 90±5 RH

Test duration

20 days

During the test period, battery doesn't leak, that is, the cell surface doesn't have electrolyte, sealant or other internal component.

4.2 High-temperature test

Test condition

70 ±2°C

Test duration

7 days

During the test period, battery doesn't leak, that is, the cell surface doesn't have electrolyte, sealant or other internal component.

5 Safety performances

5.1 Short-circuit test

Under standard environmental condition, short-circuit is carried on for the two-pole of the battery. It should not exceed the specified limit and no explosion may occur. The leakage is tolerable,

The maximum temperature of cell surface

125 °C

Test duration

6 h

5.2 Safety valve test

Four cells are connected in a series with a load resistor and one of the 4 cells is connected with reverse polarity. Connect the circuit to the scheduled time by switch; the safety valve of battery should be opened and no explosion may occur. Leakage is tolerable,

Resistance

3.9 Ω

Time

24 h

5.3 Forced over discharge test

Four cells are connected in a series with a load resistor and one of the 4 cells is connected with reverse polarity. These batteries conduct a continuous discharge through a 3.9 ohms resistor until its load voltage reach 0.9 volt. Connect the circuit to the scheduled time by switch; the safety valve of battery should be opened and no explosion may occur. Leakage is tolerable,

Resistance

3.9 Ω

Time

3 days

6. Heavy metal contents

Heavy metal content in the battery should be controlled:

Mercury Limit ((per cell weight) Max.

0.0001%

Cadmium Limit ((per cell weight) Max.

0.0001%