ULTRA MAX®

PRODUCT SPECIFICATIONS

(MODEL NO.): 4LR25UMX

(FILE NO.):

(CUSTOMER NO.):

(PREPARED BY):	Claudia
(CHECKED BY):	
(APPROVED BY):	
(CONFIRMED BY):	

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1. Scope:

This specification is applicable to Ultra Max alkaline cell, 4LR25UMX (Mercury and Cadmium free).

2. Law & Regulation Compliances:

This product complies with EU's battery directive (2006/66/EC).

Packaging materials comply with EU's directive on packaging materials and waste (94/62/EC)

3. General:

3.1 Type designation

IEC/ JIS	4LR25UMX
ANSI	908A
Other	-

3.2 Chemical system: Zn/KOH-H_2O/MnO_2

3.3 Nominal voltage: 6.0 V

3.4 Weight: Approximate 855 g

3.5 Dimension (mm): Refer to drawing 1

3.6 Capacity: Approximate 16000mAh (9.1Ω, 24h/d, 20℃, e.v.= 3.6V)

3.7 Operation temperature : -18℃~50℃
Recommend storage temperature : Not exceed 30℃

4. Appearance

The battery visually inspected by unaided eye 30cm away from battery. The battery shall be free from dents, scratch, rust and extruded internal compounds, such as sealing compounds and etc, and serious displacement of artwork. Appearance defects shall not be observed that may adversely affect actual use or performance of batteries.

5. Electrical Characteristics

Unless otherwise stated, all measurements are to be performed at a
Standard Environment of **20 ± 2°C**
55± 20% RH.

All samples are normalized for 8 hours at least at the above environment prior to measurement.
The digital voltmeter (DCM) is with the precision of 1mV (internal resistance not less than 1 Megohm).
The load resistance of the total circuit is accurate within ±0.5% of the specified value.

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5.1 Open circuit voltage and closed circuit voltage (Load resistance 3.9Ω, 0.3S)

/		OCV(V)	CCV(V)	S.C.(A) *(reference)*
Initial	Min	6.2	5.1	13.0
	Normal	6.4	5.3	17.0
Stored 1 year	Min	6.1	5.0	9.0
	Normal	6.2	5.2	14.0

5.2 Service output

Load		9.1Ω	8.2Ω	9.1Ω	110Ω
Test mode		24h/d	30m/d	30m/h ,8h/d	12h/d
End voltage		3.6V	3.6V	3.6V	3.6V
Unit		h	h	h	h
Initial	MAD	26	26	28	500
	Normal	32	29	33	520
Stored 1 year	MAD	24	24	26	480
	Normal	28	27	30	500

m: minute h: hour d: day

Remark: 1) The initial discharge test shall commence within 30 days of manufacture. During stored period, the cells shall be stored under room temperature conditions.

2) Lot release service output test is conducted by 9.1Ω continuous discharging to 3.6 volts

- The batteries shall not leak during the service life test before the end voltage reached.

6. Leakage Resistance

6.1 Over discharge leakage test

Test conditions: 20±2℃& RH 55±20%, 9.1Ω continuous discharge 48h.
Number of test samples: 9 batteries
Requirement: No visible leakage; No explosion.

6.2 High temperature leakage test

Test conditions: store 20 days under 60±2℃, then store 4~24h under standard environment.
Number of test samples: 24 batteries
Requirement: No visible leakage; No explosion.

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7. Security Characteristics

7.1 User Drop Test

This test simulates the situation when a battery is accidentally dropped.

Test conditions: Undischarged test batteries shall be dropped from a height of 1 m onto a concrete surface. Each test battery shall be dropped six times, once in each face. The test batteries shall be stored for 1 h afterwards.

Number of test sets: 5 batteries

Requirement: No fire, No explosion or leakage.

7.2 Short-circuit explosion-proof characteristics

This test simulates an external short circuit of a battery during daily handling of batteries.

Test conditions: Positive and negative terminals of an undischarged battery shall be connected directly. The circuit shall be completed for 24 h or until the battery case temperature has returned to ambient. The resistance of the inter-connecting circuitry shall not exceed 0,1 Ω.

Number of test samples: 5 batteries

Requirement: No fire or explosion; Leakage is allowable.

8. Expiry Date:

3 years

9. Expiry Date Marking:

9.1 Unless otherwise specified, each battery will carry a manufacturing date code followed by month and year of manufacturing for domestic and manufacturing date code followed by month and year of expiry for export. (Shelf life 3 years)

9.2 For private label, can mark according to customer's requirements.

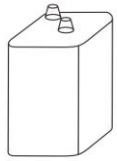
10. Packaging Requirements

10.1 The total of heavy metal lead, cadmium, mercury, and hexavalent chromium concentration shall not exceed 100 ppm in Packaging materials and printing inks. Ozone depleting substances (ODS) shall not be used in the manufacturing of any packaging.

The printing on each cell label is legible and permanent. Label defects, if any, shall conform to mutually agreed upon limit samples.

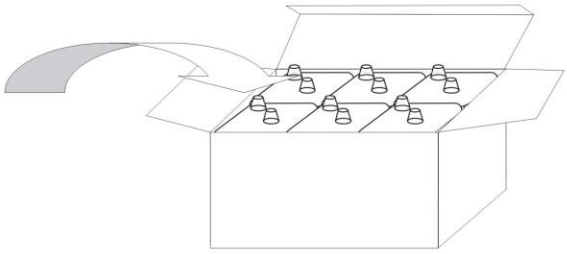
10.2 It is recommended that packaging for shipment and sales according with Packaging Specification of Ultra Max alkaline cell. For example, 1pc battery in a shrink, 3*2 shrinks in a display box, 3*1*1 display boxes in a final outer carton and 7*8 outer cartons on a pallet. Flow chart as next page:

1



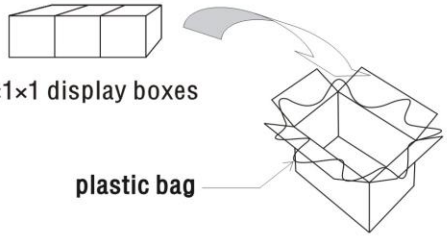
4LR25 1pcs–shrink
(PET or PVC or OPS)

2

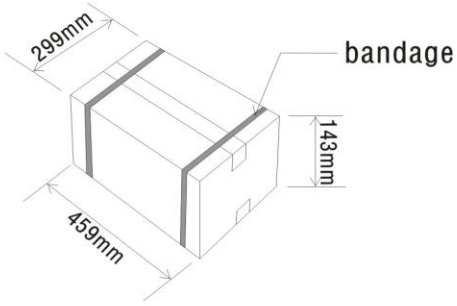


3×2×1 pcs in a display box

3

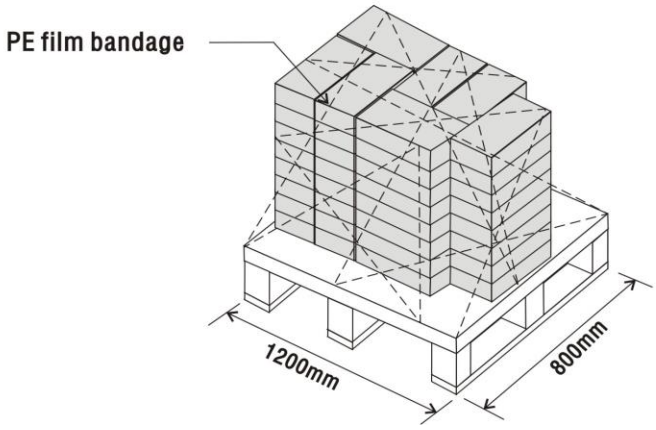


4



Gross weight:about 16kg

5



(7×8) outer boxes

10.3 Otherwise packaging for shipment and sales shall conform to the mutually agreed to Packaging Specification of the designated customers.

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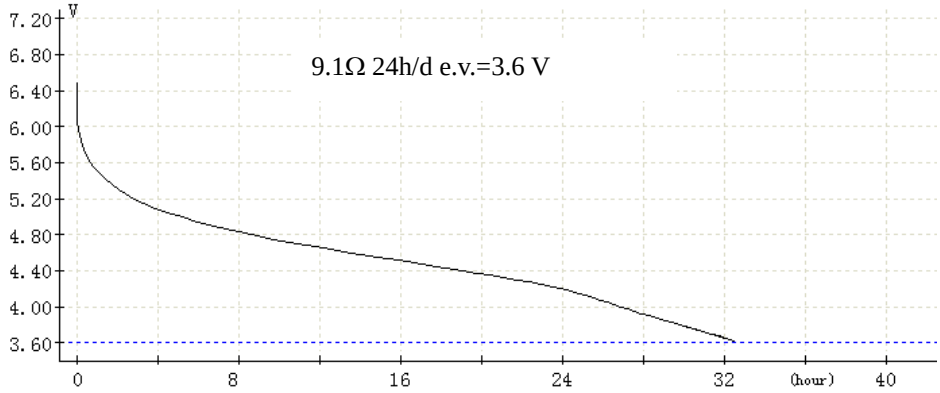
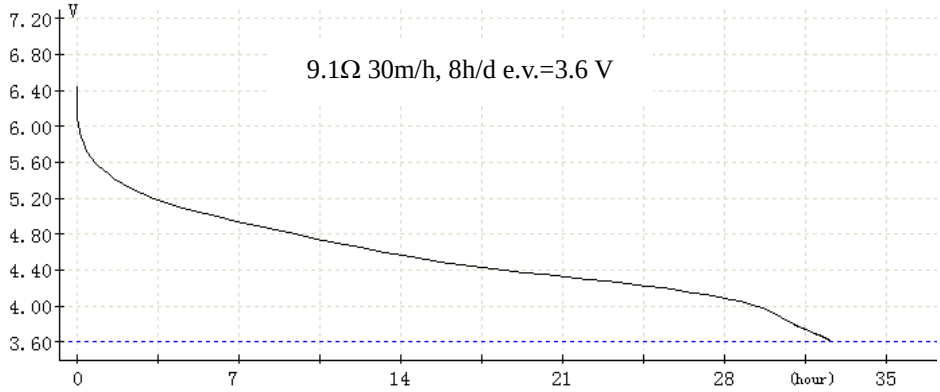
11. Component / Information of Ingredients

Chemical Nature: Alkaline zinc-manganese dioxide batteries

MATERIALS	APPROXIMATE PERCENT OF TOTAL WEIGHT (%)	CAS NO.	MATERIALS	APPROXIMATE PERCENT OF TOTAL WEIGHT (%)	CAS NO.
Manganese Dioxide (MnO2)	~33.0	1313-13-9	Brass	~2.0	12597-71-6
Zinc Powder (Zn)	~15.0	7440-66-6	Fe	~17.0	7439-89-6
Water (H2O)	~10.0	7732-18-5	Ni	~1.0	7440-02-0
Potassium Hydroxide (KOH)	~7.0	1310-58-3	Other	~6.7	9003-56-9
Carbon	~2.0	7782-42-5	-	-	-

Chart 1. Discharge diagram





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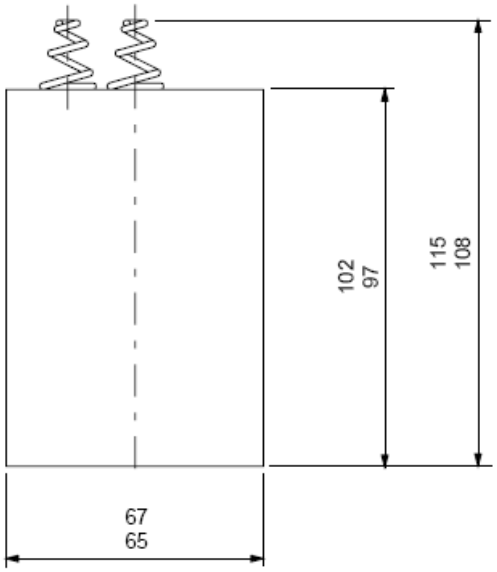
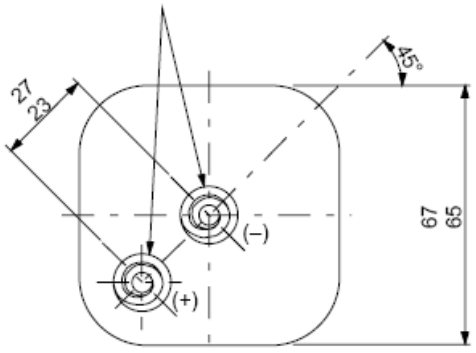
Drawing 1



Conical spiral wire spring terminals



Remark: The dimensions shall be in accordance with the below figures both prior to and after service output test. Measuring equipment shall be with an accuracy ±0.05mm at least.

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