



XELLEX BATTERY (HK) LIMITED

SHENZHEN XELLEX BATTERY & POWER SUPPLY TECH. CO., LTD

LR03H-AAA-AM4

TECHNICAL SPECIFICATIONS

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The Technical Specifications hereinafter is only applicable to the Hg & Cd Free Alkaline Zinc Manganese Dioxide LR03H AAA type battery, which was provided by Xellex Battery Co., Ltd. All the practical technical data, which were used to describe Battery Performance involved in the Specifications are obtained from the relevant experiments to the products of Xellex. Rights reserved to take relevant rectifications or modifications to the structure and performance of the products without prior notice.

1.Scope

The Specifications is solely applicable to the "Xellex" Hg & Cd Free Alkaline Zinc Manganese Dioxide Battery---LR03H.

1.1 Designations

Xellex : LR03H IEC :LR03 JIS :AM4

ANSI :24A Other: AAA, E92, 4003

1.2 Reference Document

IEC 60086-1 (2000) --- *Primary Batteries - General*

IEC 60086-2 (2000) --- *Primary Batteries – Specification Sheets*

2.Chemical System

Alkaline Electrolyte--- Zinc-Manganese Dioxide Battery (0%Hg and 0%Cd added)

3.Dimensions

Diameter: 9.5 ~ 10.5 mm Height: 43.3 ~ 44.5 mm

4.Nominal Voltage : 1.5 Volts

5.Average Weight : 11.8 g

6.Nominal Capacity

1180mAh (75Ω Intermittent discharge , 4 Hours/Day , Temp. : 20 ± 2 , CDV<Cut-off Discharge Volt> : 0.9 Volts)

7.Electrical Performance

(Conditions : $3.9\Omega \pm 0.5\%$ load resistance, Measuring time 0.3 Seconds, Temperature at 20 ± 2 , Tested within 30 Days after delivery)

	Off-load Voltage (V)	On-load Voltage (V)	*Flush Short Circuit Current(A)	Acceptance Standard
New Battery	1.58	1.45	7.0	MIL-STD105E,Class II , Double Sampling , AQL=0.4
After 12 Mths Shelf Time at room Temp	1.56	1.43	6.0	

*The Hair Spring Ampere Meter with $\pm 0.5\%$ Accuracy (0.5 Level) shall be used.

8.Service Output

(Conditions : Test Temp. 20 ± 2 , Relative Humidity: 45%-75% Test within 30 Days after delivery)

Test Standards	Discharge Condition			Average Minimum Discharge Time	
	Discharge Load	Daily Discharge Time	Cut-off Discharge Voltage (V)	New Battery	After 12 Mths Shelf Time at room Temp.
IEC Standard	75Ω	4 Hours	0.9	65 Hours	60 Hours
	5.1Ω	4 Mins/Hour, 8 Hours	0.9	230 Mins	210 Mins
	10Ω	1 Hour	0.9	7.8 Hours	7.3 Hours
	3.6Ω	15 Secs/Mins	0.9	600 Cycles	560 Cycles
Reference	20Ω	24 Hours	0.9	17.5 Hours	16.5 Hours
	10Ω	24 Hours	0.9	7.5 Hours	7.0 Hours

Acceptance Criteria : 9 batteries shall be tested for each discharging standard, the Average Discharging Time should be equal to or above the Average Minimum Discharging Time required. Moreover, the total amount of the batteries whose Average Discharging Time is less than 80% of the time required shall not exceed 1, Thus, the ADT of the batteries can be recognized accorded with the requirements

9. Electrolyte Leakage Proof Characteristics

Item	Condition	Period	Characteristics	Acceptance Standard
Over-discharge Characteristics	Temp. : 20 ± 2 Relative Humidity : $65 \pm 15\%RH$	20Ω continuous discharge 48 Hours	There shall be no deformation exceeding the specified dimensions, nor leakage recognized by human eye	N=30,Ac=0,Re=1
Storage Characteristics	Temp. : 45 ± 2 Relative Humidity : < 70%RH	60 Days		N=30,Ac=1,Re=2
High Temperature Characteristics	Temp.: 60 ± 2 Relative Humidity : $90\% \pm 5\%RH$	20 Days		N=30,Ac=1,Re=2

10. Safety Characteristics

Item	Condition	Period	Characteristics	Acceptance Standard
Short Circuit Characteristics	Temp: 20 ± 2 Relative Humidity: $60 \pm 15\%$ Directly connect the Positive & Negative Terminals with a wire	24 Hours	There shall be no explosion of battery	N=9,Ac=0,Re=1
Abusive Characteristics	Temp: 20 ± 2 Relative Humidity: $60 \pm 15\%$ Charge at 20mA		There shall be no explosion of battery	N=9,Ac=0,Re=1
*Abusive Characteristics Reference	*Temp: 20 ± 2 , Connect 4 batteries in series in Battery case, in which, put one of the batteries reversely, then short connect the wire of the battery case until the discharging ended completely		*There shall be no explosion, no leakage, nor obvious deformation.	*N=12,Ac=0,Re=1

11. Marking The following markings will be printed, stamped or impressed on the body of the battery :

- (1) Designation : LR03H AAA AM4
- (2) Manufacturer's name, abbreviation or brand : XELLEX
- (3) Nominal Voltage : 1.5 V
- (4) Polarity : " + " , " - "
- (5) Warning: Battery may explode or leak if recharged or disposed of in fire.
- (6) Expiry Date(Guarantee Period) :The Date which shows on the labels of the finished product is used to indicate the Quality Assurance Period before it is used.



- (7) Icon :  An Icon which indicates the battery can not be disposed of in the Rubbish Can.

12. Caution for Use

- (1) Since the battery is not manufactured for recharging, there are risks of electrolyte leakage or causing damage to the device if the battery is charged.
- (2) The battery shall be installed with its "+" and "-" in the right position.
- (3) Short-connecting, heating, disposing of into fire and disassembling the battery are prohibited.

13. Shelf Life

After 12 Mths Shelf Time at 20 °C, the capacity remains at the 90% of the new battery

After 24 Mths Shelf Time at 20 °C, the capacity remains at the 85% of the new battery

After 36 Mths Shelf Time at 20 °C, the capacity remains at the 80% of the new battery

14. Discharging Curves

20 °C, 24 Hours/Day, CDV: 0.9V Continuous Discharging Curves (Figure 1)

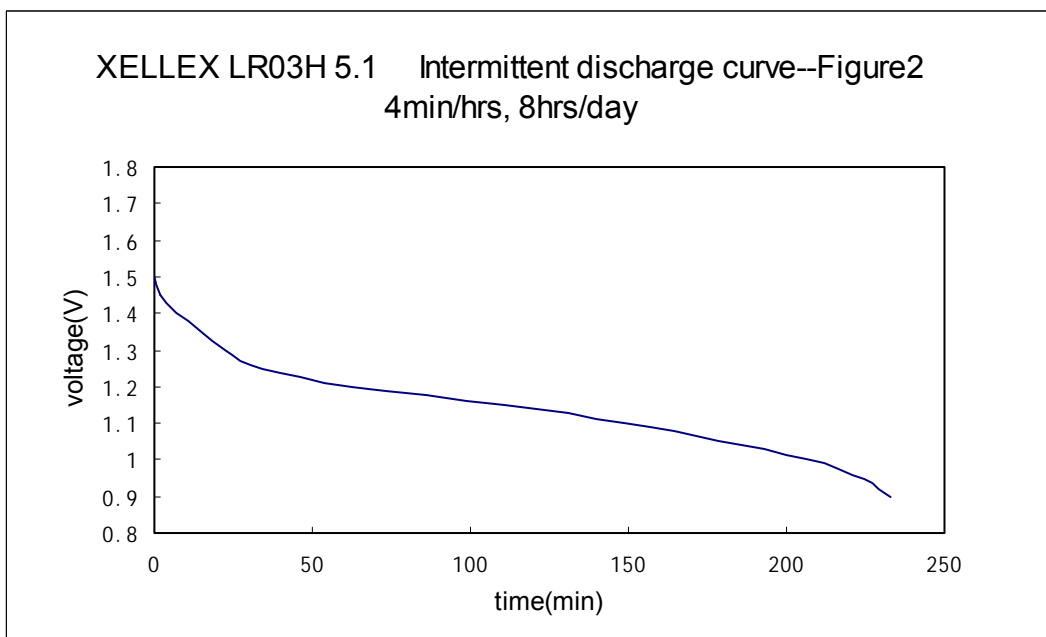
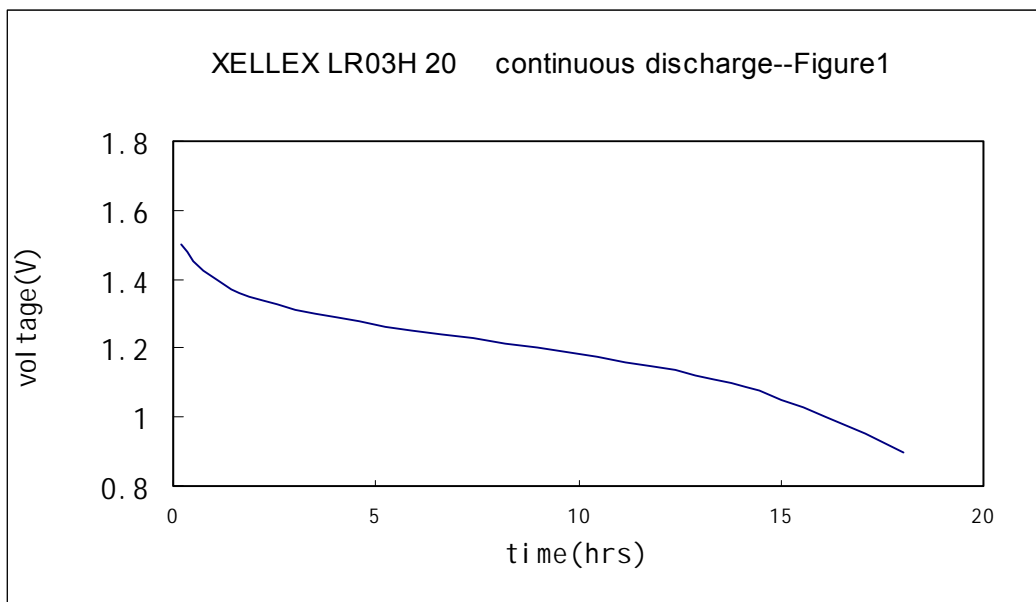
5.1 °C, 4 Mins/Hour, 8 Hours/Day, CDV: 0.9V Intermittent Discharging Curves (Figure 2)

3.6 °C, 15 Secs/Min, 24 Hours/Day, CDV:0.9V Pulse Discharging Curves (Figure 3)

10 °C, 1 Hour/Day, CDV:0.9V Pulse Discharging Curves (Figure 4)

75 °C, 4 Hours/Day, CDV:0.9V Intermittent Discharging Curves (Figure 5)

15. Battery Dimensions & Structure (Figure 6)



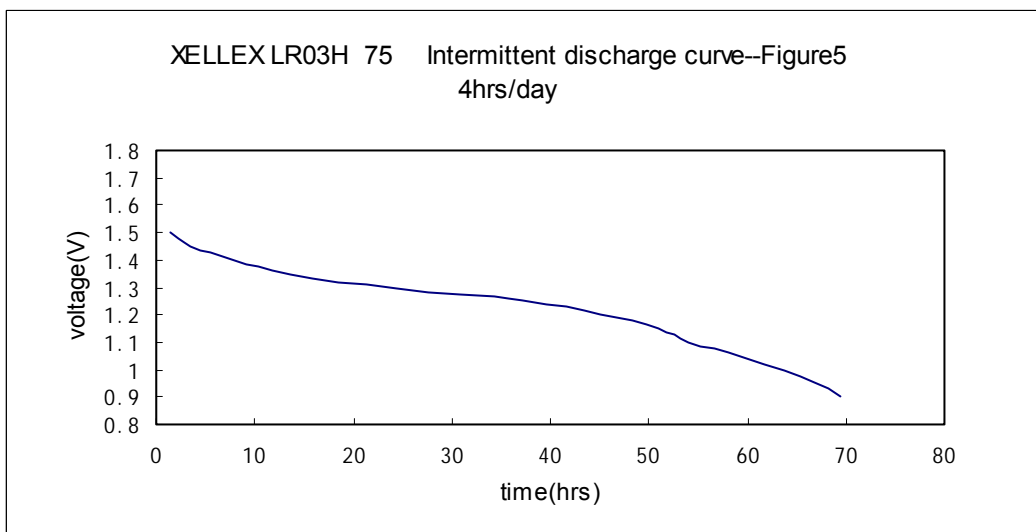
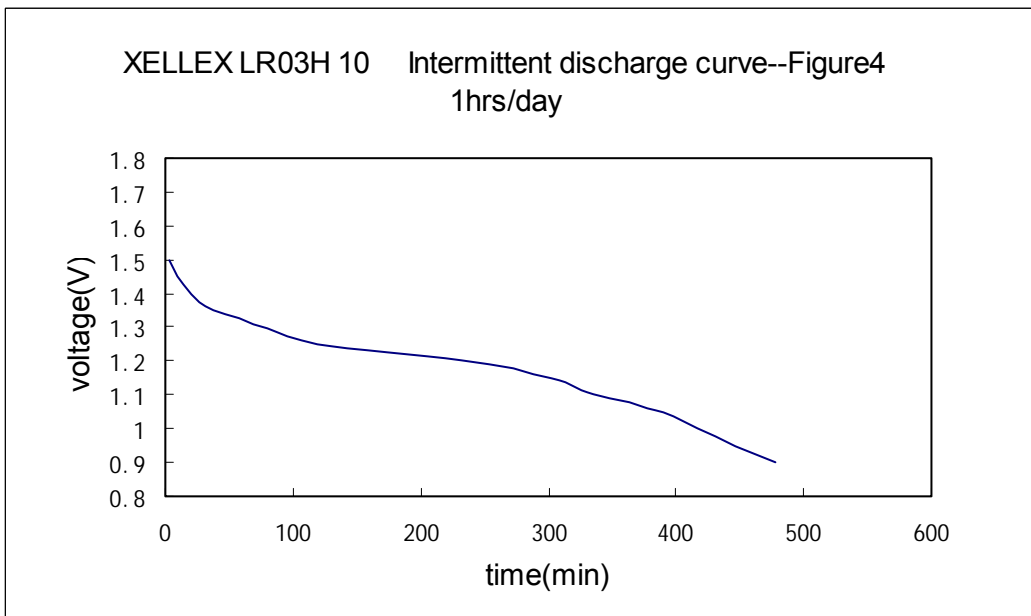
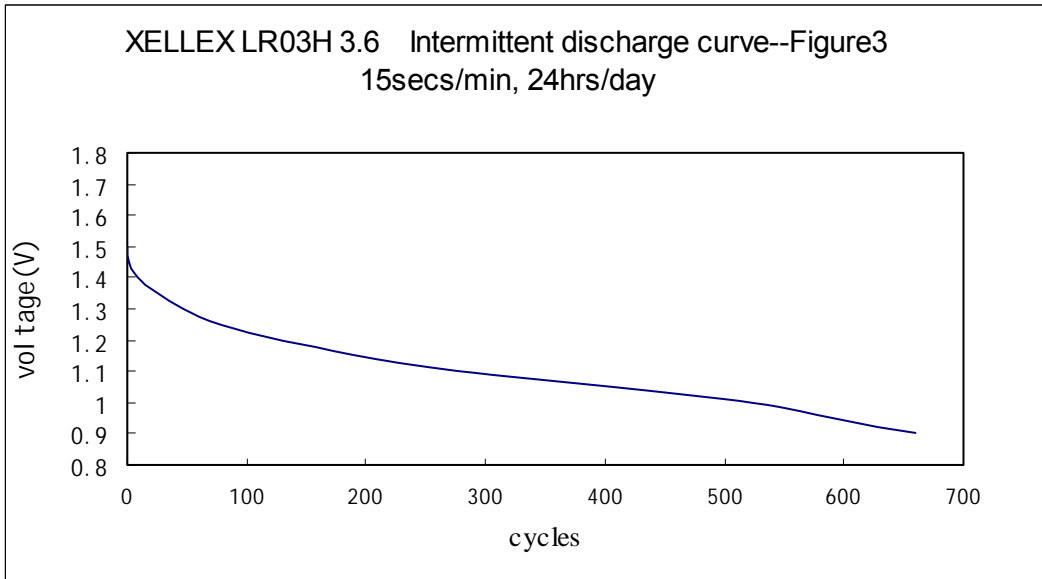
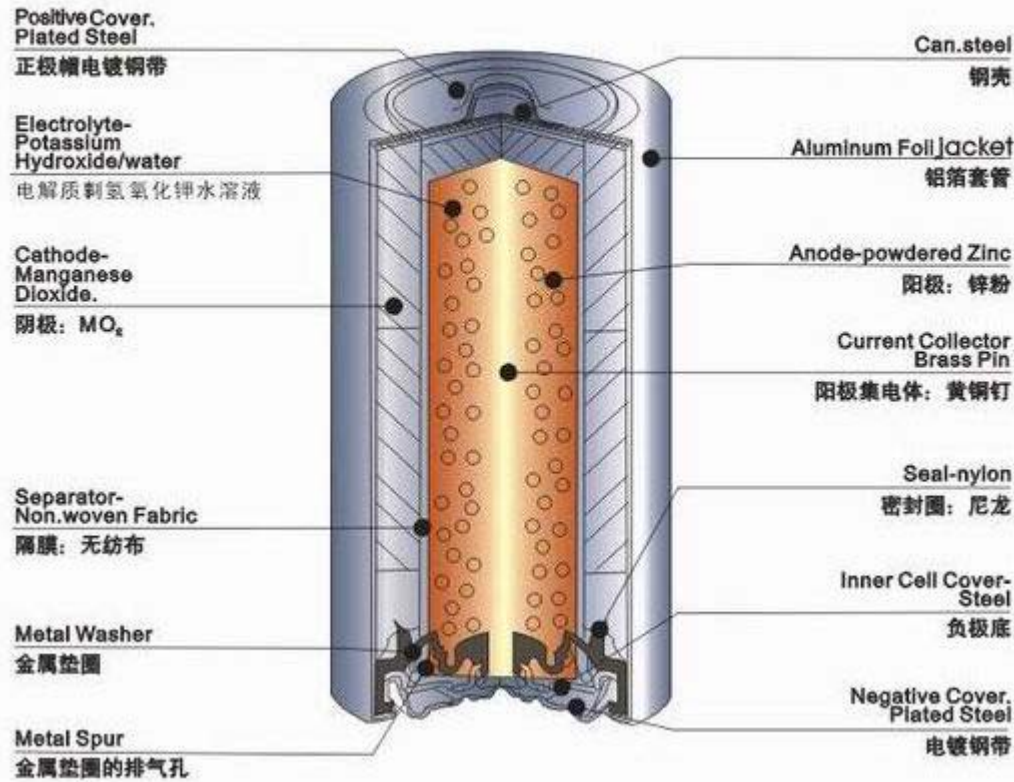
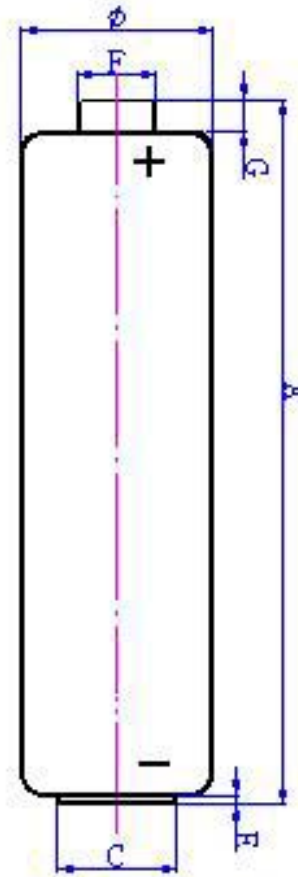


Figure 6:

View Of xellex Alkaline Structure 碱性圆柱型電池結構圖



XELLEX LR03H電池尺寸图



	尺寸
A	44.5Max (43.3)Min
C	4.3Min
E	0.5Max
F	3.8Max (3.0)Min
G	0.8Min
φ	10.5Max 9.5Min