

# GSLR03A

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## TECHNICAL SPECIFICATION FOR ALKALINE MANGANESE DIOXIDE BATTERY

<b>Approved</b>			
General Manager:	<table border="1"><tr><td style="text-align: center;">Approved 3 0 10 2007 Cecilia Chu</td><td>Date:</td></tr></table>	Approved 3 0 10 2007 Cecilia Chu	Date:
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Date: 2007/10/31  
SPEC. No.: GP001-GSLR03A  
REVISION: 02

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*The Manufacturer reserves the right to modify product specification and data stated herein without prior notice.*

**1. Scope**

This specification is applicable to Golden Power's Greenergy Super Plus Alkaline Battery

Model No.: GSLR03A

**1.1 Designations**

Golden Power: GSLR03A                      IEC: LR03                      Others: AAA, E92, 4003  
 JIS: AM-4                                      ANSI: 24A

**1.2 Reference Document**

- IEC 60086-1 (2006-12) - Primary Batteries - Part 1: General
- IEC 60086-2 (2006-12) - Primary Batteries - Part 2: Physical and Electrical Specification
- IEC 60086-5 (2006-12) - Primary Batteries - Part 5: Safety of batteries with aqueous electrolyte

**2. Chemical System**

Alkaline-Manganese Dioxide

\* MERCURY AND CADMIUM ARE NOT ADDED IN THE BATTERY

**3. Nominal Voltage:**            1.5V

**4. Average Weight:**            11.5g

**5. Nominal Capacity**

1130mAh (Condition: discharge at  $20 \pm 2^\circ\text{C}$  under  $75\Omega$  discharge load for 4hr/day to 0.9V end-point voltage)

**6. Electrical Characteristics**

Test Conditions:  $5\Omega \pm 0.5\%$  load resistance, measuring time 0.3 seconds, temperature at  $20 \pm 2^\circ\text{C}$ , tested within 30 days after delivery.

	Open-Circuit Voltage (OCV) [V]	Closed-Circuit Voltage (CCV) [V]	Test Specification
New Battery	1.58	1.45	MIL-STD-105E, Class II, Double Sampling, AQL=0.4
After 3 mth. at temp.=45°C	1.56	1.40	
After 12 mth. room temp.	1.56	1.40	

### 7. Service Output

Test Conditions: Temperature at  $20 \pm 2^\circ\text{C}$ , tested within 30 days after delivery.

Standard	Discharge Condition			Average Minimum Discharge Time		
	Discharge load	Daily discharge time	End Point Voltage (V)	New Battery	After 3 mth. at temp.=45°C	After 12 mth. at room temp.
IEC	75Ω	4 h/d	0.9V	68 h	62.5 h	62.5 h
IEC	10Ω	1 h/d	0.9V	8.0 h	7.6 h	7.6 h
IEC	5.1Ω	4m/h, 8h/d	0.9V	3.9 h	3.7 h	3.7 h
IEC	600mA	10s/m, 1h/d	0.9V	320 cycles	294 cycles	294 cycles
IEC	24Ω	15s/m, 8h/d	1.0V	19.8 h	17.8 h	17.8 h
REF	20Ω	24 h/d	0.9V	18.5 h	16.6 h	16.6 h

Satisfaction Standard:

- (1) 9 pieces of battery will be tested for each discharging standard.
- (2) The result of the average discharging time from each discharging standard shall be equal to or more than the average minimum time requirement; and no more than one battery has a service output less than 80% of the specified requirement.
- (3) One re-test is allowed to confirm the previous result.

### 8. Electrolyte Leakage Proof Characteristics

Item	Condition	Period	Characteristics	Acceptance Standard
Over-discharge Characteristics	20Ωcontinuous discharge at temp. $20 \pm 2^\circ\text{C}$ , Relative Humidity : $65 \pm 20\% \text{ RH}$	48 hours	There shall be no deformation exceeding the specified dimensions, nor leakage recognized by human eye	N=30, Ac=1, Re=2
Storage Characteristics	At temp. $60 \pm 2^\circ\text{C}$ , Relative Humidity : less than $90\% \pm 5\% \text{ RH}$	30 days		N=30, Ac=1, Re=2

### 9. Safety Characteristics

Item	Condition	Period	Characteristics	Acceptance Standard
Short circuit Characteristics	Temp.: $20 \pm 2^\circ\text{C}$	24 hours	There shall be no explosion of battery	N=9, Ac=0, Re=1
Abusive Characteristics	Charging current: 80mA, Temp.: $20 \pm 2^\circ\text{C}$	24 hours		

## 10. Marking

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

- (1) Manufacturer's name or abbreviation : **Golden Power** ( with logo )
- (2) **Alkaline Super P+US**
- (3) Designation: **GSLR03A**
- (4) **AAA SIZE 0.00% MERCURY & CADMIUM**
- (5) Polarity Marking: "+" & "-"
- (6) **1.5V GSLR03A AM4 LR03**
- (7) **Made in China**
- (8) **Warning: Do not dispose of in fire, recharge, put in backwards, mix with used or other battery types – may explode or leak and cause personal injury.**
- (9) Marking of **Separate Collection & Recycling**

## 11. 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 "-" polarity in correct position, otherwise may cause short-circuit.
- (3) Short-circuiting, heating, disposing of into 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 de-crimping of cap.
- (5) New and used batteries cannot be used at the same time, when replaced batteries 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 & damage to the device.
- (7) Direct soldering is not allowed, which will damage the battery.
- (8) Battery should be kept 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.

## 12. Shelf Life

3 years after delivery under proper storage conditions.

(Temperature:  $20 \pm 2^{\circ}\text{C}$ ; Relative humidity:  $65 \pm 20\% \text{ RH}$ )

## 13. Discharge Curves

Discharge Method:  $75\Omega$ , 4h/d (Figure 1)

Discharge Method:  $10\Omega$ , 1h/d (Figure 2)

(Condition: Test temperature  $20 \pm 2^{\circ}\text{C}$ )

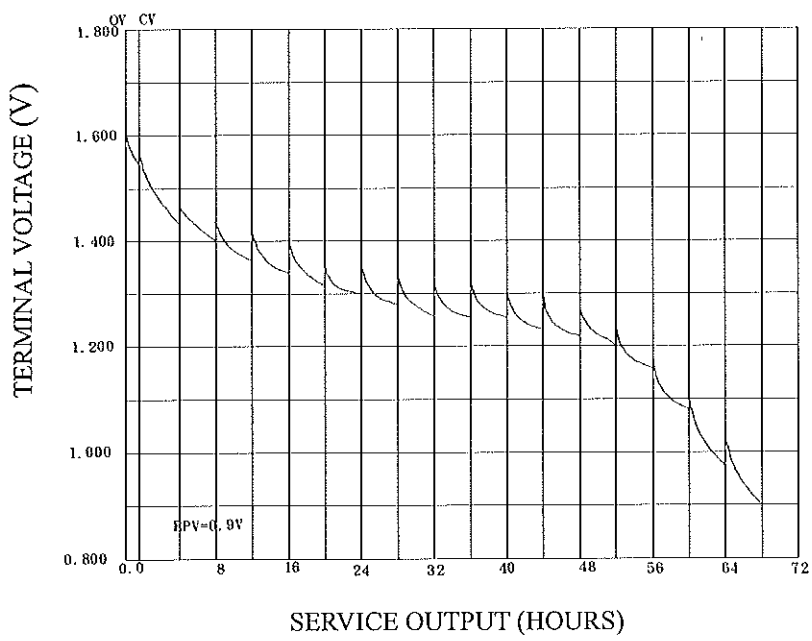
## 14. Battery Dimension (Refer to Drawing DWG-S-001)

# Golden Power Corporation (HK) Ltd.

**Figure 1:** *GSLR03A discharge curve*

Discharge Method: 75Ω; 4h/d

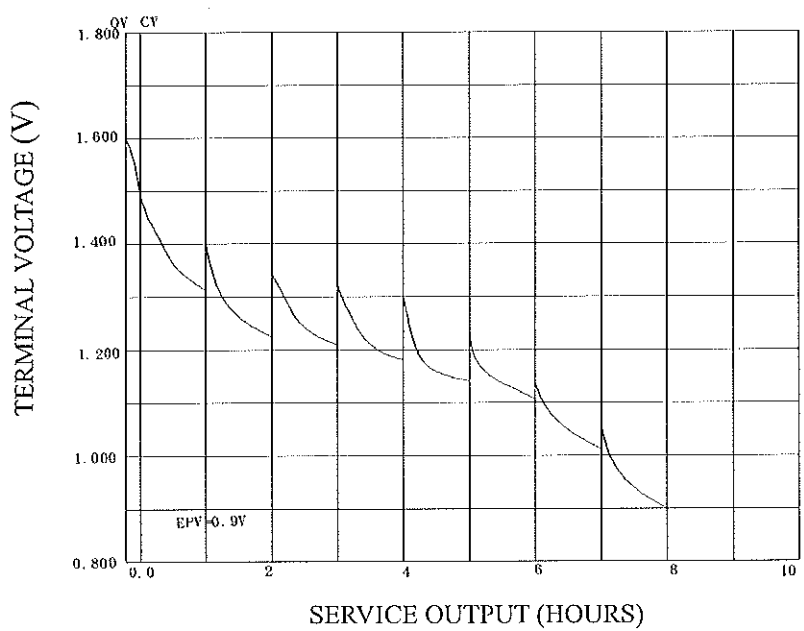
(Condition: Test temperature 20 ±2°C)



**Figure 2:** *GSLR03A discharge curve*

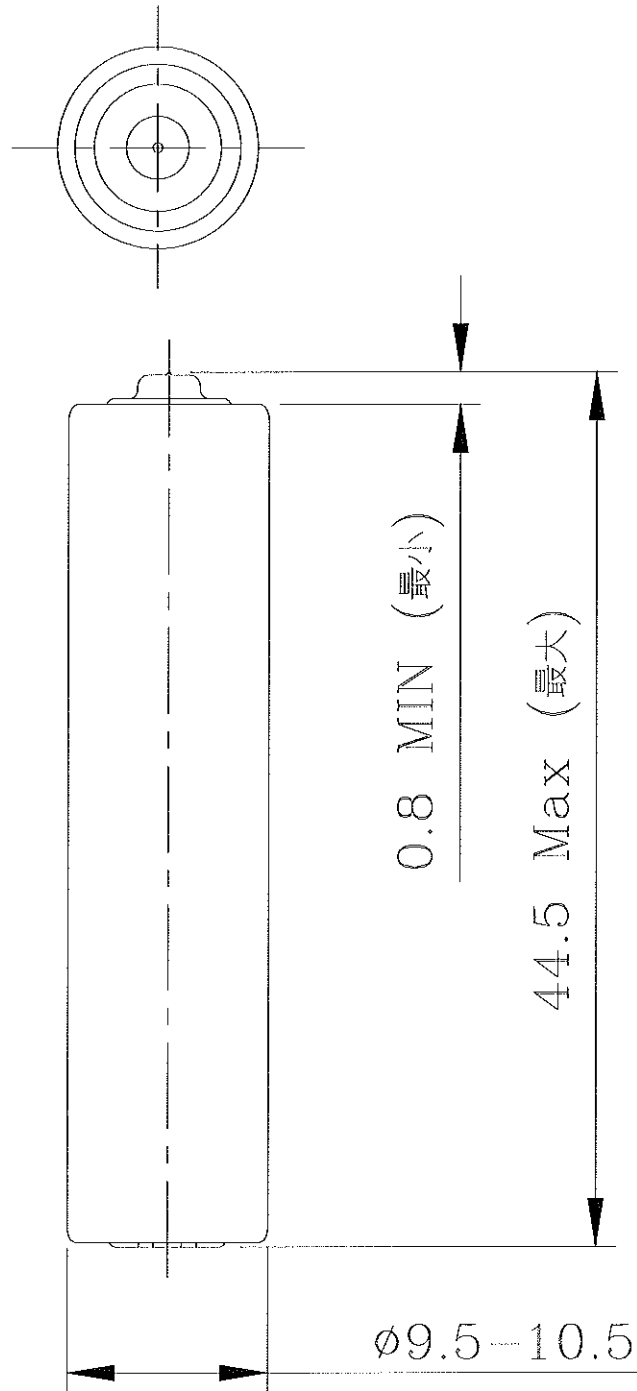
Discharge Method: 10Ω; 1h/d

(Condition: Test temperature 20 ±2°C)



# GSLR03A BATTERY DIMENSION AND STRUCTURE

## GSLR03A 電池外形及尺寸



**GOLDEN POWER CORPORATION (HK) LTD.**

金力企業(香港)有限公司

MODEL(型號): GSLR03A

DWG No.(圖號): DWG-S-001

SCALE(比例): NTS

DIM(單位): mm

Approved by (審核):

DATE(日期): 15/9/05

DRAWN BY(繪制): Kelvin

Cecilia Chu

TOLERANCES (公差)

LINEAR  $\pm 1$   
ANGULAR  $\pm 1/4'$  (第三角視圖)