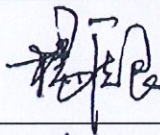
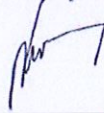



# GoldenPower®

## 315X

### TECHNICAL SPECIFICATION 技術規格書

### SILVER OXIDE BUTTON CELL 氧化銀鈕扣式電池

PREPARED:	
CONFIRMED:	
APPROVED:	

Date 日期: 2024/12/11  
SPEC. No. 編號: GP002-315X(SR716)  
REVISION 版次: 01

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## 1. Scope 概要

This specification is applicable to Golden Power's Silver Oxide Button Cell

這技術規格是應用於金力氧化銀鈕扣式電池

Model No. / 型號 : 315X

### 1.1 Designations 型號

Golden Power: 315X

IEC: SR67

Others: SR716/  
SR716W/  
V315

JIS: SR67

ANSI: ---

### 1.2 Reference Document 參考標準

IEC 60086-1 (2021-04) - Primary Batteries - Part 1: General

IEC 60086-2 (2021-04) - Primary Batteries - Part 2: Physical and Electrical Specification

IEC 60086-3 (2021-04) - Primary Batteries - Part 3: Watch Batteries

IEC 60086-5 (2021-05) - Primary Batteries - Part 5: Safety of batteries with aqueous electrolyte

## 2. Chemical System Zinc-Silver Oxide (Sodium Hydroxide Electrolyte and/or Potassium Hydroxide Electrolyte)

### 化學構成

鋅 - 氧化銀 (鹼性電解液)

## 3. Nominal Voltage 1.55V

### 標稱電壓

## 4. Average Weight Approx. 0.35g

### 平均重量

## 5. Nominal Capacity 21mAh

### 標稱容量

Condition : continuous discharge at  $20 \pm 2^{\circ}\text{C}$  under  $68\text{k}\Omega$  load for 24 hrs/day to EPV 1.2V

條件 : 利用  $68\text{k}\Omega$  電阻, 在  $20 \pm 2^{\circ}\text{C}$  每日放電 24 小時, 終止電壓為 1.2V

6. Electrical Characteristics 電性能

Test Conditions      tested within 30 days after delivery  
條件                      收貨後 30 天內測試

load resistance                      temperature                      Measuring time  
負載電阻    68kΩ ± 0.5%              測量溫度    20 ± 2°C                      測量時間    0.3 sec

	Off-load voltage 空載電壓 (V)	On-load voltage 負載電壓 (V)	Test Specification 驗收規則
New Battery 新電	1.56	1.5	MIL-STD-105E, Class II, Double Sampling, AQL=0.4

7 Service Output 放電性能

Test Conditions      tested within 30 days after delivery  
條件                      收貨後 30 天內測試  
Temperature              20 ± 2°C  
測量溫度

Standard 標準	Discharge Condition 放電條件			Average Minimum Discharge Time 平均最少放電時間		
	Discharge load 放電負載	Daily discharge time 每天放電時間	End Point Voltage 終止電壓 (V)	New Battery 新電池	After 12 mth. at room temp. 在室溫下存放 12 個月	After 24 mth. at room temp. 在室溫下存放 24 個月
IEC	68kΩ	24 hrs	1.2	865hrs	820 hrs	778 hrs
REF	36kΩ	24 hrs	0.9	445hrs	/	/

- Acceptance Criteria / 驗收標準：
- (1) 9 pieces of battery will be tested for each discharging standard.  
每一種放電條件取 9 只電池進行放電。

(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.  
平均放電時間等於或大於平均最少放電時間的規定值，而放電時間少於規定值 80%的電池數量不大於 1，則認為電池的放電時間符合要求。

(3) One re-test is allowed to confirm the previous result.  
若以上結果不合格，可作一次重驗。

8 Safety Characteristics 安全性能

Item 項目	Condition 條件	Requirements 要求	Acceptance Standard 驗收標準
Short circuit Characteristics 短路性能	24 hrs short circuit test at 20 ±2°C 在 20 ±2°C 下短路 24hrs	There shall be no explosion of battery 電池沒有爆炸	N=10, Ac=0, Re=1

9 Marking 標記

The following markings will be printed, stamped or impressed on the body of the battery:  
在電池外標明以下內容：

- 1) Designation  
型號

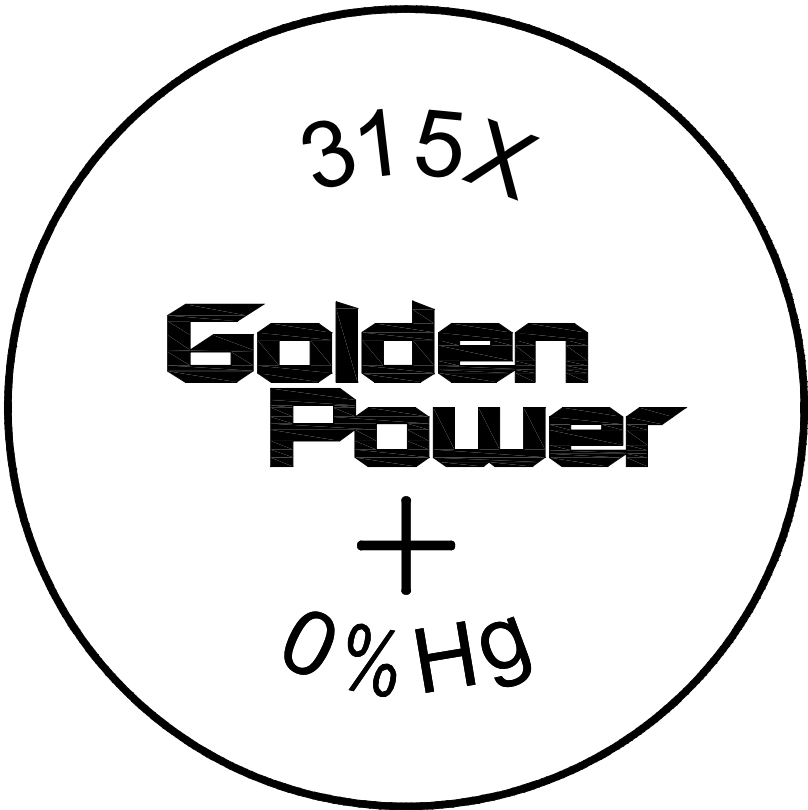
315X
- 2) Polarity Marking 極性標記

Marking  
標記

315X GoldenPower + 0%Hg +

Location  
位置

On cathode can  
電池的正極上
- 3) 字嘜圖見下



10 Caution for Use 注意事項

1. Battery should be kept out of the reach of children to prevent from swallowing. In case of accident, please contact to physician and bring them to nearby hospital immediately.  
電池應放在小童不可接觸的地方，以免小童誤吞而產生危險。如果發現小童誤吞意外，應該立刻通知醫生和帶他們去附近的醫院。
2. Short-circuiting, heating, disposing of in fire or water is prohibited.  
請勿將電池短路、加熱、投入火中、水中。
3. Dismantle battery is prohibited.  
請勿拆解電池。
4. Do not touch leaking battery.  
請勿觸摸漏液電池。
5. Never charge or force to discharge battery. There are risks of deform, leakage, overheat or fire hazard and it may damage the charging device.  
請勿對電池進行充電或強行放電，這樣可能會導致電池變形、漏液、過熱或火災及對相關的充電設備造成破壞。
6. Direct soldering of battery is not allowed, which will cause to short-circuit and draining the battery.  
請勿焊接電池，這樣會對電池造成短路及耗盡電源。
7. The battery shall be installed with its "+" and "-" polarity in correct position, otherwise it may cause short-circuit.  
在安裝電池時，請把電池安裝在正確的方向，若安裝不正確或會造成短路。
8. New and discharged or different types of batteries cannot be used together. It is recommended to replace with all new and same type of batteries.  
請盡量避免把新電池及已用過的電池或不同型號的電池混合使用。
9. Exhausted batteries should be removed from compartment to prevent over-discharge which causes leakage & damage to the device.  
請把已耗盡的電池從用電的產品上移走，避免對電池進行過放，而引起電池漏液。
10. Dispose of battery should be followed by local government regulations. Normally, "+" and "-" polarity area should be covered by insulation tape. This is because disposed battery still remains current capacity, that may cause leakage, overheat or explosion when the battery contacted with metals.  
當廢棄電池時請遵守當地國家或地區的法規。一般而言，在處置前應用絕緣膠帶覆蓋電池的(+)和(-)端。原因是廢棄電池仍然存在電容量，當接觸金屬材料時，可以造成電池滲漏、過熱或爆炸。

11. Shelf Life2 years after delivery (90% of the capacity will be maintained after 2-year storage under proper conditions)  
電池存放期於常溫及合適環境儲存 2 年後電池可保留 90%容量。

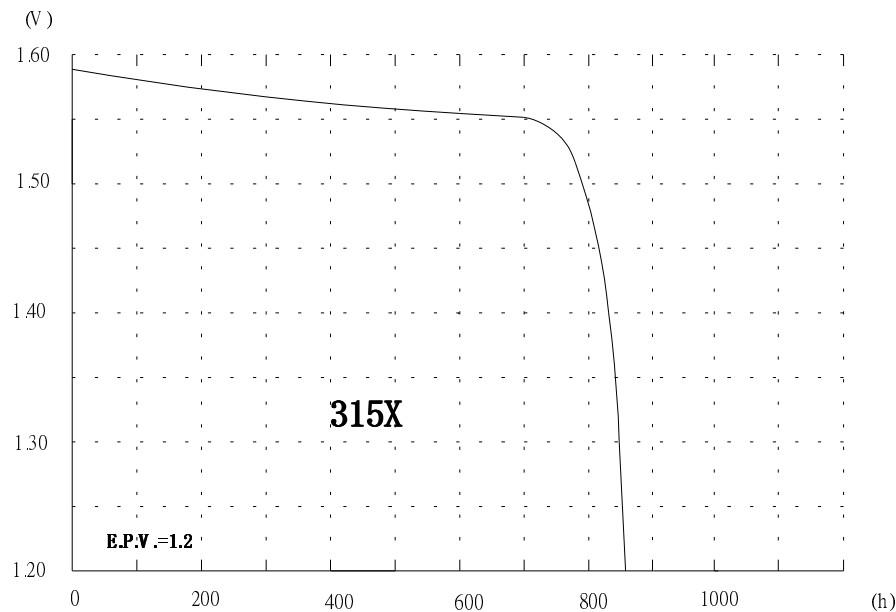
Storage Conditions 存放條件

Temperature	20 ± 2°C	Relative humidity	55 ± 20% RH
溫度		相對濕度	

**12. Discharge Curves 放電圖：**

Test temperature / 測試溫度	20 ± 2°C	
Discharge Method(EPV) / 放電方法(終止電壓)：	68kΩ, 24 hrs/day (1.2V)	Fig 1

Figure 1 / 圖 1： DISCHARGE CURVE 放電圖



SERVICE OUTPUT (HOURS)

Test temperature / 測試溫度	20 ± 2°C
Discharge Method(EPV) / 放電方法(終止電壓)：	68kΩ, 24 hrs/day (1.2V)

**13. Battery Dimension and Structure**

Refer to Drawing DWG-S-001

電池尺寸 及 結構

參考圖紙 DWG-S-001

**14. Compliance & Environmental Information 法規及環保信息**

This product complies with EU RoHS Directive 2011/65/EC, Battery Directive 2006/66/EC 、 2013/56/EU ,Regulation (EU) 2023/1542 on batteries and waste batteries, and REACH Directive and REACH regulation EC No. 1907/2006.

此產品符合歐盟 RoHS 指令 2011/65/EC, 電池指令 2006/66/EC、2013/56/EU,電池和废旧電池的法規 ( EU ) 2023/1542 , 及REACH法 規 EC. No. 1907/2006

**15. Material Safety Data Sheet Information 物料安全數據**

**Safety Data Sheet SDS**

Ref.No.:GPSDS-315X-2024A

IDENTITY (As Read on Label and Line) 315X SILVER OXIDE BUTTON CELL	Notice: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
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**Section I –Identification of the substance/preparation and of the company/undertaking**

Manufacturer's Name Golden Power Corporation (HK) Ltd. Dongguan Victory Battery Industries Co.,Ltd.	Telephone Number (852) 3125 2288
Address (Number, Sheet, City, State, and ZIP Code)  Flat C, 20/F., Block 1, Tai Ping Industrial Centre, 57 Ting Kok Road, Tai Po, N.T., Hong Kong	Fax Number (852) 3125 2000 / 3125 2001
	Date Prepared <b>29 NOV 2024</b>
	Signature of Preparer (optional)

**Section II –Composition/information on ingredients**

Hazardous Components (Specific Chemical Identity, Common Names)	(contents, %/wt)	CAS No.
Silver Oxide (Ag <sub>2</sub> O)	28%	20667-12-3
Manganese Dioxide (MnO <sub>2</sub> )	0.24%	1313-13-9
Zinc (Zn)	8.7%	7440-66-6
Potassium Hydroxide (KOH)	2.3%	1310-58-3
Graphite (C)	1.2%	7782-42-5
Cadmium (Cd)	< 0.0005 %	7440-43-9
Mercury (Hg)	< 0.0001 %	7439-97-6
Lead (Pb)	< 0.0010 %	7439-92-1

**EU Battery Directive 2006-66-EC(2013-56-EU) & US104-142**

Mercury (Hg)	< 0.0001 %	7439-97-6
Lead (Pb)	< 0.0010%	7439-92-1
Cadmium (Cd)	< 0.0005%	7440-43-9

**Section III –Physical and chemical properties**

Boiling Point KOH aqua solution = 140 °C	Specific Gravity (H <sub>2</sub> O=1) MnO <sub>2</sub> = 4.4, Zn = 7.1, KOH = 2.0
Vapor Pressure (mmHg) KOH aqua solution = 3mmHg at 20 °C	Melting Point MnO <sub>2</sub> decompose at 535 °C Zn = 420 °C, KOH aqua = -35 °C
Vapor Density (Air = 1)	Evaporation Rate (Butyl Acetate = 1)

Solubility in Water KOH – complete

Appearance and Color

Ag<sub>2</sub>O is a black powder, MnO<sub>2</sub> is a black powder, Graphite is also a black powder,  
Zinc is a silver metal. KOH aqua is a colorless liquid with stimulative order.

## Section IV –Fire-fighting measures

Flash Point (Method Used)	Flammable Limits	LEL	UEL
Incombustible	Not Available		

Extinguishing Media: See Special Fire Fighting Procedure

Special Fire Fighting Procedure: In case of fire in an adjacent area, use water, CO<sub>2</sub> or dry chemical extinguishers if cells are packed in their original containers since the fuel of the fire is basically paper products. For bulk quantities of unpackaged cells use LITH-X (Graphite Base). In this case, do not use water.

As with any fire, wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products.

Unusual Fire and Explosion Hazards

## Section V –Stability and reactivity

Stability	Unstable		Conditions to Avoid	Do not short circuit, charge or dispose of in fire.
	Stable	√		

Incompatibility (Materials to Avoid) Hazardous polymerization will not occur.

Hazardous Decomposition or Byproducts Not Available

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	√	

## Section VI –Toxicological information

Route(s) of Entry.	Inhalation?	Yes	Skin?	Yes	Ingestion?	Yes
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Health Hazards (Acute and Chronic) These chemicals are contained in a sealed can. Risk of exposure occurs, only if battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents KOH is caustic alkali and attack the skin and eyes. Contact of electrolyte with skin and eyes should be avoided.

## Section VII – Ecological Information

Cardnogenicity	NTP?	Not Available	IARC Monographs?	Not Available	OSHA Regulated?	Not Available
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Signs and Symptoms of Exposure KOH can cause chemical burn upon contact with skin.

Medical Conditions An acute exposure will not generally aggravate any medical help.

Generally Aggravated by Exposure

## Section VIII –First-aid measures

In case of skin contact with content of battery, flush immediately with water.

For eye contact, flush with copious amount of water for 10 minutes. If imitation persists, get medical help.

## Section IX - Accidental release measures

Steps to Be Taken in Case Material is Released or Spilled Wipe out by wet duster.

## Section X - Disposal considerations

General abandonment

## Section XI - Handling and storage

Avoid mechanical or electrical abuse.

## Section XII - Hazards identification

Do not short circuit, charge or dispose of in fire. Battery may explode or leak.



### Section XIII - Exposure controls/personal protection

Respiratory Protection (Specify Type) Not Available

Ventilation	Local Exhaust	Special
	Not Available	Not Available
	Mechanical (General)	Other
	Not Available	Not Available

Protective Gloves Butyl Eye Protection Safety Glasses

Other Protective Clothing or Equipment

Not Available

Work / Hygienic Practices

Not Available

### Section XIV – Regulatory Information

Not Available

### Section XV – Other Information

Not Available

### Section XVI – Transportation Information

Golden Power “315X SILVER OXIDE BUTTON CELL” are considered to be “dry cell” batteries and are not listed as dangerous goods under below regulations:

1. Batteries, dry fulfills the requirement of U.S. Department of Transportation (DOT), Special Provision 130, i.e. they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals or batteries to be packed in such a way to prevent short circuits or generation of a dangerous quantity of heat.)”.
2. International Civil Aviation Administration (ICAO) and International Air Transport Association (IATA Dangerous Goods Regulation<sup>65th</sup> Edition 2024), Special Provision A123, i.e. “An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals or batteries to be packed in such a way to prevent short circuits or generation of a dangerous quantity of heat.) is forbidden from transportation.”
3. International Maritime Dangerous Goods Regulations (IMDG)2022/41-22 edition does not regulate these batteries.

Examples of such batteries include alkali-manganese, silver oxide, zinc carbon, nickel metal hydride and nickel-cadmium batteries.

## **16. Packaging Requirements 包裝要求**

16.1 For standard bulk package specification, please refer to ANNEX 1.

工業包裝標準，可參考附件 1

16.2 Packing specification includes carton size, pallet, material, contents, prints should be mutually agreed and decide by specification or by sample approval.

包裝規格-含箱子尺寸、托盤、材質、文字內容、印刷等 需要訂立規格協議或樣版確認。

16.3 Packaging labels should be legible and permanent.

包裝用標籤須符合易於辨認，清楚顯示及能恆久存在。

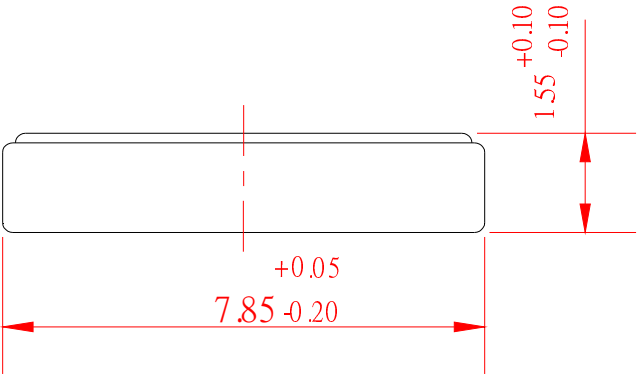
16.4 Customized packaging shall be mutually agreed and decide by specification

客方特定包裝標準須另訂協議確認

DWG-S-001

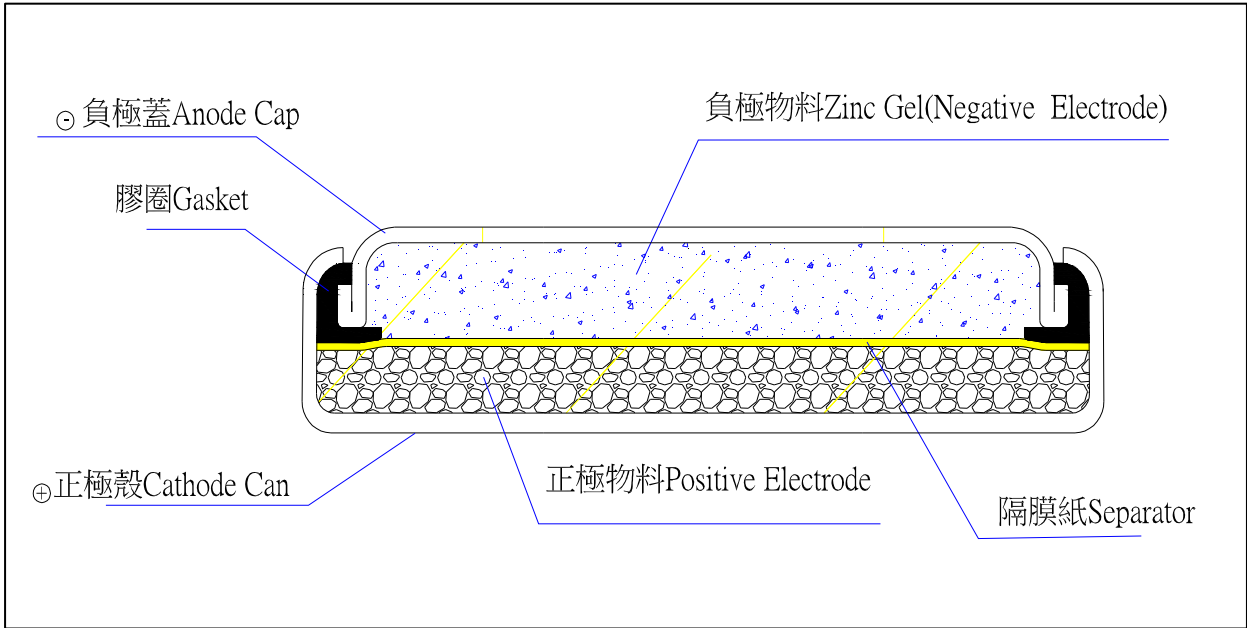
315X DIMENSIONS & STRUCTURE

Dimensions(in mm):



Dimensions	Specification
A	$\varnothing 7.85^{+0.05}_{-0.20}$
B	$1.55^{+0.10}_{-0.10}$

Structure:



1 : Standard Bulk Package specification

