

SPECIFICATION

Product Name:Alkaline Zinc-Manganese Battery

Model : LR03

Document No. : NB01-LR03-2013

Version : 02-2013

NBCELL Battery Co.,Ltd.

Add:Mingwei Industrail Park
,Ningbo,Zhejiang,China
Post: 315404

E-mail : info@nbcell.com
www.nbcell.com

1. Scope

This specification provides the technical requirements of alkaline manganese dioxide battery(LR03).The requirements and size should satisfy or above GB/T8897.1-2008 and GB /T8897.2-2008 if there is no any other detail requirements.

1.1 Reference Standards

GB/T8897.1-2008(IEC60086-1:2007,MOD) (Primary Battery Part 1:General)

GB/T8897.2-2008(IEC60086-2:2007,MOD) (Primary Battery Part2:Size and Technical requirements)

GB8897.5-2006(IEC 60086-5:2005,MOD) (Primary Battery Part5: Safety of batteries with aqueous electrolyte)

1.2 Environmental Protection Standard

The battery meets the standard of EU battery derective 2006/66/EC.

2. Chemical system,Voltage and Designation

Chemical system: Zn-MnO₂(KOH),without Hg&Cr

Nominal Voltage:1.5V

Designation : IEC:LR03

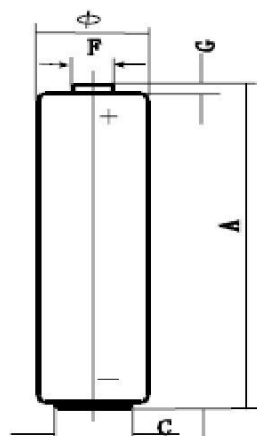
ANSI: AAA

JIS:AM-4

Others:4003,E92

3. Battery Size

Battery meets the picture standard



Units : mm		
Model	LR03	
	Max	Min
A	44.5	43.3
C	/	4.3
F	3.8	/
G	/	0.8
∅	10.5	9.5

3.1 Inspection Tool

Using vernier calipers which precision is up 0.02mm. to avoid short-circuit,should paste on one insulation material on one end of the vernier calipers.

3.2 Acceptance Method

Using GB2828.1-2003 sampling program,special sampling S-3,acceptance quality limitation: AQL=1.0

4. Weight and discharging capacity

Battery weight about:11.3g

Discharging capacity:1000mAh(Loading20Ω, 24h/day,20±2℃ RH60±15%,End-point Voltage0.9V)

5. Open circuit voltage,loading voltage and short-circuit current

Project	Open circuit Voltage (V)	Loading Voltage (V)	Short-circuit Voltage (A)	Sampling Voltage
In 2 months New battery	1.59	1.40	6.00	GB2828.1-2003 One Sampling, special sampling S-4,AQL=1.0
12 months storage in room temperature	1.56	1.35	5.00	
Inspection Condition	Loading 3.9Ω, loading time 0.3s, temp:20±2°C			

6. Discharging Ability

Discharging Temp : 20±2°C					
Condition			GB/T8897.2 -2008 Requirements	Shortest Average Discharging Time	
Load	Discharging Way	End-point Voltage		2 months new battery	12 months storage battery
10Ω	1h/d	0.9 V	6h	8h	7.2h
75Ω	4h/d	0.9 V	50h	70h	63h
5.1Ω	4min/h, 8h/d	0.9 V	145min	225min	203min
24Ω	15s/min, 8h/d	1.0 V	14.5h	19.5h	17.55h
20Ω	24h/d	0.9 V	/	18h	16.2h
3.9Ω	24h/d	0.9 V	/	125min	100min

Accordance of shortest discharging time 1)

Testing 9 batteries of each discharging way ;

- 2) The result of the average discharging time from each discharging standard shall be equal to or more than the average minimum time requirement; no more than one battery has a service output less than 80% of the specified requirement ;
- 3) The result of the average discharging time from each discharging standard shall be equal to or more than the average minimum time requirement,if one battery has a service output less than 80% of the specified requirement then take another 9 pieces to test again。 This lot of batteries are qualified if the result meets the NO.2 provision.If not qualified then will not test again.

7. Anti-leakage ability

Project	Condition	Requirements	Qualified Standard
Over Discharging	Continuous discharging 48h in $20\pm 2^{\circ}\text{C}$, humidity $60\pm 15\%$, load 10Ω condition.	No leakage by visual inspection	N=9 Ac=0 Re=1
High-temp storage	Storing in $60\pm 2^{\circ}\text{C}$, relative humidity 90% condition for 20 days.		N=30 Ac=1 Re=2

8. Safety Requirements

Project	Condition	Requirements	Qualified Standard
External Short-circuit	Using wire to connect positive and negative pole in $20\pm 2^{\circ}\text{C}$ for 24h.	No Explosion	N=5 Ac=0 Re=1
Unproper Equipment	4 batteries in series connection, one of them is in reverse connection.	Leakage happened on the reversed battery or the shell temp reduce to room temp	N=4×5 Ac=0 Re=1

9. Signs

The following signs are on the battery body :

1. Model : LR03/AAA
2. Manufacturer and brand : NBCELL
3. Battery Poles : "+" and "-"
4. Expiry date or manufacturing date
5. Warnings.

10. Cautions for using

1. This battery can't be charged, leakage and explosion may happen when charging.
2. Make sure the battery is in correct position as + and -.
3. Short-circuit, heating, disposing of into fire or disassembling of battery is prohibited.
4. Battery can not be forced discharged, which leads to excess gassing and may result in bulging, leakage and de-crimping of cap.
5. New batteries and used ones can not be used at the same time. It is recommended to use the same brand when replacing batteries.
6. The battery should be taken out from the device which will not be used for a long time.
7. Exhausted battery should be taken out from the device.
8. Welding batteries are prohibited or it will cause damage.

9. The batteries should be kept from children,if swallowed,contact a doctor immediately.

11. Normal Package

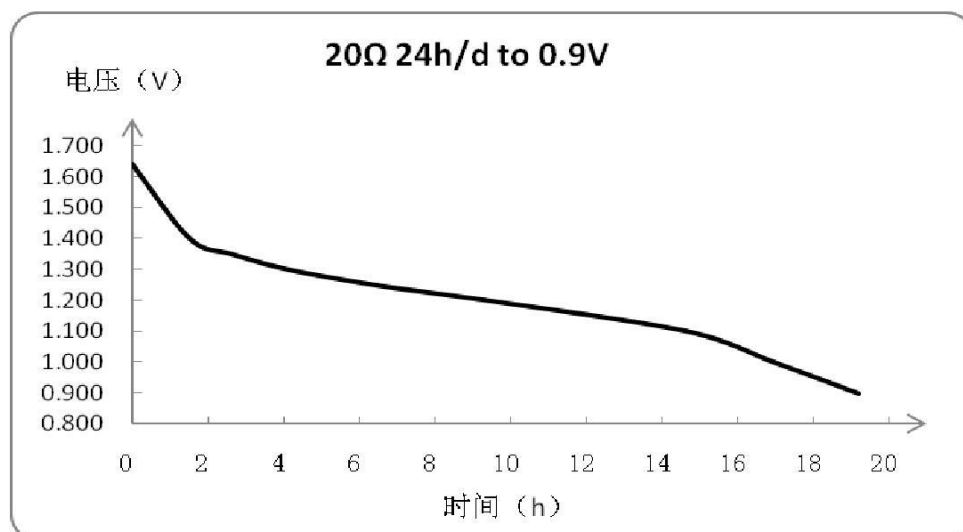
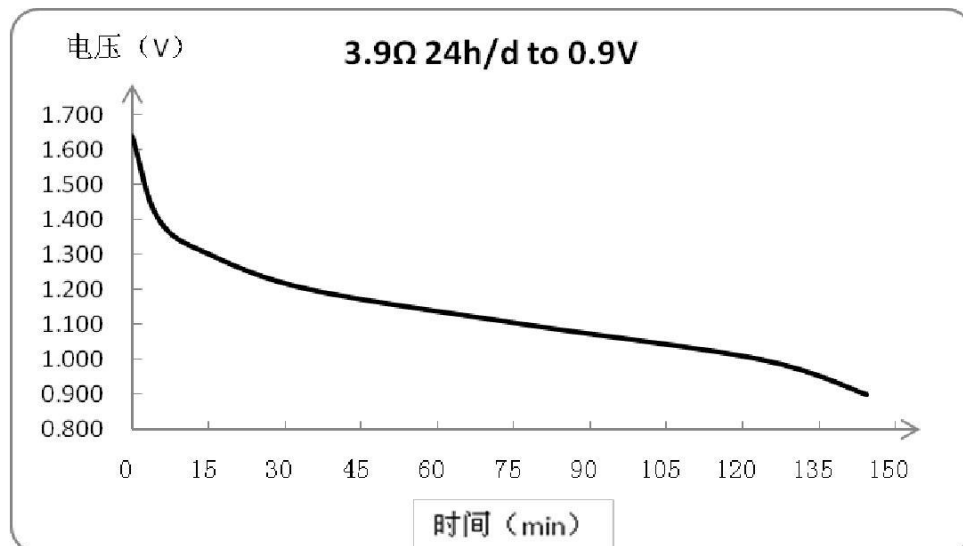
Each 2,3 or 4 batteries in a shrink package,60 pieces in one inner box,12 boxes in one carton.

12. Storage and Expiry

1. Batteries should be put in cool,dry and with air-flowing places
2. The batteries should not be exposed in sunshine or in raining places.
3. Do not mix the batteries which without labels
4. Storing in $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$, $60\pm 15\%\text{RH}$ condition.The storage time is 3 years.

13. Nominal discharging curve

Discharging condition: $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$, $\text{RH}60\pm 15\%$



With the progress of product technology,technical parameters,the specification will be updated too,pls contact Nbcell for latest specification.