TECHNICAL SPECIFICATION

FOR

MANGANESE DIOXIDE LITHIUM BATTERY

TYPE:CR2032

Document No.	**TMMQ/GPTD-BPS105**	Effective date	2014 年 6 月 20 日
Edition	A00	Pages	Total 10 pages
Compiled		Revision	
Auditing		Approved	

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1. Scope

This specification is applicable to the Manganese Dioxide Lithium Battery CR2032 supplied by GUANGZHOU TIANQIU ENTERPRISE CO.,LTD.

2. Definition

2.1 Nominal capacity：

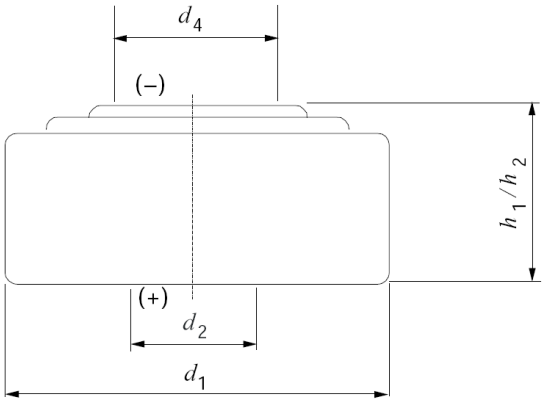
Continuously discharge at 20±2℃ under 15KΩ to 2.0V.

3. Product model and dimensions

3.1 Product model

CR2032 Manganese Dioxide Lithium Battery

3.2 Dimensions



Symbols	Specification (mm)	
	Maximum	Maximum
h1/h2	3.2	3.0
d1	20.0	19.7
d2		–
d4		8.0

Note: h1 maximum overall height of the battery

h2 minimum distance between the flats of the positive and negative contacts

d1 maximum and minimum diameters of the battery

d2 minimum diameter of the flat positive contact

d4 minimum diameter of the flat negative contact

4. Technical Specifications

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Item	Specification
Nominal Capacity	210mAh /0.63Wh
Nominal Voltage	3.0V
End point voltage	2.0 V
Recommended continuous drain	0.2mA
Recommended pulse drain	15mA
Working temperature range	-20~60℃
Storage conditons	0℃～35℃
Humidity range	45% ~75 % RH (No condensate)
Product dimensions	maximum over height:: 3.2mm maximum diameter: Φ20mm
Average weight	2.9g

5. Technical characteristic

5.1 Testing environment

Unless otherwise stated, the test conditions shall be, as a general rule, at the temperature of 20±2℃ and the relative humidity of 60±15%.

5.2 Typical performance

No.	Item	Test condition	Criterion

5.2.1	Electrical characteristics	Sampling plan MIL-STD-105E, general level Ⅱ, single sampling AQL=0.4 Remark: On-load voltage:15KΩ/1 seconds The initial samples shall be tested within 30 days after delivery	OCV(V) CCV(V) Initial 3.0-3.4 3.0-3.4 12 months at RT 3.0-3.4 3.0-3.4
5.2.2	Service output	Discharge load:15kΩ; discharge time:24 hours/day continuous discharge; end-point voltage:2.0V Remark: The initial samples shall be tested within 30 days after delivery	The initial samples≥1050 hours After 12 months at room temperature ≥980 hours
5.2.3	Temperature characteristics	Discharge load:15kΩ discharge time:24 hours/day continuous discharge; final voltage:2.0V The method of testing the load voltage: 15kΩ/1sec The initial samples shall be tested within 30 days after delivery	0±2℃≥850 hours 60±2℃≥980 hours

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5.2.4	Over-discharge	Continuously discharge at 15KΩ to 1.2V	No leakage,no deformation; N=9, Ac=0, Re=1
5.2.5	High Temp.storage	Storage the samples at 60℃,RH below 70% for 30 days	No leakage; N=40, Ac=1, Re=2
5.2.6	Short circuit test	Short circuit at 55℃.Continued the test at least 1 hour after the cell external case temperature has returned to 55℃.	No explosion, no fire; N=5，Ac=0，Re=1.

5.2.2 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 did not meet the requirements.

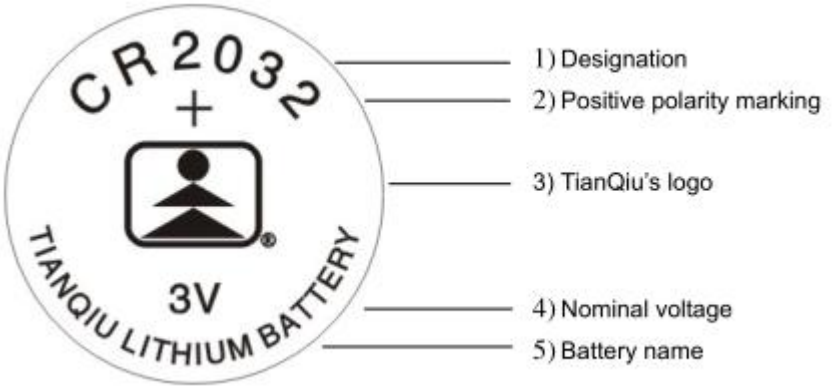
5.3 **Shelf life**

One year after delivery under normal storage conditions according to appendix E of GB/T 8897.1-2013.

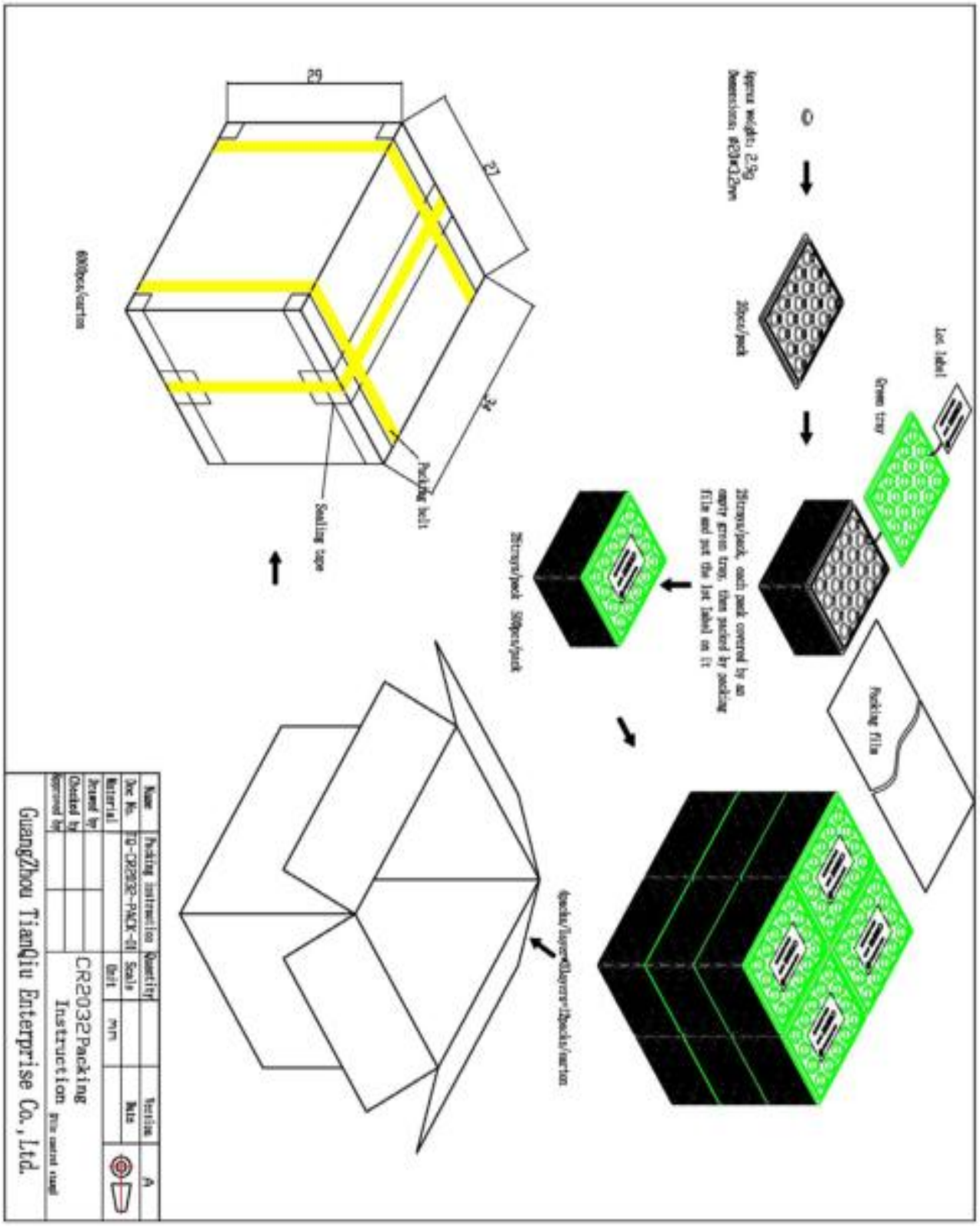
6. Packing and Marking

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

6.1 Marking design:



6.2 Packing


29
27
34
Packing belt
Sealing tape
Lot label
Green tray
Packing film
Name
Packing instruction
Quantity
Version
Doc No.
TQ-CR2032-PACK-01
Scale
Date
Material
Unit
mm
Drawed by
Checked by
Approved by
CR2032Packing Instruction
GuangZhou TianQiu Enterprise Co.,Ltd.

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 the product leaked, the electrolyte get into the eyes, do not rub, wash eyes with clean water, please immediately go to the hospital for treatment when necessary, otherwise the eyes will be damaged.

If the product emits an odor, fever, discoloration, deformation or any abnormal phenomena appeared in the process of use, storage, please remove the product immediately from the device.

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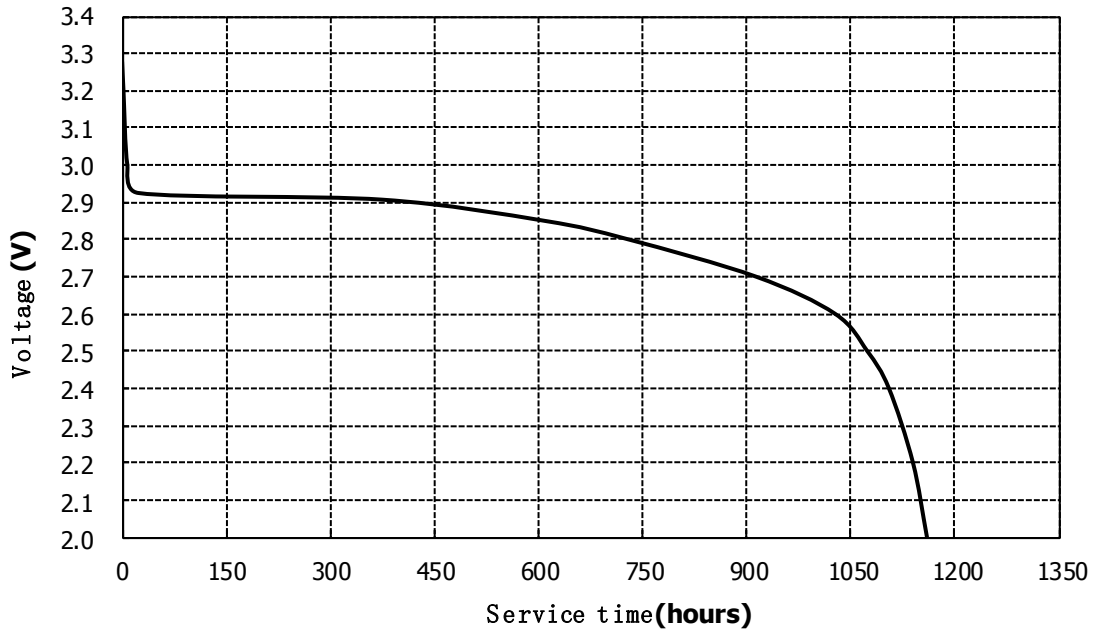
8. Referenced Standards

GB/T 8897.1-2013 Primary Batteries –Part 1: General

GB/T 8897.2-2013 Primary Batteries –Part 2: Physical and electrical specifications

GB/T 8897.4-2008 Primary Batteries –Part 4: Safety of Lithium batteries

9. Discharge curves



Discharge method:15KΩ, 24hours/day,E.V.2.0V

Temperature:20±2℃

10. Amendment record

Serial Number	Change item	Change Content	PIC	Date
A/00				