

TECHNICAL SPECIFICATION
FOR
ALKALINE MANGANESE DIOXIDE BUTTON CELL
TYPE: LR1130H

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Guangdong TIANQIU Electronics Technology Co. ,Ltd.

ADD: 9/F TianQiu Building No.16-30, He Yi Rd., San Yuan Li Ave., GuangZhou China

Tel: 8620-36322277 Fax: 8620-36323339 P.C:510410

Website: <http://www.tmmq.cn> Email: office@tmmq.com

1. Scope

This specification is applicable to the Alkaline Manganese Dioxide Button Cell LR1130H supplied by Guangdong TIANQIU Electronics Technology Co., Ltd.

2. Designations

2.1 Defining

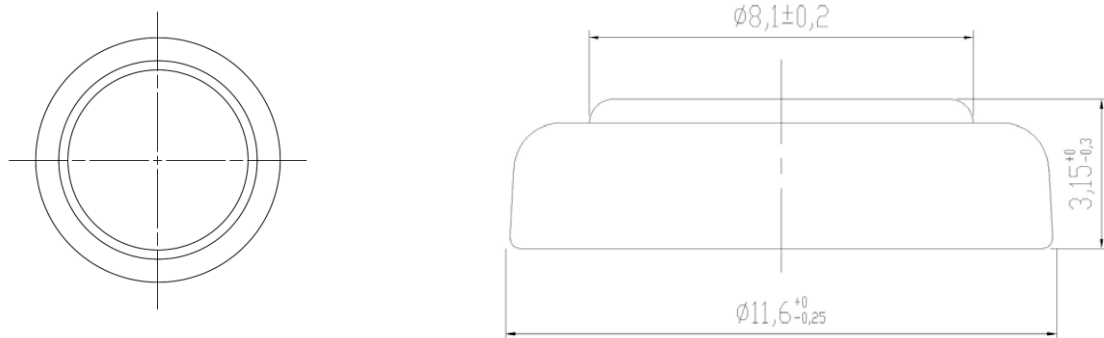
At the temperature of $20 \pm 2^\circ\text{C}$, loading at $1\text{k}\Omega$ continuous discharge, till the voltage down to 0.9V

3. Designations and Dimensions

3.1 Designations:

ALKALINE MANGANESE DIOXIDE BUTTON CELL LR1130H

3.2 Dimensions



4. Technical Specifications

Item	Characteristic
Nominal capacity	60mAh
Nominal voltage	1.5V
End point voltage	0.9V
Storage humidity	$60 \pm 15\%RH$ (no condensate)
Dimensions	maximum height:3.05mm Maximum diameter: $\Phi 11.6\text{mm}$
Approximate weight	1.14g (ONLY FOR REFERENCE)

5. Performance

5.1 Test conditions

Unless otherwise specified, the test conditions shall be, as a general rule, at the temperature of $20 \pm 2^\circ\text{C}$ and the relative humidity of $60 \pm 15\%$.

5.2 Electrical characteristics

NO.	Item	Test condition	Requirement
5.2.1	storage characteristics	Sampling plan: MIL-STD-105E, General Inspection Lever II, Single Sampling, AQL=0.4 Remark: On load voltage test method: 15KΩ/0.3s, The initial samples shall be tested within 30 days after delivery	Open Circuit Voltage(V) load voltage(V) Initial: ≥1.55 ≥1.50
5.2.2	Service output	Load resistance:15kΩ; Discharge method:24h/d continuously discharge; End point voltage 1.2V Remark: The initial samples shall be tested within 30 days after delivery.	Initial≥600hrs 12 months @ RT≥540hrs
		Load resistance:1kΩ; Discharge method:24h/d continuously discharge; End point voltage 0.9V Remark: The initial samples shall be tested within 30 days after delivery.	Initial≥48hrs 12 months @ RT≥43hrs
5.2.3	Short circuit test	Short circuit for 24hrs under 20±2℃	No explosion N=5, Ac=0, Re=1.

5.2.2&5.2.3 Acceptance test:

- 1) 9 pieces of battery will be tested for each discharging method.
- 2) The average discharging time from each discharging method shall be equal to or greater than the specified figure, and no more than one battery has a service output less than 80% of the specified figure.
- 3) One retest is allowed to confirm the results if the first test didn't meet the requirements.

5.3 Shelf life

One year after delivery under normal storage conditions.90% of the initial capacity will be maintained after one year storage.

6. Packing and Marking

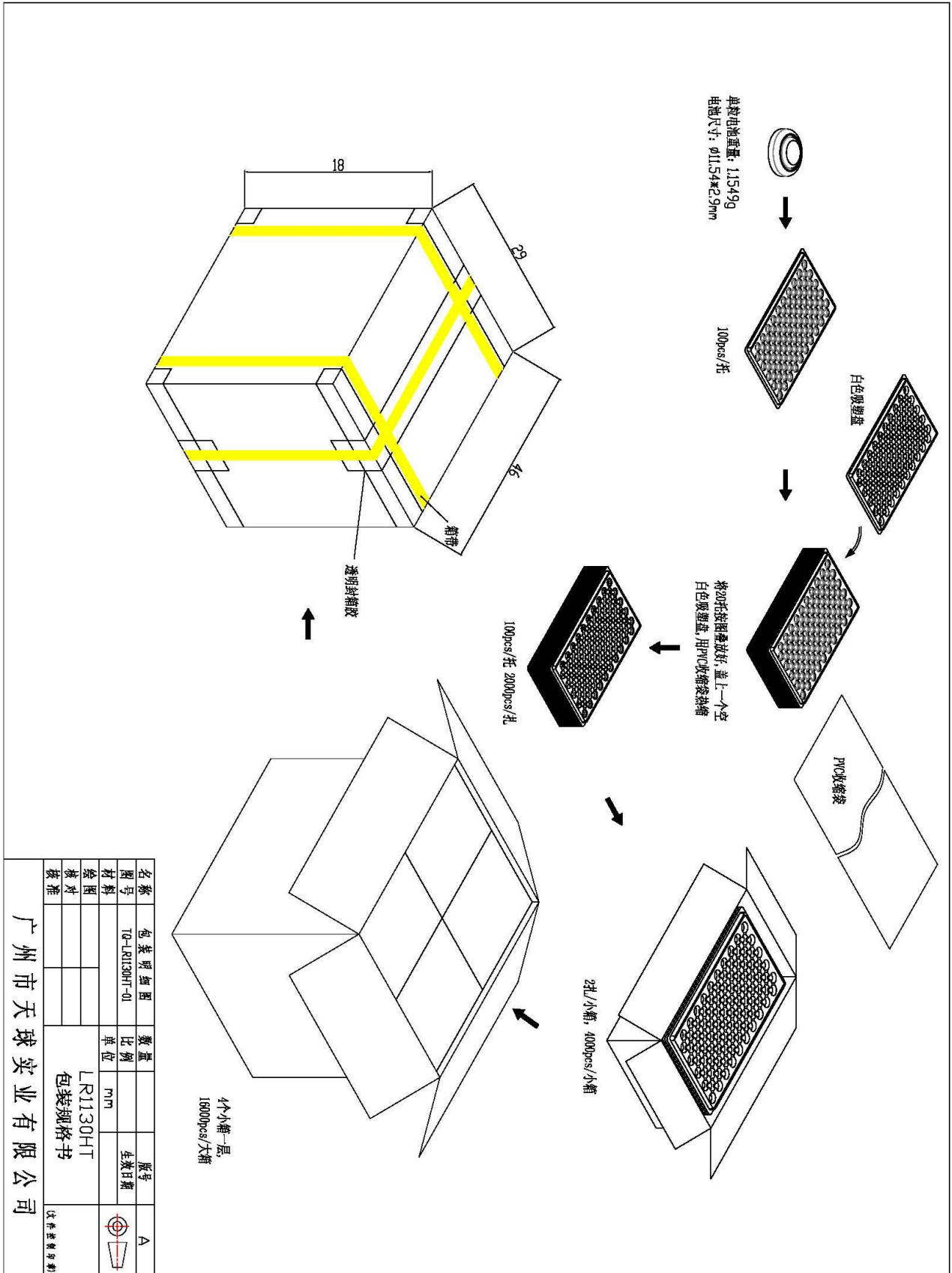
Any specific design and packing requirements will be accommodated as required. But as a general, the following markings will be printed, stamped or impressed on the body of the battery:

6.1 Marking

- 1) Designation: LR1130H
- 2) Type: Alkaline Cell
- 3) Polarity Marking:” + “and /or “-”.



6.2 Packing picture



7. Caution for Use

- 1) Since the battery is not designed to be charged, 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 “-” polarity in correct position, otherwise may cause the battery to be charged or over-discharged.
- 3) Short-circuiting, heating, disposing of in fire and disassembling the battery are prohibited.
- 4) Battery cannot be forced discharge, which lead to excess internal gas generation and, may result in bulging, leakage and explosion.
- 5) New and used batteries cannot be mix used at the same time, when replaced batteries, it is recommend to replace all and with the same brand type.
- 6) Exhausted batteries should be removed from compartment to prevent over-discharge, which cause leakage and damage to the device.
- 7) Direct soldering is not allowed, which will damage the battery.
- 8) Keep the battery out of the reach of children to prevent swallow, in case of accident should contact physician at once.
- 9) The battery should not be dismantled and deformed.

caution:

- » If a battery is leakage and materials contact eyes, flush immediately with running water for at least 15 minutes. Consult an ophthalmologist at once.
- » If battery emits an odor, fever, discoloration, deformation or any abnormal phenomena appeared in the process of use/storage, removed the battery immediately from the device and dispose of the battery.

8. Referenced Standards

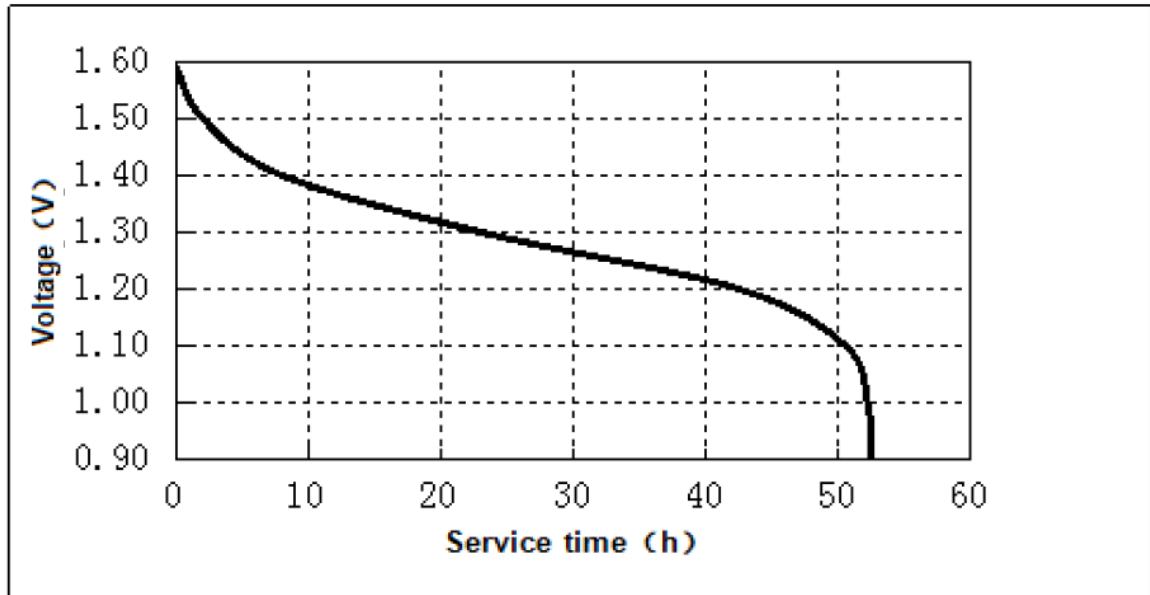
IEC 60086-1:2015 Primary Batteries –Part 1: General

IEC 60086-2:2015 Primary Batteries –Part 2: Physical and electrical specifications

IEC 60086-3:2016 Primary Batteries –Part 3: Watch batteries

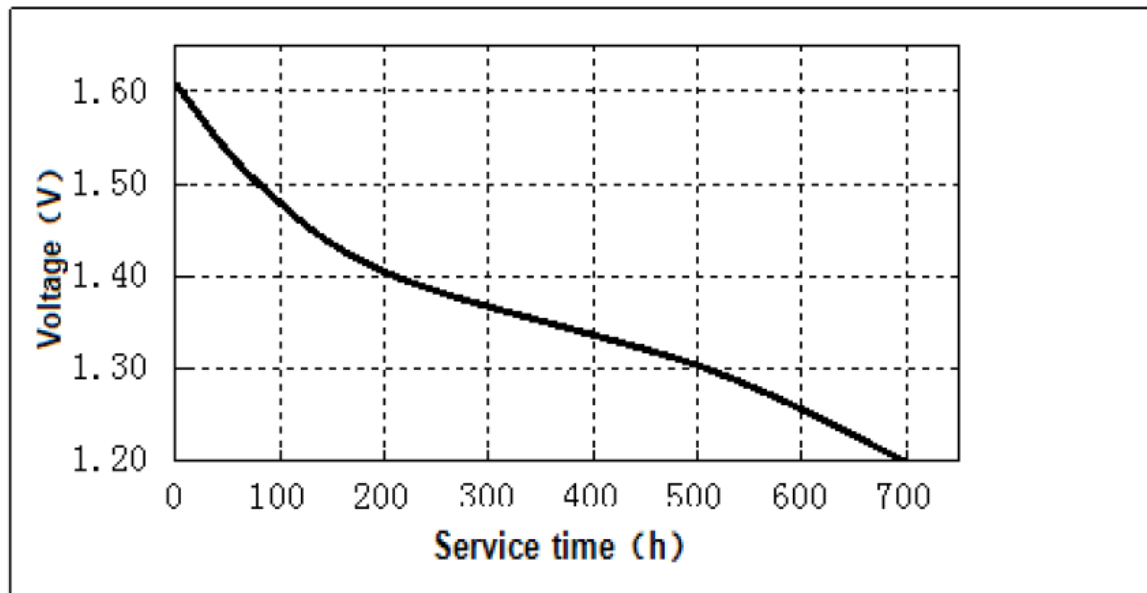
IEC 60086-5:2016 Primary Batteries –Part 5: Safety of batteries with aqueous electrolyte

9. Discharge Curves



Discharge method: 1K Ω , 24hours/day E.V 0.9V

Temperature: 20 \pm 2 $^{\circ}$ C



Discharge method: 15K Ω , 24hours/day E.V 1.2V

Temperature: 20 \pm 2 $^{\circ}$ C