Material Safety Data Sheet

Alkaline Battery

Model: LR03 AAA 7#

1. Scope

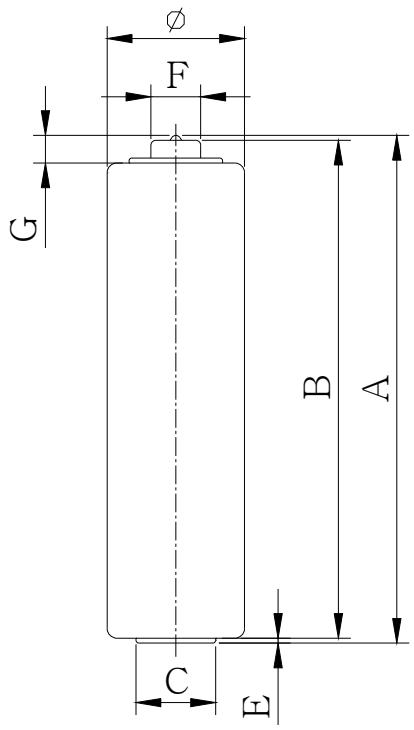
This specification is suitable for the performance of the alkaline cell and its stack-up battery packs:

Model: LR03

Size: AAA

2. Ratings

DIMENSION & TERMINALS



	MAX. (mm)	MIN. (mm)
A	44.5	
B		43.5
C		4.3
E	0.8	
F	3.8	
G		0.8
Φ	10.5	9.5

A: Total height of the battery.
B: Height between two terminals (not including optional point).
C: Outside diameter of negative terminal.
E: Concave distance of negative terminal.
F: Diameter of positive terminal
G: Convex distance of positive terminal.
Φ: Diameter of the battery.

Nominal Voltage		1.5V
Temperature Range for operation	Standard Temperature	20℃±2℃
	Special Temperature	30℃±2℃
	High temperature	45℃±2℃
Humidity Range for Storage	Standard Humidity	45%~75%
	Special Humidity	35%~65%
Dimension	Diameter	LR03:9.5~10.5mm
	Height	LR03:43.5~44.5 mm
Approx weight		LR03:11~12g

3. Electrical Characteristic

(Condition: on-load resistance 3.9Ω, precision±0.5%, time: 0.2S, temperature: 20℃±2℃。

Testing should be done within 30days upon the receipt of goods.)

	Off-load Voltage(V)	On-load Voltage(V)	Instance current(A)	Test standard
Fresh Battery	1.610	1.450	10.0	MIL-STD105E, AQL=0.65
Stored for 3 months under45℃	1.580	1.420	8.0	
Stored for 12 months under Room Temp	1.560	1.420	5.0	

4. Discharge Characteristic

(Condition: temperature: 20℃±2℃. Testing should be done within 15 days upon the receipt of goods)

	Discharge condition			Minimum average Discharge time		
	on-load resistance	Discharge time per day	End Voltage(V)	Fresh Battery	Stored for 3 months under 45℃	stored for 12 months under Room Temp
Reference standard	1.8Ω	15s/min/24h/d	0.9V	520 min	500 min	460 min
	3.9Ω	24h/d	0.9V	140 min	120 min	100 min
	10Ω	24h/d	0.9V	480 min	450 min	420 min
	10Ω	1h/d	0.9V			
	20Ω	24/d	0.9V	960 min	930 min	880 min
	75Ω	24hd	0.9V			

(Inspect standard: discharge 9 nos sample for each condition. It pass if average discharge time is equal to or more than minimum average value specified and the nos with discharge time less than 80% specified value is less than one.)

5. Anti-leakage characteristic

Item	Condition	Period	Characteristic	Inspect standard
Feature of over-discharge	20℃±2℃相对 65±20RH on-load:20Ω temp: 20℃±2℃。 Huml: 65±20RH	Uninterrupted discharge for 24h/d	Deformation is less than 0.2mm and no visual leakage	N=9AC=0, Re=1
feature of storage	temp: 45℃±2℃ Huml:≤70%RH	60/60days		N=9AC=0, Re=1
	tenp60℃±2℃ Hunl:≤70%RH	30 days		

6. Safety Characteristic

Item	Condition	Period	Characteristic	Inspect standard
anti-short-circuit	Temp: 20℃±2℃ on-load:1Ω	24 hours	no explosion/leakage acceptable	N=9,Ac=0,Re=1

7. Battery shelf life

The battery shelf life is approximately 5 years if kept in room temperature.

8. Discharge diagram test temp: 20℃±2℃

9. SAFETY METHODS:

1. Do not dispose of batteries in fire as they may explode.

2. Do not attempt to recharge a battery unless the battery is marked ”rechargeable”.

3. Do not mix old and new batteries, mix different types of batteries or install backwards. This can cause rupture or leakage, resulting in personal injury or property damage.

4. Remove all used batteries from the device at the same time, and then replace them with new batteries of the same size and type.

5. Do not carry loose batteries in a pocket or purse with metal objects like coins, paper clips and hair pins, etc. This will short circuit the battery, generating high heat.

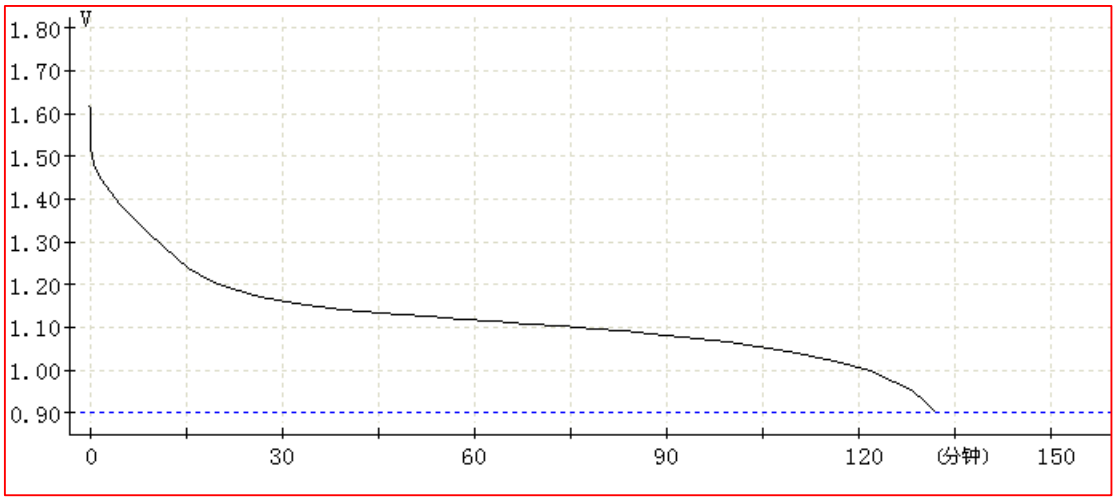
10. HOW TO STORE THE BATTERIES:

1. Store batteries in a dry and normal room temperature place.

2. Remove batteries from the electrical device if the device is not going to be used for an extended period of time.

3. Keep batteries away from children.

a) Discharge Method : 3.9Ω continuous (Fig. 1)



Discharge Time(mins)

Fig.1: 3.9Ω Continuous Discharge Curve (20±2)