TECHNICAL SPECIFICATION

FOR

ALKALINE MANGANESE DIOXIDE BATTERY

TYPE: 27A

Document No.	TMMQ/GPTD-BPS142	**Effective date**	2018-5-30
Edition	A00	**Pages**	Total 4 pages
Compiled	赵惠	**Revision**	01
Auditing		**Approved**	

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1. Scope

This specification is applicable to the Alkaline Manganese Dioxide Battery 27A supplied by GUANGDONG TIANQIU ELECTRONICS TECHNOLOGY CO.,LTD.

2. Designations

2.1Defining

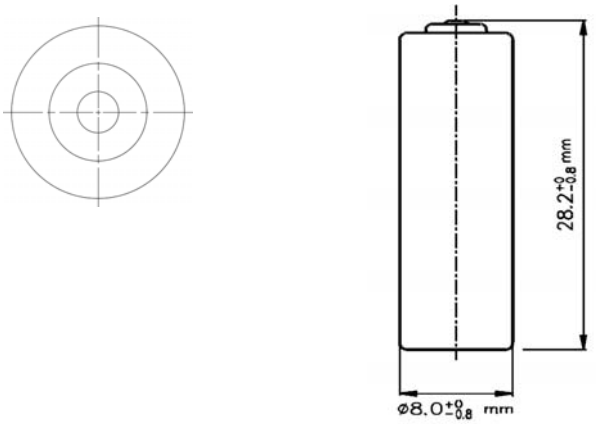
At the temperature of 20±2℃, loading at 20kΩ continuous discharge, till the voltage down to 7.2V

3. Designations and Dimensions

3.1 Designations：

Alkaline Manganese Dioxide Battery 27A

3.2 Dimensions



4. Technical Specifications

Item	Characteristic
Nominal capacity	20mAh
Nominal voltage	12V
End point Voltage	7.2 V
Storage humidity	60±15 % RH (no condensate)
Dimensions	maximum height:28.20mm Maximum diameter: Φ8.00mm
Approx. weight	4.6g

5. Technical requirements

5.1 Test conditions

Unless otherwise specified, the test conditions shall be, as a general rule, at the temperature of 20±2℃ and the relative humidity of 60±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: Load voltage test method: 20KΩ/0.3S, The initial samples shall be tested within 30 days after delivery	Open Circuit Voltage(V) load voltage(V) Initial： 12.0 11.9
5.2.2	Service output	Load resistance:20kΩ; Discharge method:24h/d continuously discharge; End point voltage 7.2V Remark: The initial samples shall be tested within 30 days after delivery.	Initial≥40hrs 12 months @ RT≥44hrs
5.2.3	Short circuit test	Short circuit for 24 hrs at the temperature of 20±2℃	No explosion N=5，Ac=0，Re=1.

5.2.2&5.2.3 acceptance standard:

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. Marking

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.

8. Referenced Standards

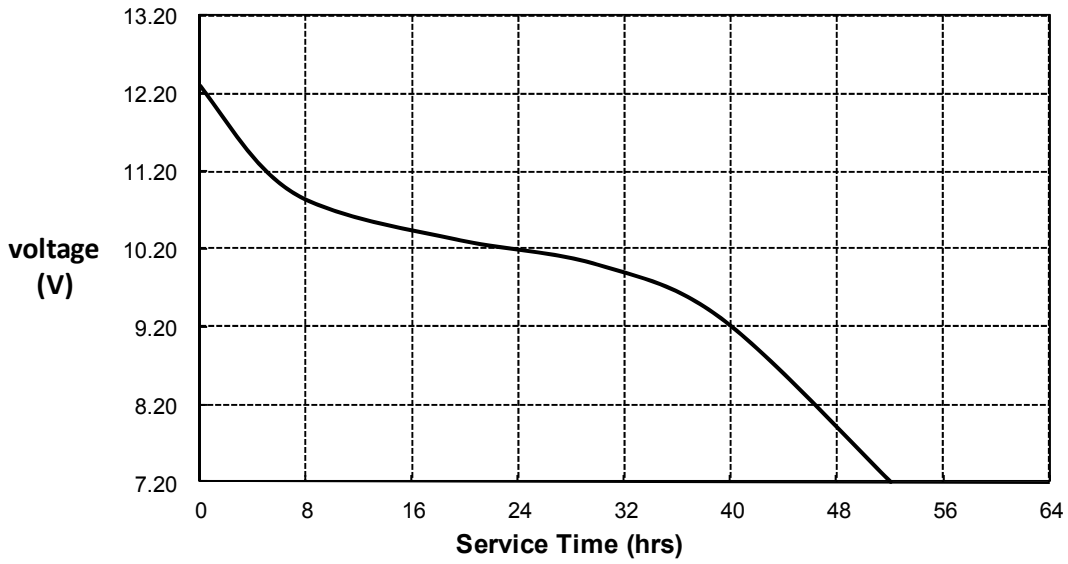
IEC 60086-1:2011 –Primary Batteries –Part 1: General

IEC 60086-2:2011 –Primary Batteries –Part 2: Physical and electrical specifications

IEC 60086-3:2011 –Primary Batteries –Part 3: Watch batteries

IEC 60086-5:2011 –Primary Batteries –Part 5: Safety of batteries with aqueous electrolyte

9. Discharge Curves



Discharge method: 20kΩ, 24hours/day, E.V. 7.2V

Temperature: 20±2℃