SAFETY DATA SHEET

•SECTION 1 - MANUFACTURER AND PRODUCT IDENTIFICATION•

WISCONSIN PHARMACAL COMPANY
1 Pharmacal Way
P.O. Box 198
Jackson, WI 53037

EMERGENCY NUMBER: 1-800-255-3924
(24 HOURS)
INFORMATION NUMBER: 1-800-558-6614
(BUSINESS HOURS)

PRODUCT NAME: Coleman Scented Citronella LED Candle
PRODUCT CODE: 7709, 7710
INTENDED USE: Decor

HMIS:

Health Hazard:	1
Fire Hazard:	1
Reactivity:	0
Personal Protective Equipment:	C

PREPARED BY: JButeyn DATE UPDATED: 8/24/2020

•SECTION 2 - HAZARDS IDENTIFICATION•

GHS Classification	UN3091 Lithium battery included in equipment. (Special Provisions apply)
Hazard Classification:	**Not classified as Dangerous Goods**

Precautionary Statements	Keep out of reach of children
	Use only outdoors or in a well-ventilated area
	Store at temperatures not exceeding 46°C/115°F.

•SECTION 3 – COMPOSITION INFORMATION ON INGREDIENTS•

Chemical Name	% by weight	CAS No.
Paraffin wax	96.90%	8002-74-2
Solvent yellow	0.10%	128-85-8
Linalool	0.015%	78-70-6
Citronellal	0.45%	106-23-0
A-terpineol	0.15%	10482-56-1
Decanal	0.015%	112-31-2
Geranyl acetate	0.15%	105-87-3
Benzyl acetate	0.15%	140-11-4
Vanillyl alcohol	0.15%	498-00-0
Triethyl citrate	0.015%	77-93-0
Eugenol	0.03%	97-53-0
Musk xylene	0.03%	81-15-2
Vanillin	0.45%	121-33-5
Ethyl maltol	0.15%	4940-11-8
Nerolin	0.015%	93-18-5
Nerol	0.03%	106-25-2
Benzyl benzoate	1.20%	120-51-4

•SECTION 4 - FIRST AID PROCEDURES•

General advice:	First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.
If inhaled:	Remove from exposure to fresh air. Seek medical attention if irritation persists.
If on skin:	Wash affected areas with soap and water while removing contaminated clothing.
If in eyes:	Wash affected eyes for at least 15 minutes under running water with eyelids held open. Seek medical attention if irritation persists.
If swallowed:	Rinse mouth and then drink plenty of water. Do not induce vomiting g unless told to do so by a poison control center or doctor.

•SECTION 5 – FIRE-FIGHTING MEASURES•

Flash Point:	>190°C
Suitable extinguishing media:	Sandy clay, powder, dry chemical, foam, water fog, CO_2
Unsuitable extinguishing media for safety reasons:	Not available
Protective equipment for fire-fighting:	Wear a self-contained breathing apparatus.
Impact Sensitivity:	Product is not explosive when subjected to mechanical impact.

•SECTION 6 - ACCIDENTAL RELEASE MEASURES•

Personal precautions:	Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing personal protective clothing. Information regarding personal protective measures appears in section 8.
Environmental precautions:	Material is not water soluble and is unlikely to pose any environmental harm. Small molten spills may be absorbed with earth, sand or absorbent material swept up and placed in suitable, covered, and labeled containers.
Cleanup:	Pick up with suitable apparatus and dispose according to local regulations.

•SECTION 7 - HANDLING AND STORAGE•

General Handling advice:	Breathing must be protected when large quantities are present without local exhaust ventilation.
Protection against fire and explosion:	Sources of ignition should be kept well clear - fire extinguishers should be kept handy. Avoid oxidizers and strong acids.
General Storage advice:	Store in unopened original containers in a cool and dry place. Protect against access by children. Keep away from food, drink, and animal foodstuffs.

•SECTION 8 – EXPOSURE CONTROL AND PERSONAL PROTECTION•

The following applies to Industrial Settings only:

Exposure guidelines:	Oil of Citronella has no listed OSHA PEL or ACGIH TLV.
Advice on system design:	Ensure adequate ventilation.
Personal protective equipment	
Respiratory protection:	Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator.
Hand protection:	Chemical resistant protective gloves
Eye protection:	Tightly fitting safety goggles (chemical goggles).
Body protection:	Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:	Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink, and animal feeding stuffs. Immediately remove all contaminated clothing. Wash contaminated clothing before reuse. Hands and/or face should be washed before breaks and at the end of the shift.

•SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES•

Form:	Solid opaque wax
Odor:	Aromatic odor
Color:	White to off-white
pH value:	Not applicable
Melting range:	47 - 65 °C
Boiling point:	>370 °C
Flash Point:	>190 °C
Specific Gravity:	0.88 – 0.92 (Water = 1)
Flammability:	Not determined
Upper/Lower Explosion Limits:	Not determined
Vapor Pressure:	Not determined
Vapor Density:	Not determined
Evaporation Rate:	Insignificant
Decomposition Temperature:	Not determined
Autoignition Temperature:	Not determined
Partitioning coefficient n- octanol/water [log (P_{ow})]	Not determined
Viscosity, dynamic:	Not applicable
Solubility in water:	Insoluble
VOC	0%

•SECTION 10 – STABILITY AND REACTIVITY•

Stability:	Stable under normal temperature and pressure.
Conditions to avoid:	Avoid all sources of ignition: heat, sparks, and open flame.
Substances to avoid:	Strong acids, strong oxidizing agents.
Hazardous reactions:	The product is stable if stored and handled as prescribed or indicated. Hazardous polymerization does not occur.
Decomposition products:	No hazardous decomposition products.

•SECTION 11 – TOXICOLOGICAL INFORMATION•

Acute toxicity:	No known significant effects or serious harm.
Chronic toxicity:	No known significant effects or serious harm.
Sensitization:	Not a skin sensitizer.
Reproductive toxicity:	No known significant effects or serious harm.
Mutagenicity:	No known significant effects or serious harm.

•SECTION 12 – ECOLOGICAL INFORMATION•

Aquatic toxicity:	None
Degradability / Persistence:	Short term degradation products are not likely. Long term degradation products may arise, but are unknown. The statement has been derived from the properties of the individual components. The product contains poorly biodegradable component(s).

•SECTION 13 – DISPOSAL CONSIDERATIONS•

Waste disposal of substance:	Dispose into trash observing local authority regulations, preferably to a suitable incineration plant. Do not dispose into the environment.
Container disposal:	Dispose empty container into trash observing local authority regulations, preferably to recycling channels. Do not dispose into the environment.

•SECTION 14 - TRANSPORT INFORMATION•

US DOT:	Batteries are not subject to the requirements of the Department of Transportation (DOT) subchapter C, Hazardous Material Regulations since each battery meets the exceptions under 173.185 (b). The batteries are exempted from the US DOT regulations as long as they are separated to prevent short circuits and packed in strong packing for conditions normally encountered in transportation.
ADR, RID:	All batteries are regulated as Hazardous Material by the ADR (road) and RID (rail) when transporting more than 24 batteries or 12 batteries in a single package. These must be transported according to the requirement in Special Provisions "188" and "230".
IMO / IMDG:	All batteries are regulated as Hazardous Material by the International Maritime Organization (IMO) when transporting more than 24 batteries or 12 batteries in a single package. These must be transported according to the requirement in Special Provisions "188" and "230". Batteries are as per IMDG SP:188 and tested as NON DG
ICAO / IATA:	All batteries are regulated as Hazardous Material by the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). They must be transported according to Section 38.3 of the Fifth Revised Edition Amendment 2 of the Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria (ST/SG/AC.10/11/Rev.5/Amend.2/Section 38.3) and Drop test of Section II of Packing Instructions 968970 of 56th DGR Manual of IATA. The lithium cell CR2032 has passed the test UN38.3

	Hazard class	**Packing group**	**ID number**	**Hazard label**	**Proper shipping name / Not Classified as Dangerous Goods due to compliance with Special Provision**
Land transport USDOT: Road, Rail	9	NA	UN 3091	9	Lithium batteries in equipment. 49CFR Section 173.185
Sea transport: IMDG/IMO	9	NA	UN 3091	9	Lithium batteries in equipment. SP188
Air transport IATA/ICAO	9	NA	UN 3091	9	Lithium batteries in equipment. Packing Instruction 968-970

•SECTION 15 - REGULATORY INFORMATION•

FEDERAL REGULATIONS: Product is not rated as dangerous or hazardous.

- SARA Hazards - Immediate: No | Delayed: No | Fire: No | Pressure: No | Reactivity: No

  Section 302 Extremely Hazardous Substance: No | Section 311 Hazardous Chemical: No
- CERCLA Reportable Quantity: Not available

STATE RIGHT-TO-KNOW REGULATIONS:

- ILLINOIS TOXIC SUBSTANCES DISCLOSURE TO EMPLOYEE ACT: Wax (Paraffin) Fume
- RHODE ISLAND RTK HAZARDOUS SUBSTANCES: Wax (Paraffin) Fume
- PENNSYLVANIA RTK: Wax (Paraffin)
- MINNESOTA: Wax (Paraffin) Fume
- MASSACHUSETTS RTK: Wax (Paraffin) Fume

TSCA 8(B) INVENTORY: Wax

OTHER REGULATIONS: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

OTHER CLASSIFICATIONS:

- WHMIS (CANADA): Not controlled under WHMIS (Canada)
- DSCL (EEC): This product is not classified according to the EU regulations.

FIFRA Labeling
This product contains chemicals registered as pesticides by the Environmental Protection Agency and may be subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals.
• This product has no required pesticide-specific labeling.

•SECTION 16 - OTHER INFORMATION•

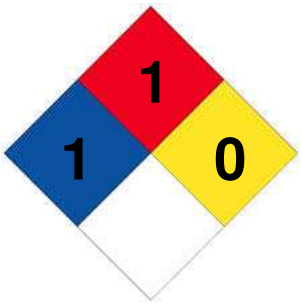
NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide emergency responders an on-the-spot alert to the hazards of a material and their severity. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

KEY/LEGEND: EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration.

LITERATURE REFERENCES: None

DISCLAIMER: This (M)SDS provides a brief summary of the physical and chemical characteristics of this product to guide usage and handling of the material. It is not a comprehensive document on worldwide hazard communication regulations. It is compiled from sources considered valid and accurate. Wisconsin Pharmacal assumes no responsibility for injury or damage resulting from misuse of the product.

1	HEALTH HAZARD
1	FIRE HAZARD
0	REACTIVITY
C	PPE



Revision History
Previous Edition 11/8/2019
Latest Revision 8/24/2020

1. Scope

This product specification is applicable to lithium-manganese dioxide button batteries provided by Dongguan Shenneng Battery Technology Co., Ltd.

2. Applicable battery types:	Lithium-manganese dioxide button battery
3. Battery Type and Performance	
3.1 Model:	CR2032
3.2 Rated voltage:	3.0 V
3.3 Nominal capacity:	210mAh (load: 15.0 k, termination voltage 2.0 V)
3.4 Outline Dimensions:	As shown in the drawing
3.5 Standard Quality:	2.9 g
3.6 Shelf life:	1 year (temperature less than or equal to 25 ℃ and relative humidity less than 75%).
3.7 Appearance:	Visual inspection shows that the surface of the battery is smooth, free from damage and deformation, and the signs are clear.
3.8 Trademark Name:	″Lithium Battery, In the meantime, it is necessary to″.
3.9 Manufacturing date and identification:	If necessary, the year and month of manufacture of the battery can be printed on the surface of the battery.
	Example:

21 (manufactured in January 2012)

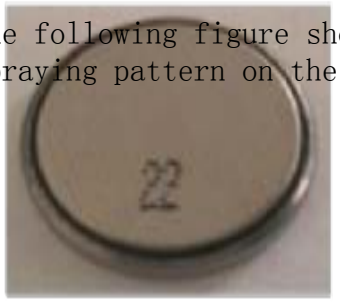
22 (manufactured in February 2012)

20 (manufactured in October 2012)

2Y (manufactured in November 2012)

2Z (manufactured in December 2012)

The following figure shows the code spraying pattern on the battery surface:



4;The lithium content: 59 mg

4. Main Technical Parameters (Table 1)

Project		Unit	Technical Indicators	Conditions
Nominal Voltage		V	3.0	CR series batteries only
Nominal capacity		MAh	210	Continuous discharge at 15.0 kload
Instantaneous short circuit current		MA	⩾ 300	Time ⩽ 0. 5 ’
Open Circuit Voltage		V	3.25~3.45	All CR Series Batteries
Storage temperature		℃	0~40	All CR Series Batteries
Applicable temperature		℃	-20~60	All CR Series Batteries
Standard Weight		G	Approximately 2.9g	Only for this series of batteries
Self-discharge rate		%/year	≤2	Only for this series of batteries
Quick Test	Initial Period	H	≥66.7	At a load of 1.0 k and a temperature of 20 ± 2 ℃, relative humidity ⩽ 75% RH Under the circumstances.
Service Life	12 months later	H	≥65.3	

Note 1: The electrochemical system and size of this product shall comply with IEC 60086-1: 2007 (i.e. GB/T8897.1-2008, original electricity Pool, Part 1: General).

5. Product Specifications and Testing Methods

Unless otherwise specified, all tests of the product shall be carried out under the following conditions:

(1) Ambient temperature: 20 ± 5 ℃.

(2) Relative humidity: 60% RH ± 15%.

Table 2

Test Items	Test Method	Quality standard
1. Outline dimensions	Test and test with vernier caliper with accuracy not less than 0.02 mm Insulation materials should be pasted on the contact surface of calipers to prevent Short circuit.	Diameter (mm): 20.0 (-0.20) Height (mm): 3.20 (-0.20)
2. Open Circuit Voltage	Use numbers with accuracy not less than 0.25% and internal resistance greater than 1M Multimeter.	3.25~3.45 V
3. Instantaneous short circuit current	Test with pointer multimeter, each time for no more than 0.5 ', but it is necessary to avoid repeating the test and testing the time again. The interval should be more than 0.5 hours.	≥ 300 mA
4. Appearance	Purpose Measure	Clean and tidy, clearly marked, without deformation, Rust, leakage. Installed in-use device In the device, the two poles of the battery should always The ability to form and maintain good contact Yes.
5. Rapid discharge capacity	At standard temperature 20 ± 2 ℃, relative humidity ≤ 75% RH, negative When the load is 1.0 k and the termination voltage is 2.0 V.	≥ 66.7 hours
6. Vibration test	On a vibrating machine with a vibration frequency of 100-150 times per minute Continuous vibration for 1 hour.	Stable performance
7. Liquid leakage resistance at high temperature	Stored at 45 ± 2 ℃ for 30 days.	Leakage rate ≤ 1/10000
8. Overdischarge leakage resistance Can	When the termination voltage reaches 2.0 V, the discharge is continuously discharged for 5 hours.	No leakage
Note 2: The overall dimensions and performance of this product comply with IEC 60086-2: 2007 (i.e. GB/T8897.2-2008, Primary Battery, Part 2: Requirements for overall dimensions and electrical properties).		
Note 3:		

1. The above tests have been confirmed by a large number of tests.
2. The company's standard is completely stricter than GB/T8897 "Primary Battery" standard promulgated by the state.
3. If the customer has special requirements, the company can adopt special testing methods according to the customer's requirements.

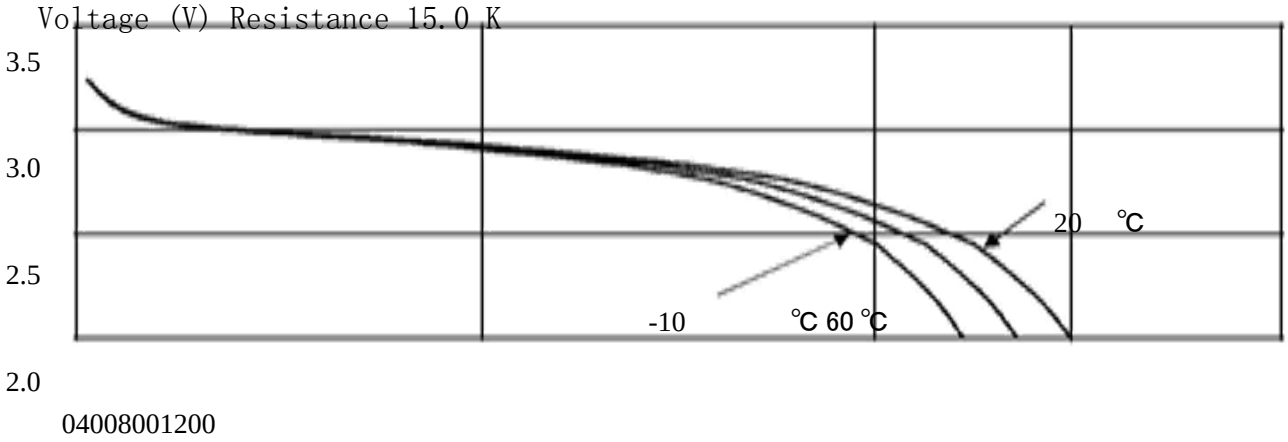
6. Discharge life

Load resistance	1 5 0 00hm
Discharge method (standard)	24-hour continuous discharge
Termination Voltage	2.0 V
Standard Time (Initial Period)	1000 hours
Standard time (after 12 months of storage)	980 hours

Initial test: The test carried out within one month after delivery.

Storage test: Under specific conditions, storage has been carried out after 12 months of testing.

7. Discharge characteristics on load



8. Battery Test

8.1 Temperature and humidity

8.1. 1 Test conditions

Unless otherwise specified, the test is generally carried out in an environment with a temperature of 20 ± 2 ℃ and a relative humidity of 65% RH ± 20%. 8.1. 2 Storage conditions

Unless otherwise specified, the sample battery shall be stored in an environment with a temperature below 25 degrees and a relative humidity below 75% RH, and tested within one month of storage.

8.2 Testing Instruments, Instruments and Equipment

8.2. 1 Voltage shall be measured with a voltmeter in the area of 0V to 4V, with an accuracy of ± 1 mV, or with a more accurate sum input

Multimeter test with input impedance exceeding 10M.

8.2. 2 The discharge load resistance will include the load of all external circuits with a tolerance not exceeding 0.5%.

8.2. 3 Outline dimensions will be measured using electronic digital display calipers with a distance of 0 to 150 mm and an accuracy of 5/100 mm or more accurate measuring tools.

8.3 Test Methods (or Procedures)

8.3. 1 Outline Dimensions

The measurement uses an electronic digital display caliper (refer to 8.2. 3).

8.3. 2 Appearance

Use visual inspection.

8.3. 3 Open Circuit Voltage

Use a voltmeter to measure the voltage (refer to 8.2. 1).

8.3. 4 Service life

After storing at normal temperature (20 ± 5 ℃) for 12 hours, discharge continuously as shown in Table 1 until the termination voltage is 2.0 V

(Not suitable for this voltage), its service life will meet the requirements of Table 1.

8.3. 5 Leakage resistance inspection

Check the leak resistance. Under the condition of no cover, place it at a 40-watt fluorescent lamp 1 meter above and 30 cm away from the eyes to observe the smooth and clean surface of the battery without dirt.

9. Quality Assurance

(1) If it is confirmed that the product has defects in technology and materials, please replace the product with Dongguan Shenneng Battery Technology Co., Ltd. Free of charge. Please

Note that our company is only obliged to replace the battery. Other loss, damage, destruction, including indirect costs or expenses, directly caused or

Indirectly caused losses of any nature, such as products that have been used or cannot be used, are excluded.

(2) The battery must comply with the requirements of this specification when working. Otherwise, Dongguan Shenneng Battery Technology Co., Ltd. Cannot assume any responsibility, including (but not limited to) safety and customer claims, as well as losses, damages, actions or legal proceedings, costs (legal or other aspects) caused thereby.

(3) It is the customer's responsibility for the matching and reliability of batteries in actual settings or component applications.

(4) Dongguan Shenneng Battery Technology Co., Ltd. Will not be responsible for the following circumstances:

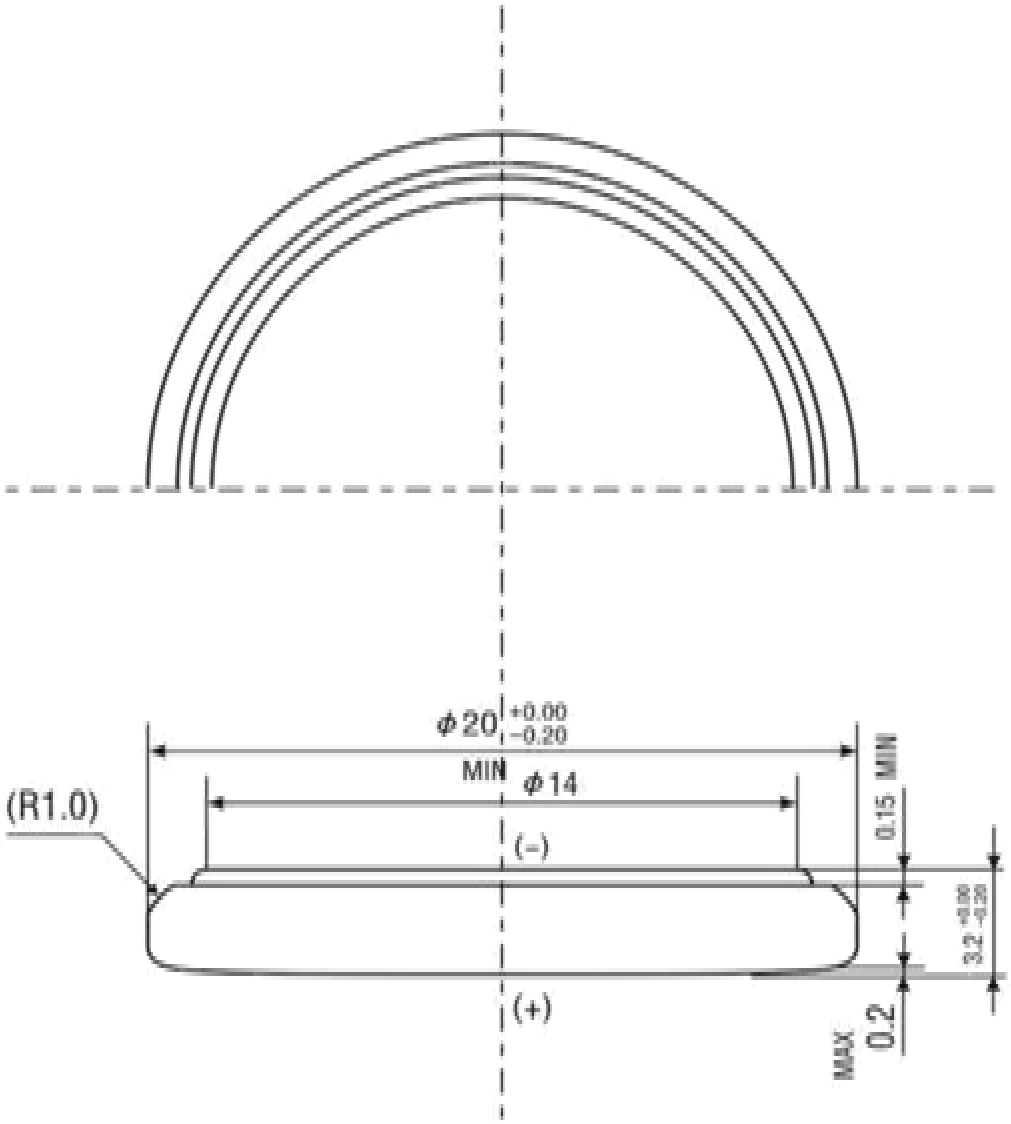
(I) Improper handling when using, installing or inspecting batteries.

(II) Failure to comply with the following instructions, precautions or warnings mentioned in this product specification.

(III) Failing to comply with the instructions and suggestions of Dongguan Shenneng Battery Technology Co., Ltd.

10. Other

Subject to RoHS instructions, this battery does not contain the following chemicals: lead, mercury, cadmium, hexavalent chromium, bromide, flame retardant, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE).



单位：mm

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

+

CR2032
LITHIUM BATTERY
リチウムバッテリー
3V

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

Usage and safety instructions

The battery consists of lithium, organic solvent and other flammable materials. Proper handling of batteries is crucial. Otherwise, the battery may cause deformation, liquid leakage (accidental leakage of liquid), overheating, explosion, fire, personal injury to others or damage to equipment. Please strictly follow the following instructions to avoid accidents.

Warning matter

- Do not swallow

  In order to prevent children from easily taking in batteries and putting them in their mouths, batteries should be stored away from them. However, if all this

When it happens, you should take them to the hospital immediately.

- Non-rechargeable

  The battery is not a rechargeable battery. You should not charge it because it may cause internal short circuit and gas generation.

Causing deformation, leakage, overheating, explosion, or fire.

- No heating

  If the battery is heated above 100 degrees Celsius, it will increase the internal pressure, causing deformation, leakage, overheating, explosion, or fire. • No burning

  If the battery is burned or exposed to flame, lithium metal will melt, causing explosion or fire.

- Do not disassemble the battery

  Non-professionals are not allowed to disassemble batteries. Because it will cause sealing ring damage, deformation, leakage, overheating, explosion, or fire. • Avoid improper setup

  Improper setting may lead to forced discharge of the battery. It may cause battery deformation, leakage, overheating, explosion, fire and other adverse consequences.

When set, the positive and negative terminals of the battery should not be connected backwards.

- No short-circuit battery

  Direct connection between the positive and negative terminals of the battery should be avoided. If the metal items you carry or keep come into contact with the battery, the battery may

Deformation, leakage, overheating, explosion or fire occur.

- Do not solder batteries directly

  Welding will cause the battery to increase heat, damage the sealing ring and melt lithium, damaging the battery. May lead to leakage, overheating, explosion or lead

A fire broke out. The battery should not be soldered directly to the equipment, it must be connected by connecting pieces or wires. The temperature of the soldering iron shall not exceed 50 centigrade.

The degree and welding time shall not exceed 5 seconds; It is important to keep the temperature low and the time short. When not soldering, do not put the battery in the soldering

In the pool, the soldering iron should not be placed on the battery. When welding, multiple welding should be avoided, because it is equivalent to the pair of

The battery is charged or shorted.

- Do not use different types of batteries

  Different types of batteries must be avoided, because batteries produced by different manufacturers, of different types or with new and old combinations can

Can cause battery leakage, overheating, explosion, or fire. If it is necessary to use two or more batteries in series or in parallel. Recommendation

Obtained from Dongguan Shenneng Battery Technology Co., Ltd.

- Do not touch the leaking battery

  If liquid leaks into your mouth, please rinse your mouth immediately. If liquid enters your eyes, you should rinse your eyes with water immediately.

In any case, you should go to the hospital to be treated by medical professionals.

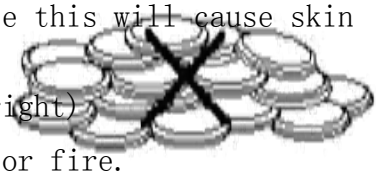
- Keep the battery away from flammable liquids

  If the battery leaks or smells strange smell, immediately keep the battery away from flammable liquid.

- Do not touch the battery directly

  Try to avoid skin touching the battery directly, because this will cause skin injury.

Do not overlap and cross-stack batteries (as shown on the right)



If so, the battery may deform, leak, overheat, explode or fire.

- Warning processing

There are different regulations in different countries or regions, please abide by these regulations. In general, the battery (+) and (-) ends should be covered with insulating tape prior to disposal. This is because the waste battery still has capacity. When it comes into contact with other metals or metal materials, it can cause the battery to deform, leak, overheat or explode.

1. Scope

This product specification is applicable to lithium-manganese dioxide button batteries provided by Dongguan Shenneng Battery Technology Co., Ltd.

2. Applicable battery types:	Lithium-manganese dioxide button battery
3. Battery Type and Performance	
3.1 Model:	CR2032
3.2 Rated voltage:	3.0 V
3.3 Nominal capacity:	210mAh (load: 15.0 k, termination voltage 2.0 V)
3.4 Outline Dimensions:	As shown in the drawing
3.5 Standard Quality:	2.9 g
3.6 Shelf life:	1 year (temperature less than or equal to 25 ℃ and relative humidity less than 75%).
3.7 Appearance:	Visual inspection shows that the surface of the battery is smooth, free from damage and deformation, and the signs are clear.
3.8 Trademark Name:	″Lithium Battery, In the meantime, it is necessary to″.
3.9 Manufacturing date and identification:	If necessary, the year and month of manufacture of the battery can be printed on the surface of the battery.
	Example:

21 (manufactured in January 2012)

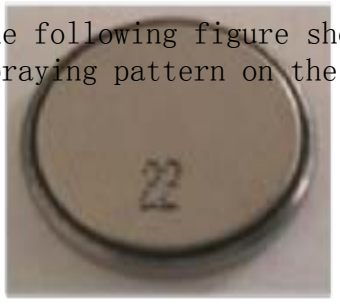
22 (manufactured in February 2012)

20 (manufactured in October 2012)

2Y (manufactured in November 2012)

2Z (manufactured in December 2012)

The following figure shows the code spraying pattern on the battery surface:



4;The lithium content: 59 mg

4. Main Technical Parameters (Table 1)

Project		Unit	Technical Indicators	Conditions
Nominal Voltage		V	3.0	CR series batteries only
Nominal capacity		MAh	210	Continuous discharge at 15.0 kload
Instantaneous short circuit current		MA	⩾ 300	Time ⩽ 0. 5 ’
Open Circuit Voltage		V	3.25~3.45	All CR Series Batteries
Storage temperature		℃	0~40	All CR Series Batteries
Applicable temperature		℃	-20~60	All CR Series Batteries
Standard Weight		G	Approximately 2.9g	Only for this series of batteries
Self-discharge rate		%/year	≤2	Only for this series of batteries
Quick Test	Initial Period	H	≥66.7	At a load of 1.0 k and a temperature of 20 ± 2 ℃, relative humidity ⩽ 75% RH Under the circumstances.
Service Life	12 months later	H	≥65.3	

Note 1: The electrochemical system and size of this product shall comply with IEC 60086-1: 2007 (i.e. GB/T8897.1-2008, original electricity Pool, Part 1: General).

5. Product Specifications and Testing Methods

Unless otherwise specified, all tests of the product shall be carried out under the following conditions:

(1) Ambient temperature: 20 ± 5 ℃.

(2) Relative humidity: 60% RH ± 15%.

Table 2

Test Items	Test Method	Quality standard
1. Outline dimensions	Test and test with vernier caliper with accuracy not less than 0.02 mm Insulation materials should be pasted on the contact surface of calipers to prevent Short circuit.	Diameter (mm): 20.0 (-0.20) Height (mm): 3.20 (-0.20)
2. Open Circuit Voltage	Use numbers with accuracy not less than 0.25% and internal resistance greater than 1M Multimeter.	3.25~3.45 V
3. Instantaneous short circuit current	Test with pointer multimeter, each time for no more than 0.5 ', but it is necessary to avoid repeating the test and testing the time again. The interval should be more than 0.5 hours.	≥ 300 mA
4. Appearance	Purpose Measure	Clean and tidy, clearly marked, without deformation, Rust, leakage. Installed in-use device In the device, the two poles of the battery should always The ability to form and maintain good contact Yes.
5. Rapid discharge capacity	At standard temperature 20 ± 2 ℃, relative humidity ≤ 75% RH, negative When the load is 1.0 k and the termination voltage is 2.0 V.	≥ 66.7 hours
6. Vibration test	On a vibrating machine with a vibration frequency of 100-150 times per minute Continuous vibration for 1 hour.	Stable performance
7. Liquid leakage resistance at high temperature	Stored at 45 ± 2 ℃ for 30 days.	Leakage rate ≤ 1/10000
8. Overdischarge leakage resistance Can	When the termination voltage reaches 2.0 V, the discharge is continuously discharged for 5 hours.	No leakage
Note 2: The overall dimensions and performance of this product comply with IEC 60086-2: 2007 (i.e. GB/T8897.2-2008, Primary Battery, Part 2: Requirements for overall dimensions and electrical properties).		
Note 3:		

1. The above tests have been confirmed by a large number of tests.
2. The company's standard is completely stricter than GB/T8897 "Primary Battery" standard promulgated by the state.
3. If the customer has special requirements, the company can adopt special testing methods according to the customer's requirements.

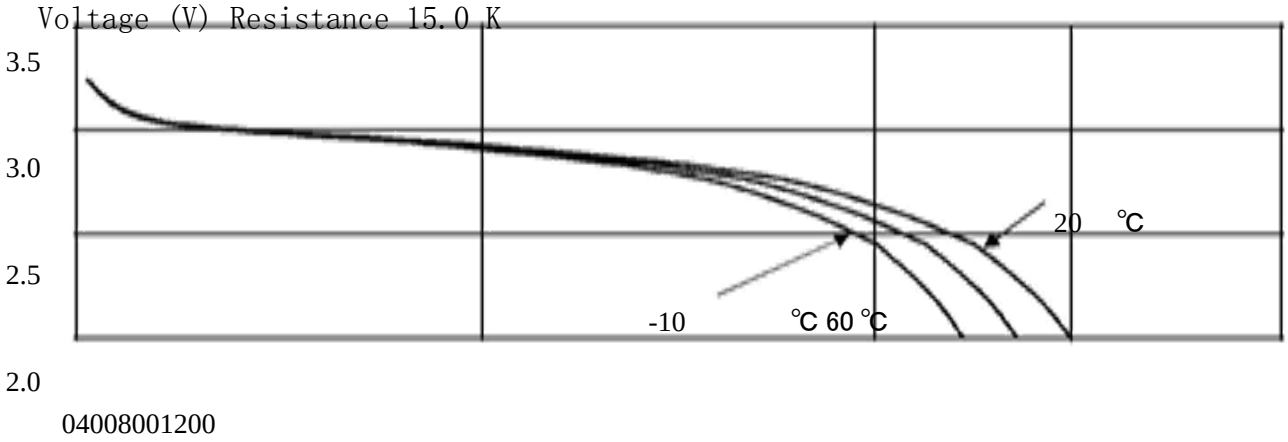
6. Discharge life

Load resistance	1 5 0 00hm
Discharge method (standard)	24-hour continuous discharge
Termination Voltage	2.0 V
Standard Time (Initial Period)	1000 hours
Standard time (after 12 months of storage)	980 hours

Initial test: The test carried out within one month after delivery.

Storage test: Under specific conditions, storage has been carried out after 12 months of testing.

7. Discharge characteristics on load



8. Battery Test

8.1 Temperature and humidity

8.1. 1 Test conditions

Unless otherwise specified, the test is generally carried out in an environment with a temperature of 20 ± 2 ℃ and a relative humidity of 65% RH ± 20%. 8.1. 2 Storage conditions

Unless otherwise specified, the sample battery shall be stored in an environment with a temperature below 25 degrees and a relative humidity below 75% RH, and tested within one month of storage.

8.2 Testing Instruments, Instruments and Equipment

8.2. 1 Voltage shall be measured with a voltmeter in the area of 0V to 4V, with an accuracy of ± 1 mV, or with a more accurate sum input

Multimeter test with input impedance exceeding 10M.

8.2. 2 The discharge load resistance will include the load of all external circuits with a tolerance not exceeding 0.5%.

8.2. 3 Outline dimensions will be measured using electronic digital display calipers with a distance of 0 to 150 mm and an accuracy of 5/100 mm or more accurate measuring tools.

8.3 Test Methods (or Procedures)

8.3. 1 Outline Dimensions

The measurement uses an electronic digital display caliper (refer to 8.2. 3).

8.3. 2 Appearance

Use visual inspection.

8.3. 3 Open Circuit Voltage

Use a voltmeter to measure the voltage (refer to 8.2. 1).

8.3. 4 Service life

After storing at normal temperature (20 ± 5 ℃) for 12 hours, discharge continuously as shown in Table 1 until the termination voltage is 2.0 V

(Not suitable for this voltage), its service life will meet the requirements of Table 1.

8.3. 5 Leakage resistance inspection

Check the leak resistance. Under the condition of no cover, place it at a 40-watt fluorescent lamp 1 meter above and 30 cm away from the eyes to observe the smooth and clean surface of the battery without dirt.

9. Quality Assurance

(1) If it is confirmed that the product has defects in technology and materials, please replace the product with Dongguan Shenneng Battery Technology Co., Ltd. Free of charge. Please

Note that our company is only obliged to replace the battery. Other loss, damage, destruction, including indirect costs or expenses, directly caused or

Indirectly caused losses of any nature, such as products that have been used or cannot be used, are excluded.

(2) The battery must comply with the requirements of this specification when working. Otherwise, Dongguan Shenneng Battery Technology Co., Ltd. Cannot assume any responsibility, including (but not limited to) safety and customer claims, as well as losses, damages, actions or legal proceedings, costs (legal or other aspects) caused thereby.

(3) It is the customer's responsibility for the matching and reliability of batteries in actual settings or component applications.

(4) Dongguan Shenneng Battery Technology Co., Ltd. Will not be responsible for the following circumstances:

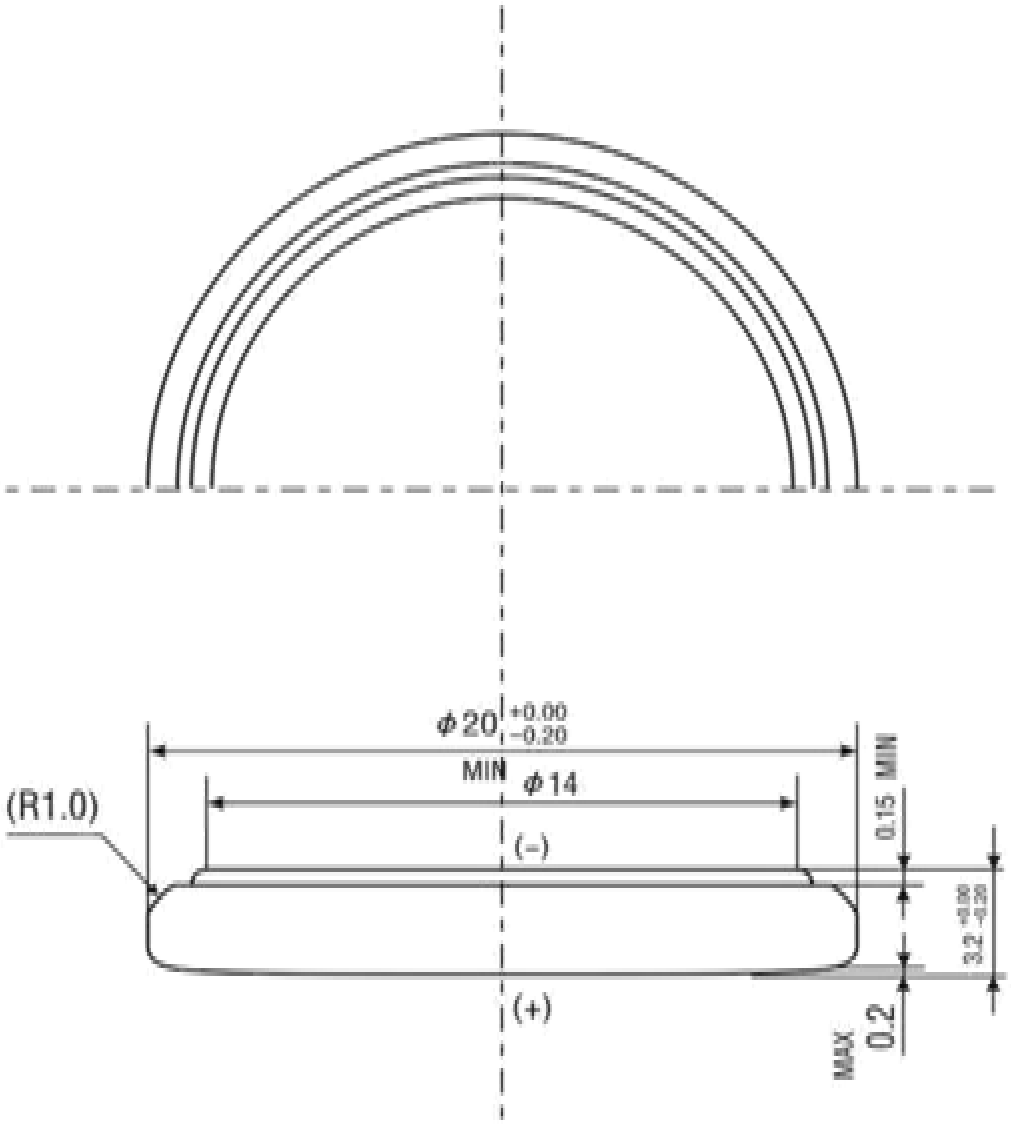
(I) Improper handling when using, installing or inspecting batteries.

(II) Failure to comply with the following instructions, precautions or warnings mentioned in this product specification.

(III) Failing to comply with the instructions and suggestions of Dongguan Shenneng Battery Technology Co., Ltd.

10. Other

Subject to RoHS instructions, this battery does not contain the following chemicals: lead, mercury, cadmium, hexavalent chromium, bromide, flame retardant, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE).



单位：mm

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

+

CR2032
LITHIUM BATTERY
リチウムバッテリー
3V

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

Usage and safety instructions

The battery consists of lithium, organic solvent and other flammable materials. Proper handling of batteries is crucial. Otherwise, the battery may cause deformation, liquid leakage (accidental leakage of liquid), overheating, explosion, fire, personal injury to others or damage to equipment. Please strictly follow the following instructions to avoid accidents.

Warning matter

- Do not swallow

  In order to prevent children from easily taking in batteries and putting them in their mouths, batteries should be stored away from them. However, if all this

When it happens, you should take them to the hospital immediately.

- Non-rechargeable

  The battery is not a rechargeable battery. You should not charge it because it may cause internal short circuit and gas generation.

Causing deformation, leakage, overheating, explosion, or fire.

- No heating

  If the battery is heated above 100 degrees Celsius, it will increase the internal pressure, causing deformation, leakage, overheating, explosion, or fire. • No burning

  If the battery is burned or exposed to flame, lithium metal will melt, causing explosion or fire.

- Do not disassemble the battery

  Non-professionals are not allowed to disassemble batteries. Because it will cause sealing ring damage, deformation, leakage, overheating, explosion, or fire. • Avoid improper setup

  Improper setting may lead to forced discharge of the battery. It may cause battery deformation, leakage, overheating, explosion, fire and other adverse consequences.

When set, the positive and negative terminals of the battery should not be connected backwards.

- No short-circuit battery

  Direct connection between the positive and negative terminals of the battery should be avoided. If the metal items you carry or keep come into contact with the battery, the battery may

Deformation, leakage, overheating, explosion or fire occur.

- Do not solder batteries directly

  Welding will cause the battery to increase heat, damage the sealing ring and melt lithium, damaging the battery. May lead to leakage, overheating, explosion or lead

A fire broke out. The battery should not be soldered directly to the equipment, it must be connected by connecting pieces or wires. The temperature of the soldering iron shall not exceed 50 centigrade.

The degree and welding time shall not exceed 5 seconds; It is important to keep the temperature low and the time short. When not soldering, do not put the battery in the soldering

In the pool, the soldering iron should not be placed on the battery. When welding, multiple welding should be avoided, because it is equivalent to the pair of

The battery is charged or shorted.

- Do not use different types of batteries

  Different types of batteries must be avoided, because batteries produced by different manufacturers, of different types or with new and old combinations can

Can cause battery leakage, overheating, explosion, or fire. If it is necessary to use two or more batteries in series or in parallel. Recommendation

Obtained from Dongguan Shenneng Battery Technology Co., Ltd.

- Do not touch the leaking battery

  If liquid leaks into your mouth, please rinse your mouth immediately. If liquid enters your eyes, you should rinse your eyes with water immediately.

In any case, you should go to the hospital to be treated by medical professionals.

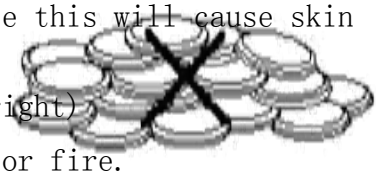
- Keep the battery away from flammable liquids

  If the battery leaks or smells strange smell, immediately keep the battery away from flammable liquid.

- Do not touch the battery directly

  Try to avoid skin touching the battery directly, because this will cause skin injury.

Do not overlap and cross-stack batteries (as shown on the right)



If so, the battery may deform, leak, overheat, explode or fire.

- Warning processing

There are different regulations in different countries or regions, please abide by these regulations. In general, the battery (+) and (-) ends should be covered with insulating tape prior to disposal. This is because the waste battery still has capacity. When it comes into contact with other metals or metal materials, it can cause the battery to deform, leak, overheat or explode.

1. Scope

This product specification is applicable to lithium-manganese dioxide button batteries provided by Dongguan Shenneng Battery Technology Co., Ltd.

2. Applicable battery types:	Lithium-manganese dioxide button battery
3. Battery Type and Performance	
3.1 Model:	CR2032
3.2 Rated voltage:	3.0 V
3.3 Nominal capacity:	210mAh (load: 15.0 k, termination voltage 2.0 V)
3.4 Outline Dimensions:	As shown in the drawing
3.5 Standard Quality:	2.9 g
3.6 Shelf life:	1 year (temperature less than or equal to 25 ℃ and relative humidity less than 75%).
3.7 Appearance:	Visual inspection shows that the surface of the battery is smooth, free from damage and deformation, and the signs are clear.
3.8 Trademark Name:	″Lithium Battery, In the meantime, it is necessary to″.
3.9 Manufacturing date and identification:	If necessary, the year and month of manufacture of the battery can be printed on the surface of the battery.
	Example:

21 (manufactured in January 2012)

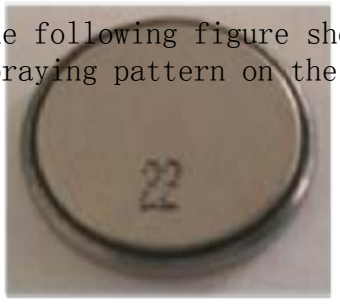
22 (manufactured in February 2012)

20 (manufactured in October 2012)

2Y (manufactured in November 2012)

2Z (manufactured in December 2012)

The following figure shows the code spraying pattern on the battery surface:



4;The lithium content: 59 mg

4. Main Technical Parameters (Table 1)

Project		Unit	Technical Indicators	Conditions
Nominal Voltage		V	3.0	CR series batteries only
Nominal capacity		MAh	210	Continuous discharge at 15.0 kload
Instantaneous short circuit current		MA	⩾ 300	Time ⩽ 0. 5 ’
Open Circuit Voltage		V	3.25~3.45	All CR Series Batteries
Storage temperature		℃	0~40	All CR Series Batteries
Applicable temperature		℃	-20~60	All CR Series Batteries
Standard Weight		G	Approximately 2.9g	Only for this series of batteries
Self-discharge rate		%/year	≤2	Only for this series of batteries
Quick Test	Initial Period	H	≥66.7	At a load of 1.0 k and a temperature of 20 ± 2 ℃, relative humidity ⩽ 75% RH Under the circumstances.
Service Life	12 months later	H	≥65.3	

Note 1: The electrochemical system and size of this product shall comply with IEC 60086-1: 2007 (i.e. GB/T8897.1-2008, original electricity Pool, Part 1: General).

5. Product Specifications and Testing Methods

Unless otherwise specified, all tests of the product shall be carried out under the following conditions:

(1) Ambient temperature: 20 ± 5 ℃.

(2) Relative humidity: 60% RH ± 15%.

Table 2

Test Items	Test Method	Quality standard
1. Outline dimensions	Test and test with vernier caliper with accuracy not less than 0.02 mm Insulation materials should be pasted on the contact surface of calipers to prevent Short circuit.	Diameter (mm): 20.0 (-0.20) Height (mm): 3.20 (-0.20)
2. Open Circuit Voltage	Use numbers with accuracy not less than 0.25% and internal resistance greater than 1M Multimeter.	3.25~3.45 V
3. Instantaneous short circuit current	Test with pointer multimeter, each time for no more than 0.5 ', but it is necessary to avoid repeating the test and testing the time again. The interval should be more than 0.5 hours.	≥ 300 mA
4. Appearance	Purpose Measure	Clean and tidy, clearly marked, without deformation, Rust, leakage. Installed in-use device In the device, the two poles of the battery should always The ability to form and maintain good contact Yes.
5. Rapid discharge capacity	At standard temperature 20 ± 2 ℃, relative humidity ≤ 75% RH, negative When the load is 1.0 k and the termination voltage is 2.0 V.	≥ 66.7 hours
6. Vibration test	On a vibrating machine with a vibration frequency of 100-150 times per minute Continuous vibration for 1 hour.	Stable performance
7. Liquid leakage resistance at high temperature	Stored at 45 ± 2 ℃ for 30 days.	Leakage rate ≤ 1/10000
8. Overdischarge leakage resistance Can	When the termination voltage reaches 2.0 V, the discharge is continuously discharged for 5 hours.	No leakage
Note 2: The overall dimensions and performance of this product comply with IEC 60086-2: 2007 (i.e. GB/T8897.2-2008, Primary Battery, Part 2: Requirements for overall dimensions and electrical properties).		
Note 3:		

1. The above tests have been confirmed by a large number of tests.
2. The company's standard is completely stricter than GB/T8897 "Primary Battery" standard promulgated by the state.
3. If the customer has special requirements, the company can adopt special testing methods according to the customer's requirements.

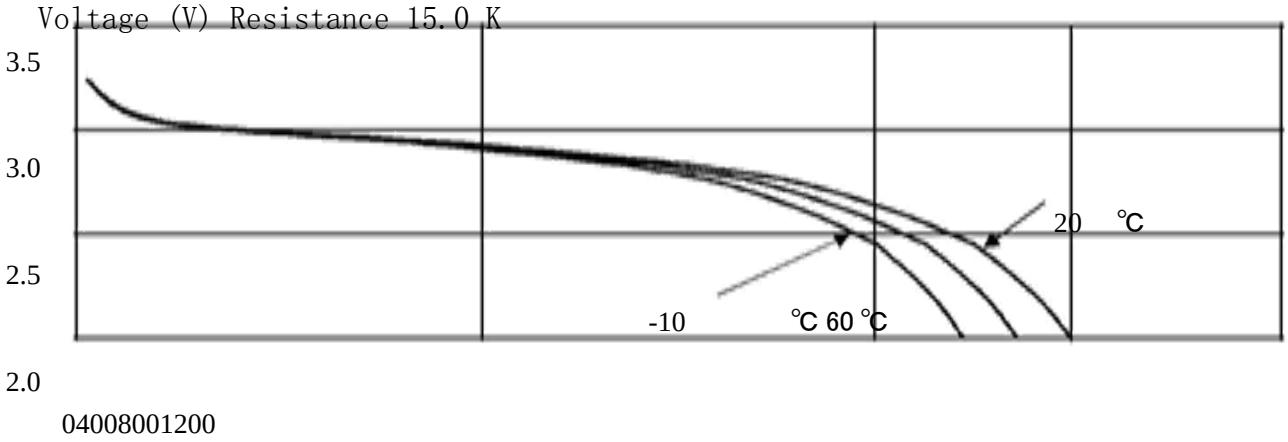
6. Discharge life

Load resistance	1 5 0 00hm
Discharge method (standard)	24-hour continuous discharge
Termination Voltage	2.0 V
Standard Time (Initial Period)	1000 hours
Standard time (after 12 months of storage)	980 hours

Initial test: The test carried out within one month after delivery.

Storage test: Under specific conditions, storage has been carried out after 12 months of testing.

7. Discharge characteristics on load



8. Battery Test

8.1 Temperature and humidity

8.1. 1 Test conditions

Unless otherwise specified, the test is generally carried out in an environment with a temperature of 20 ± 2 ℃ and a relative humidity of 65% RH ± 20%. 8.1. 2 Storage conditions

Unless otherwise specified, the sample battery shall be stored in an environment with a temperature below 25 degrees and a relative humidity below 75% RH, and tested within one month of storage.

8.2 Testing Instruments, Instruments and Equipment

8.2. 1 Voltage shall be measured with a voltmeter in the area of 0V to 4V, with an accuracy of ± 1 mV, or with a more accurate sum input

Multimeter test with input impedance exceeding 10M.

8.2. 2 The discharge load resistance will include the load of all external circuits with a tolerance not exceeding 0.5%.

8.2. 3 Outline dimensions will be measured using electronic digital display calipers with a distance of 0 to 150 mm and an accuracy of 5/100 mm or more accurate measuring tools.

8.3 Test Methods (or Procedures)

8.3. 1 Outline Dimensions

The measurement uses an electronic digital display caliper (refer to 8.2. 3).

8.3. 2 Appearance

Use visual inspection.

8.3. 3 Open Circuit Voltage

Use a voltmeter to measure the voltage (refer to 8.2. 1).

8.3. 4 Service life

After storing at normal temperature (20 ± 5 ℃) for 12 hours, discharge continuously as shown in Table 1 until the termination voltage is 2.0 V

(Not suitable for this voltage), its service life will meet the requirements of Table 1.

8.3. 5 Leakage resistance inspection

Check the leak resistance. Under the condition of no cover, place it at a 40-watt fluorescent lamp 1 meter above and 30 cm away from the eyes to observe the smooth and clean surface of the battery without dirt.

9. Quality Assurance

(1) If it is confirmed that the product has defects in technology and materials, please replace the product with Dongguan Shenneng Battery Technology Co., Ltd. Free of charge. Please

Note that our company is only obliged to replace the battery. Other loss, damage, destruction, including indirect costs or expenses, directly caused or

Indirectly caused losses of any nature, such as products that have been used or cannot be used, are excluded.

(2) The battery must comply with the requirements of this specification when working. Otherwise, Dongguan Shenneng Battery Technology Co., Ltd. Cannot assume any responsibility, including (but not limited to) safety and customer claims, as well as losses, damages, actions or legal proceedings, costs (legal or other aspects) caused thereby.

(3) It is the customer's responsibility for the matching and reliability of batteries in actual settings or component applications.

(4) Dongguan Shenneng Battery Technology Co., Ltd. Will not be responsible for the following circumstances:

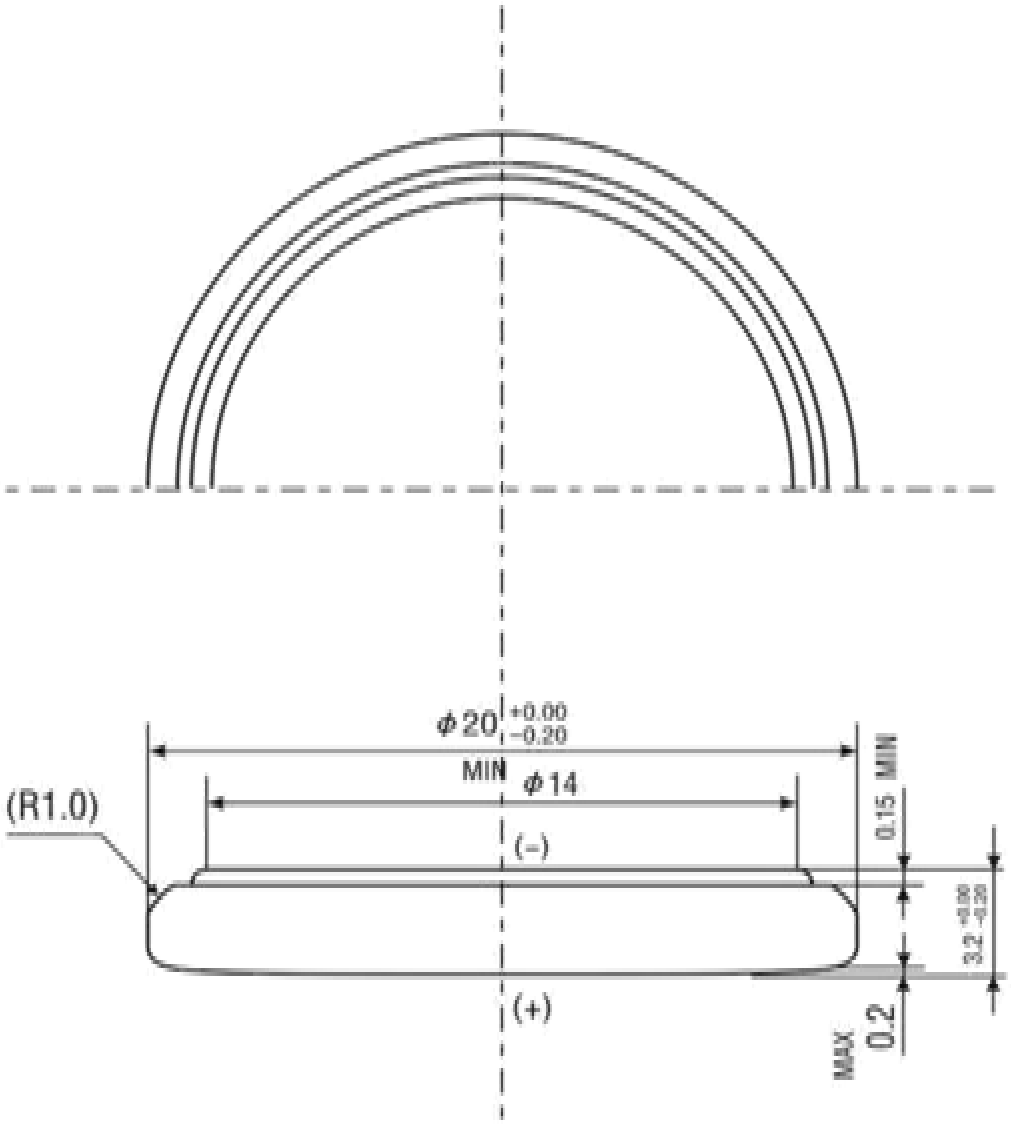
(I) Improper handling when using, installing or inspecting batteries.

(II) Failure to comply with the following instructions, precautions or warnings mentioned in this product specification.

(III) Failing to comply with the instructions and suggestions of Dongguan Shenneng Battery Technology Co., Ltd.

10. Other

Subject to RoHS instructions, this battery does not contain the following chemicals: lead, mercury, cadmium, hexavalent chromium, bromide, flame retardant, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE).



单位：mm

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

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CR2032
LITHIUM BATTERY
リチウムバッテリー
3V

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

Usage and safety instructions

The battery consists of lithium, organic solvent and other flammable materials. Proper handling of batteries is crucial. Otherwise, the battery may cause deformation, liquid leakage (accidental leakage of liquid), overheating, explosion, fire, personal injury to others or damage to equipment. Please strictly follow the following instructions to avoid accidents.

Warning matter

- Do not swallow

  In order to prevent children from easily taking in batteries and putting them in their mouths, batteries should be stored away from them. However, if all this

When it happens, you should take them to the hospital immediately.

- Non-rechargeable

  The battery is not a rechargeable battery. You should not charge it because it may cause internal short circuit and gas generation.

Causing deformation, leakage, overheating, explosion, or fire.

- No heating

  If the battery is heated above 100 degrees Celsius, it will increase the internal pressure, causing deformation, leakage, overheating, explosion, or fire. • No burning

  If the battery is burned or exposed to flame, lithium metal will melt, causing explosion or fire.

- Do not disassemble the battery

  Non-professionals are not allowed to disassemble batteries. Because it will cause sealing ring damage, deformation, leakage, overheating, explosion, or fire. • Avoid improper setup

  Improper setting may lead to forced discharge of the battery. It may cause battery deformation, leakage, overheating, explosion, fire and other adverse consequences.

When set, the positive and negative terminals of the battery should not be connected backwards.

- No short-circuit battery

  Direct connection between the positive and negative terminals of the battery should be avoided. If the metal items you carry or keep come into contact with the battery, the battery may

Deformation, leakage, overheating, explosion or fire occur.

- Do not solder batteries directly

  Welding will cause the battery to increase heat, damage the sealing ring and melt lithium, damaging the battery. May lead to leakage, overheating, explosion or lead

A fire broke out. The battery should not be soldered directly to the equipment, it must be connected by connecting pieces or wires. The temperature of the soldering iron shall not exceed 50 centigrade.

The degree and welding time shall not exceed 5 seconds; It is important to keep the temperature low and the time short. When not soldering, do not put the battery in the soldering

In the pool, the soldering iron should not be placed on the battery. When welding, multiple welding should be avoided, because it is equivalent to the pair of

The battery is charged or shorted.

- Do not use different types of batteries

  Different types of batteries must be avoided, because batteries produced by different manufacturers, of different types or with new and old combinations can

Can cause battery leakage, overheating, explosion, or fire. If it is necessary to use two or more batteries in series or in parallel. Recommendation

Obtained from Dongguan Shenneng Battery Technology Co., Ltd.

- Do not touch the leaking battery

  If liquid leaks into your mouth, please rinse your mouth immediately. If liquid enters your eyes, you should rinse your eyes with water immediately.

In any case, you should go to the hospital to be treated by medical professionals.

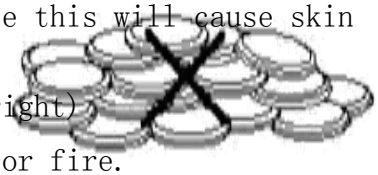
- Keep the battery away from flammable liquids

  If the battery leaks or smells strange smell, immediately keep the battery away from flammable liquid.

- Do not touch the battery directly

  Try to avoid skin touching the battery directly, because this will cause skin injury.

Do not overlap and cross-stack batteries (as shown on the right)



If so, the battery may deform, leak, overheat, explode or fire.

- Warning processing

There are different regulations in different countries or regions, please abide by these regulations. In general, the battery (+) and (-) ends should be covered with insulating tape prior to disposal. This is because the waste battery still has capacity. When it comes into contact with other metals or metal materials, it can cause the battery to deform, leak, overheat or explode.

1. Scope

This product specification is applicable to lithium-manganese dioxide button batteries provided by Dongguan Shenneng Battery Technology Co., Ltd.

2. Applicable battery types:	Lithium-manganese dioxide button battery
3. Battery Type and Performance	
3.1 Model:	CR2032
3.2 Rated voltage:	3.0 V
3.3 Nominal capacity:	210mAh (load: 15.0 k, termination voltage 2.0 V)
3.4 Outline Dimensions:	As shown in the drawing
3.5 Standard Quality:	2.9 g
3.6 Shelf life:	1 year (temperature less than or equal to 25 ℃ and relative humidity less than 75%).
3.7 Appearance:	Visual inspection shows that the surface of the battery is smooth, free from damage and deformation, and the signs are clear.
3.8 Trademark Name:	″Lithium Battery, In the meantime, it is necessary to″.
3.9 Manufacturing date and identification:	If necessary, the year and month of manufacture of the battery can be printed on the surface of the battery.
	Example:

21 (manufactured in January 2012)

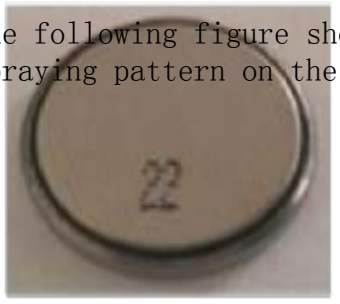
22 (manufactured in February 2012)

20 (manufactured in October 2012)

2Y (manufactured in November 2012)

2Z (manufactured in December 2012)

The following figure shows the code spraying pattern on the battery surface:



4;The lithium content: 59 mg

4. Main Technical Parameters (Table 1)

Project		Unit	Technical Indicators	Conditions
Nominal Voltage		V	3.0	CR series batteries only
Nominal capacity		MAh	210	Continuous discharge at 15.0 kload
Instantaneous short circuit current		MA	⩾ 300	Time ⩽ 0. 5 ’
Open Circuit Voltage		V	3.25~3.45	All CR Series Batteries
Storage temperature		℃	0~40	All CR Series Batteries
Applicable temperature		℃	-20~60	All CR Series Batteries
Standard Weight		G	Approximately 2.9g	Only for this series of batteries
Self-discharge rate		%/year	≤2	Only for this series of batteries
Quick Test	Initial Period	H	≥66.7	At a load of 1.0 k and a temperature of 20 ± 2 ℃, relative humidity ⩽ 75% RH Under the circumstances.
Service Life	12 months later	H	≥65.3	

Note 1: The electrochemical system and size of this product shall comply with IEC 60086-1: 2007 (i.e. GB/T8897.1-2008, original electricity Pool, Part 1: General).

5. Product Specifications and Testing Methods

Unless otherwise specified, all tests of the product shall be carried out under the following conditions:

(1) Ambient temperature: 20 ± 5 ℃.

(2) Relative humidity: 60% RH ± 15%.

Table 2

Test Items	Test Method	Quality standard
1. Outline dimensions	Test and test with vernier caliper with accuracy not less than 0.02 mm Insulation materials should be pasted on the contact surface of calipers to prevent Short circuit.	Diameter (mm): 20.0 (-0.20) Height (mm): 3.20 (-0.20)
2. Open Circuit Voltage	Use numbers with accuracy not less than 0.25% and internal resistance greater than 1M Multimeter.	3.25~3.45 V
3. Instantaneous short circuit current	Test with pointer multimeter, each time for no more than 0.5 ', but it is necessary to avoid repeating the test and testing the time again. The interval should be more than 0.5 hours.	≥ 300 mA
4. Appearance	Purpose Measure	Clean and tidy, clearly marked, without deformation, Rust, leakage. Installed in-use device In the device, the two poles of the battery should always The ability to form and maintain good contact Yes.
5. Rapid discharge capacity	At standard temperature 20 ± 2 ℃, relative humidity ≤ 75% RH, negative When the load is 1.0 k and the termination voltage is 2.0 V.	≥ 66.7 hours
6. Vibration test	On a vibrating machine with a vibration frequency of 100-150 times per minute Continuous vibration for 1 hour.	Stable performance
7. Liquid leakage resistance at high temperature	Stored at 45 ± 2 ℃ for 30 days.	Leakage rate ≤ 1/10000
8. Overdischarge leakage resistance Can	When the termination voltage reaches 2.0 V, the discharge is continuously discharged for 5 hours.	No leakage
Note 2: The overall dimensions and performance of this product comply with IEC 60086-2: 2007 (i.e. GB/T8897.2-2008, Primary Battery, Part 2: Requirements for overall dimensions and electrical properties).		
Note 3:		

1. The above tests have been confirmed by a large number of tests.
2. The company's standard is completely stricter than GB/T8897 "Primary Battery" standard promulgated by the state.
3. If the customer has special requirements, the company can adopt special testing methods according to the customer's requirements.

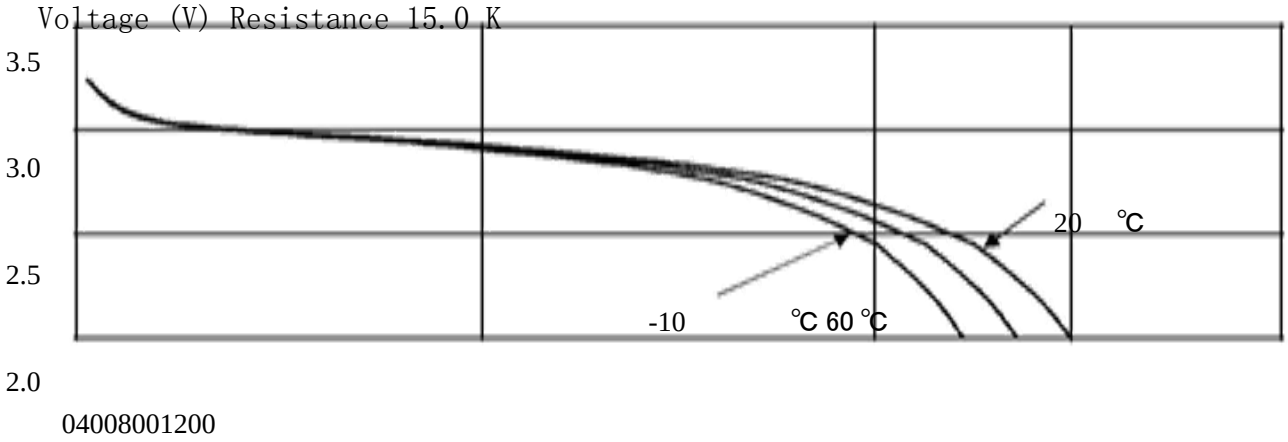
6. Discharge life

Load resistance	1 5 0 00hm
Discharge method (standard)	24-hour continuous discharge
Termination Voltage	2.0 V
Standard Time (Initial Period)	1000 hours
Standard time (after 12 months of storage)	980 hours

Initial test: The test carried out within one month after delivery.

Storage test: Under specific conditions, storage has been carried out after 12 months of testing.

7. Discharge characteristics on load



8. Battery Test

8.1 Temperature and humidity

8.1. 1 Test conditions

Unless otherwise specified, the test is generally carried out in an environment with a temperature of 20 ± 2 ℃ and a relative humidity of 65% RH ± 20%. 8.1. 2 Storage conditions

Unless otherwise specified, the sample battery shall be stored in an environment with a temperature below 25 degrees and a relative humidity below 75% RH, and tested within one month of storage.

8.2 Testing Instruments, Instruments and Equipment

8.2. 1 Voltage shall be measured with a voltmeter in the area of 0V to 4V, with an accuracy of ± 1 mV, or with a more accurate sum input

Multimeter test with input impedance exceeding 10M.

8.2. 2 The discharge load resistance will include the load of all external circuits with a tolerance not exceeding 0.5%.

8.2. 3 Outline dimensions will be measured using electronic digital display calipers with a distance of 0 to 150 mm and an accuracy of 5/100 mm or more accurate measuring tools.

8.3 Test Methods (or Procedures)

8.3. 1 Outline Dimensions

The measurement uses an electronic digital display caliper (refer to 8.2. 3).

8.3. 2 Appearance

Use visual inspection.

8.3. 3 Open Circuit Voltage

Use a voltmeter to measure the voltage (refer to 8.2. 1).

8.3. 4 Service life

After storing at normal temperature (20 ± 5 ℃) for 12 hours, discharge continuously as shown in Table 1 until the termination voltage is 2.0 V

(Not suitable for this voltage), its service life will meet the requirements of Table 1.

8.3. 5 Leakage resistance inspection

Check the leak resistance. Under the condition of no cover, place it at a 40-watt fluorescent lamp 1 meter above and 30 cm away from the eyes to observe the smooth and clean surface of the battery without dirt.

9. Quality Assurance

(1) If it is confirmed that the product has defects in technology and materials, please replace the product with Dongguan Shenneng Battery Technology Co., Ltd. Free of charge. Please

Note that our company is only obliged to replace the battery. Other loss, damage, destruction, including indirect costs or expenses, directly caused or

Indirectly caused losses of any nature, such as products that have been used or cannot be used, are excluded.

(2) The battery must comply with the requirements of this specification when working. Otherwise, Dongguan Shenneng Battery Technology Co., Ltd. Cannot assume any responsibility, including (but not limited to) safety and customer claims, as well as losses, damages, actions or legal proceedings, costs (legal or other aspects) caused thereby.

(3) It is the customer's responsibility for the matching and reliability of batteries in actual settings or component applications.

(4) Dongguan Shenneng Battery Technology Co., Ltd. Will not be responsible for the following circumstances:

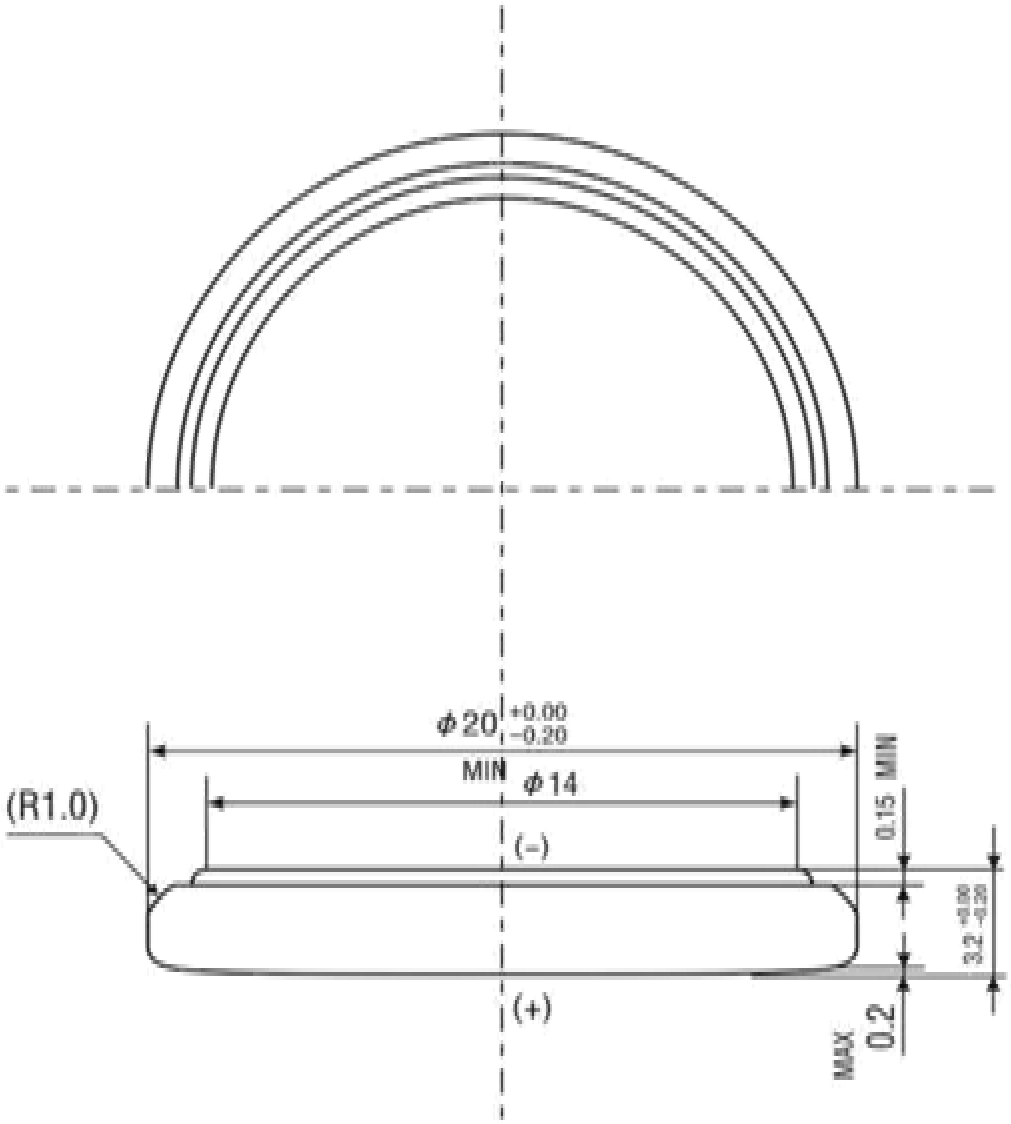
(I) Improper handling when using, installing or inspecting batteries.

(II) Failure to comply with the following instructions, precautions or warnings mentioned in this product specification.

(III) Failing to comply with the instructions and suggestions of Dongguan Shenneng Battery Technology Co., Ltd.

10. Other

Subject to RoHS instructions, this battery does not contain the following chemicals: lead, mercury, cadmium, hexavalent chromium, bromide, flame retardant, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE).



单位：mm

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

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CR2032
LITHIUM BATTERY
リチウムバッテリー
3V

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

Usage and safety instructions

The battery consists of lithium, organic solvent and other flammable materials. Proper handling of batteries is crucial. Otherwise, the battery may cause deformation, liquid leakage (accidental leakage of liquid), overheating, explosion, fire, personal injury to others or damage to equipment. Please strictly follow the following instructions to avoid accidents.

Warning matter

- Do not swallow

  In order to prevent children from easily taking in batteries and putting them in their mouths, batteries should be stored away from them. However, if all this

When it happens, you should take them to the hospital immediately.

- Non-rechargeable

  The battery is not a rechargeable battery. You should not charge it because it may cause internal short circuit and gas generation.

Causing deformation, leakage, overheating, explosion, or fire.

- No heating

  If the battery is heated above 100 degrees Celsius, it will increase the internal pressure, causing deformation, leakage, overheating, explosion, or fire. • No burning

  If the battery is burned or exposed to flame, lithium metal will melt, causing explosion or fire.

- Do not disassemble the battery

  Non-professionals are not allowed to disassemble batteries. Because it will cause sealing ring damage, deformation, leakage, overheating, explosion, or fire. • Avoid improper setup

  Improper setting may lead to forced discharge of the battery. It may cause battery deformation, leakage, overheating, explosion, fire and other adverse consequences.

When set, the positive and negative terminals of the battery should not be connected backwards.

- No short-circuit battery

  Direct connection between the positive and negative terminals of the battery should be avoided. If the metal items you carry or keep come into contact with the battery, the battery may

Deformation, leakage, overheating, explosion or fire occur.

- Do not solder batteries directly

  Welding will cause the battery to increase heat, damage the sealing ring and melt lithium, damaging the battery. May lead to leakage, overheating, explosion or lead

A fire broke out. The battery should not be soldered directly to the equipment, it must be connected by connecting pieces or wires. The temperature of the soldering iron shall not exceed 50 centigrade.

The degree and welding time shall not exceed 5 seconds; It is important to keep the temperature low and the time short. When not soldering, do not put the battery in the soldering

In the pool, the soldering iron should not be placed on the battery. When welding, multiple welding should be avoided, because it is equivalent to the pair of

The battery is charged or shorted.

- Do not use different types of batteries

  Different types of batteries must be avoided, because batteries produced by different manufacturers, of different types or with new and old combinations can

Can cause battery leakage, overheating, explosion, or fire. If it is necessary to use two or more batteries in series or in parallel. Recommendation

Obtained from Dongguan Shenneng Battery Technology Co., Ltd.

- Do not touch the leaking battery

  If liquid leaks into your mouth, please rinse your mouth immediately. If liquid enters your eyes, you should rinse your eyes with water immediately.

In any case, you should go to the hospital to be treated by medical professionals.

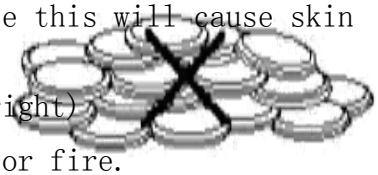
- Keep the battery away from flammable liquids

  If the battery leaks or smells strange smell, immediately keep the battery away from flammable liquid.

- Do not touch the battery directly

  Try to avoid skin touching the battery directly, because this will cause skin injury.

Do not overlap and cross-stack batteries (as shown on the right)



If so, the battery may deform, leak, overheat, explode or fire.

- Warning processing

There are different regulations in different countries or regions, please abide by these regulations. In general, the battery (+) and (-) ends should be covered with insulating tape prior to disposal. This is because the waste battery still has capacity. When it comes into contact with other metals or metal materials, it can cause the battery to deform, leak, overheat or explode.

1. Scope

This product specification is applicable to lithium-manganese dioxide button batteries provided by Dongguan Shenneng Battery Technology Co., Ltd.

2. Applicable battery types:	Lithium-manganese dioxide button battery
3. Battery Type and Performance	
3.1 Model:	CR2032
3.2 Rated voltage:	3.0 V
3.3 Nominal capacity:	210mAh (load: 15.0 k, termination voltage 2.0 V)
3.4 Outline Dimensions:	As shown in the drawing
3.5 Standard Quality:	2.9 g
3.6 Shelf life:	1 year (temperature less than or equal to 25 ℃ and relative humidity less than 75%).
3.7 Appearance:	Visual inspection shows that the surface of the battery is smooth, free from damage and deformation, and the signs are clear.
3.8 Trademark Name:	″Lithium Battery, In the meantime, it is necessary to″.
3.9 Manufacturing date and identification:	If necessary, the year and month of manufacture of the battery can be printed on the surface of the battery.
	Example:

21 (manufactured in January 2012)

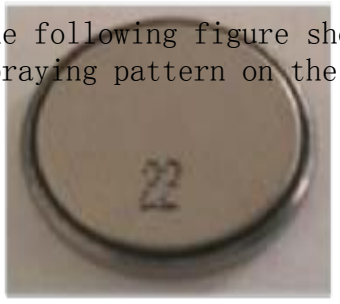
22 (manufactured in February 2012)

20 (manufactured in October 2012)

2Y (manufactured in November 2012)

2Z (manufactured in December 2012)

The following figure shows the code spraying pattern on the battery surface:



4;The lithium content: 59 mg

4. Main Technical Parameters (Table 1)

Project		Unit	Technical Indicators	Conditions
Nominal Voltage		V	3.0	CR series batteries only
Nominal capacity		MAh	210	Continuous discharge at 15.0 kload
Instantaneous short circuit current		MA	⩾ 300	Time ⩽ 0. 5 ’
Open Circuit Voltage		V	3.25~3.45	All CR Series Batteries
Storage temperature		℃	0~40	All CR Series Batteries
Applicable temperature		℃	-20~60	All CR Series Batteries
Standard Weight		G	Approximately 2.9g	Only for this series of batteries
Self-discharge rate		%/year	≤2	Only for this series of batteries
Quick Test	Initial Period	H	≥66.7	At a load of 1.0 k and a temperature of 20 ± 2 ℃, relative humidity ⩽ 75% RH Under the circumstances.
Service Life	12 months later	H	≥65.3	

Note 1: The electrochemical system and size of this product shall comply with IEC 60086-1: 2007 (i.e. GB/T8897.1-2008, original electricity Pool, Part 1: General).

5. Product Specifications and Testing Methods

Unless otherwise specified, all tests of the product shall be carried out under the following conditions:

(1) Ambient temperature: 20 ± 5 ℃.

(2) Relative humidity: 60% RH ± 15%.

Table 2

Test Items	Test Method	Quality standard
1. Outline dimensions	Test and test with vernier caliper with accuracy not less than 0.02 mm Insulation materials should be pasted on the contact surface of calipers to prevent Short circuit.	Diameter (mm): 20.0 (-0.20) Height (mm): 3.20 (-0.20)
2. Open Circuit Voltage	Use numbers with accuracy not less than 0.25% and internal resistance greater than 1M Multimeter.	3.25~3.45 V
3. Instantaneous short circuit current	Test with pointer multimeter, each time for no more than 0.5 ', but it is necessary to avoid repeating the test and testing the time again. The interval should be more than 0.5 hours.	≥ 300 mA
4. Appearance	Purpose Measure	Clean and tidy, clearly marked, without deformation, Rust, leakage. Installed in-use device In the device, the two poles of the battery should always The ability to form and maintain good contact Yes.
5. Rapid discharge capacity	At standard temperature 20 ± 2 ℃, relative humidity ≤ 75% RH, negative When the load is 1.0 k and the termination voltage is 2.0 V.	≥ 66.7 hours
6. Vibration test	On a vibrating machine with a vibration frequency of 100-150 times per minute Continuous vibration for 1 hour.	Stable performance
7. Liquid leakage resistance at high temperature	Stored at 45 ± 2 ℃ for 30 days.	Leakage rate ≤ 1/10000
8. Overdischarge leakage resistance Can	When the termination voltage reaches 2.0 V, the discharge is continuously discharged for 5 hours.	No leakage
Note 2: The overall dimensions and performance of this product comply with IEC 60086-2: 2007 (i.e. GB/T8897.2-2008, Primary Battery, Part 2: Requirements for overall dimensions and electrical properties).		
Note 3:		

1. The above tests have been confirmed by a large number of tests.
2. The company's standard is completely stricter than GB/T8897 "Primary Battery" standard promulgated by the state.
3. If the customer has special requirements, the company can adopt special testing methods according to the customer's requirements.

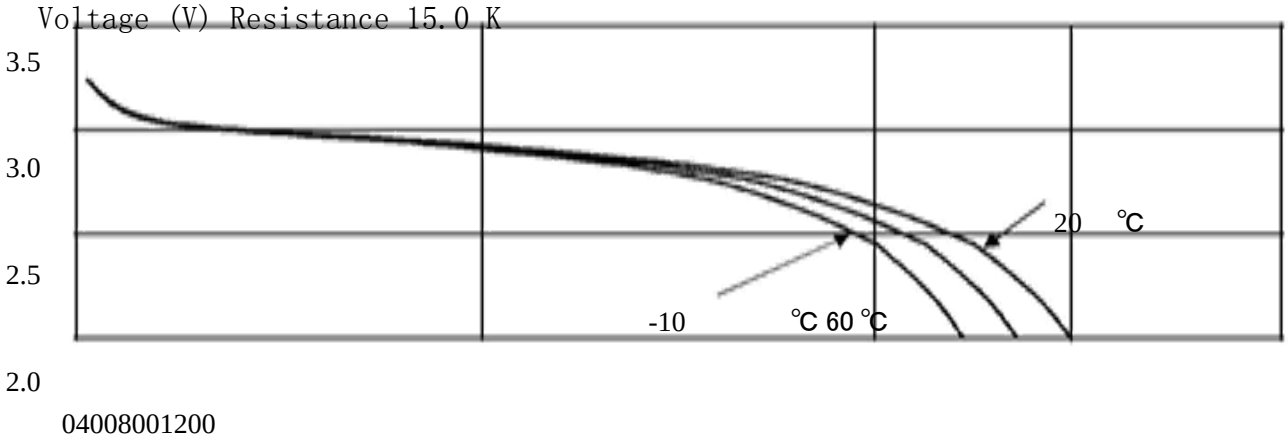
6. Discharge life

Load resistance	1 5 0 00hm
Discharge method (standard)	24-hour continuous discharge
Termination Voltage	2.0 V
Standard Time (Initial Period)	1000 hours
Standard time (after 12 months of storage)	980 hours

Initial test: The test carried out within one month after delivery.

Storage test: Under specific conditions, storage has been carried out after 12 months of testing.

7. Discharge characteristics on load



8. Battery Test

8.1 Temperature and humidity

8.1. 1 Test conditions

Unless otherwise specified, the test is generally carried out in an environment with a temperature of 20 ± 2 ℃ and a relative humidity of 65% RH ± 20%. 8.1. 2 Storage conditions

Unless otherwise specified, the sample battery shall be stored in an environment with a temperature below 25 degrees and a relative humidity below 75% RH, and tested within one month of storage.

8.2 Testing Instruments, Instruments and Equipment

8.2. 1 Voltage shall be measured with a voltmeter in the area of 0V to 4V, with an accuracy of ± 1 mV, or with a more accurate sum input

Multimeter test with input impedance exceeding 10M.

8.2. 2 The discharge load resistance will include the load of all external circuits with a tolerance not exceeding 0.5%.

8.2. 3 Outline dimensions will be measured using electronic digital display calipers with a distance of 0 to 150 mm and an accuracy of 5/100 mm or more accurate measuring tools.

8.3 Test Methods (or Procedures)

8.3. 1 Outline Dimensions

The measurement uses an electronic digital display caliper (refer to 8.2. 3).

8.3. 2 Appearance

Use visual inspection.

8.3. 3 Open Circuit Voltage

Use a voltmeter to measure the voltage (refer to 8.2. 1).

8.3. 4 Service life

After storing at normal temperature (20 ± 5 ℃) for 12 hours, discharge continuously as shown in Table 1 until the termination voltage is 2.0 V

(Not suitable for this voltage), its service life will meet the requirements of Table 1.

8.3. 5 Leakage resistance inspection

Check the leak resistance. Under the condition of no cover, place it at a 40-watt fluorescent lamp 1 meter above and 30 cm away from the eyes to observe the smooth and clean surface of the battery without dirt.

9. Quality Assurance

(1) If it is confirmed that the product has defects in technology and materials, please replace the product with Dongguan Shenneng Battery Technology Co., Ltd. Free of charge. Please

Note that our company is only obliged to replace the battery. Other loss, damage, destruction, including indirect costs or expenses, directly caused or

Indirectly caused losses of any nature, such as products that have been used or cannot be used, are excluded.

(2) The battery must comply with the requirements of this specification when working. Otherwise, Dongguan Shenneng Battery Technology Co., Ltd. Cannot assume any responsibility, including (but not limited to) safety and customer claims, as well as losses, damages, actions or legal proceedings, costs (legal or other aspects) caused thereby.

(3) It is the customer's responsibility for the matching and reliability of batteries in actual settings or component applications.

(4) Dongguan Shenneng Battery Technology Co., Ltd. Will not be responsible for the following circumstances:

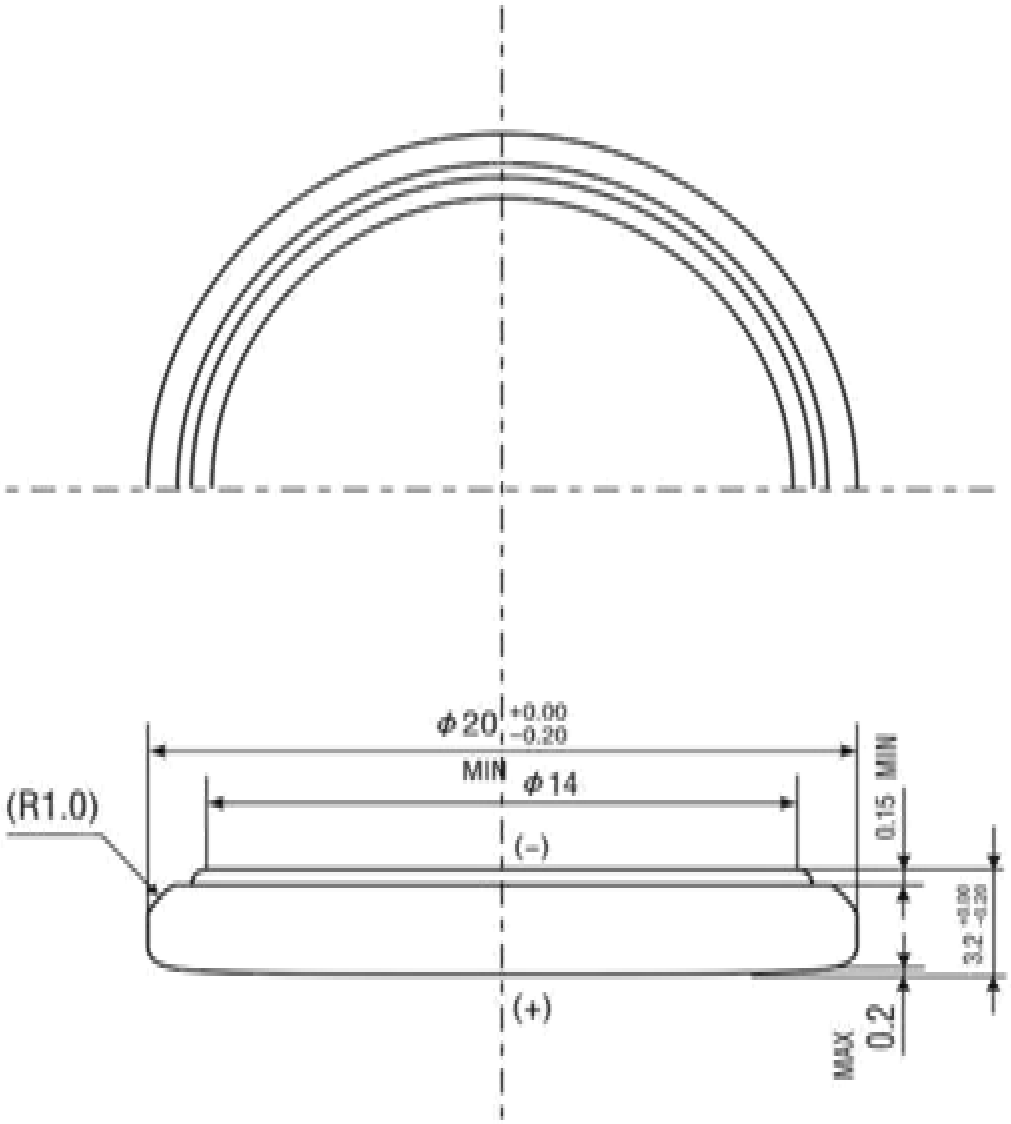
(I) Improper handling when using, installing or inspecting batteries.

(II) Failure to comply with the following instructions, precautions or warnings mentioned in this product specification.

(III) Failing to comply with the instructions and suggestions of Dongguan Shenneng Battery Technology Co., Ltd.

10. Other

Subject to RoHS instructions, this battery does not contain the following chemicals: lead, mercury, cadmium, hexavalent chromium, bromide, flame retardant, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE).



单位：mm

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

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CR2032
LITHIUM BATTERY
リチウムバッテリー
3V

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

Usage and safety instructions

The battery consists of lithium, organic solvent and other flammable materials. Proper handling of batteries is crucial. Otherwise, the battery may cause deformation, liquid leakage (accidental leakage of liquid), overheating, explosion, fire, personal injury to others or damage to equipment. Please strictly follow the following instructions to avoid accidents.

Warning matter

- Do not swallow

  In order to prevent children from easily taking in batteries and putting them in their mouths, batteries should be stored away from them. However, if all this

When it happens, you should take them to the hospital immediately.

- Non-rechargeable

  The battery is not a rechargeable battery. You should not charge it because it may cause internal short circuit and gas generation.

Causing deformation, leakage, overheating, explosion, or fire.

- No heating

  If the battery is heated above 100 degrees Celsius, it will increase the internal pressure, causing deformation, leakage, overheating, explosion, or fire. • No burning

  If the battery is burned or exposed to flame, lithium metal will melt, causing explosion or fire.

- Do not disassemble the battery

  Non-professionals are not allowed to disassemble batteries. Because it will cause sealing ring damage, deformation, leakage, overheating, explosion, or fire. • Avoid improper setup

  Improper setting may lead to forced discharge of the battery. It may cause battery deformation, leakage, overheating, explosion, fire and other adverse consequences.

When set, the positive and negative terminals of the battery should not be connected backwards.

- No short-circuit battery

  Direct connection between the positive and negative terminals of the battery should be avoided. If the metal items you carry or keep come into contact with the battery, the battery may

Deformation, leakage, overheating, explosion or fire occur.

- Do not solder batteries directly

  Welding will cause the battery to increase heat, damage the sealing ring and melt lithium, damaging the battery. May lead to leakage, overheating, explosion or lead

A fire broke out. The battery should not be soldered directly to the equipment, it must be connected by connecting pieces or wires. The temperature of the soldering iron shall not exceed 50 centigrade.

The degree and welding time shall not exceed 5 seconds; It is important to keep the temperature low and the time short. When not soldering, do not put the battery in the soldering

In the pool, the soldering iron should not be placed on the battery. When welding, multiple welding should be avoided, because it is equivalent to the pair of

The battery is charged or shorted.

- Do not use different types of batteries

  Different types of batteries must be avoided, because batteries produced by different manufacturers, of different types or with new and old combinations can

Can cause battery leakage, overheating, explosion, or fire. If it is necessary to use two or more batteries in series or in parallel. Recommendation

Obtained from Dongguan Shenneng Battery Technology Co., Ltd.

- Do not touch the leaking battery

  If liquid leaks into your mouth, please rinse your mouth immediately. If liquid enters your eyes, you should rinse your eyes with water immediately.

In any case, you should go to the hospital to be treated by medical professionals.

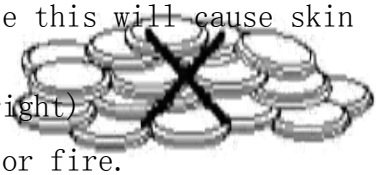
- Keep the battery away from flammable liquids

  If the battery leaks or smells strange smell, immediately keep the battery away from flammable liquid.

- Do not touch the battery directly

  Try to avoid skin touching the battery directly, because this will cause skin injury.

Do not overlap and cross-stack batteries (as shown on the right)



If so, the battery may deform, leak, overheat, explode or fire.

- Warning processing

There are different regulations in different countries or regions, please abide by these regulations. In general, the battery (+) and (-) ends should be covered with insulating tape prior to disposal. This is because the waste battery still has capacity. When it comes into contact with other metals or metal materials, it can cause the battery to deform, leak, overheat or explode.

1. Scope

This product specification is applicable to lithium-manganese dioxide button batteries provided by Dongguan Shenneng Battery Technology Co., Ltd.

2. Applicable battery types:	Lithium-manganese dioxide button battery
3. Battery Type and Performance	
3.1 Model:	CR2032
3.2 Rated voltage:	3.0 V
3.3 Nominal capacity:	210mAh (load: 15.0 k, termination voltage 2.0 V)
3.4 Outline Dimensions:	As shown in the drawing
3.5 Standard Quality:	2.9 g
3.6 Shelf life:	1 year (temperature less than or equal to 25 ℃ and relative humidity less than 75%).
3.7 Appearance:	Visual inspection shows that the surface of the battery is smooth, free from damage and deformation, and the signs are clear.
3.8 Trademark Name:	″Lithium Battery, In the meantime, it is necessary to″.
3.9 Manufacturing date and identification:	If necessary, the year and month of manufacture of the battery can be printed on the surface of the battery.
	Example:

21 (manufactured in January 2012)

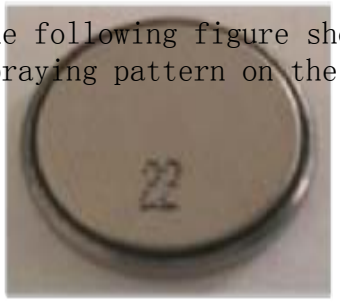
22 (manufactured in February 2012)

20 (manufactured in October 2012)

2Y (manufactured in November 2012)

2Z (manufactured in December 2012)

The following figure shows the code spraying pattern on the battery surface:



4;The lithium content: 59 mg

4. Main Technical Parameters (Table 1)

Project		Unit	Technical Indicators	Conditions
Nominal Voltage		V	3.0	CR series batteries only
Nominal capacity		MAh	210	Continuous discharge at 15.0 kload
Instantaneous short circuit current		MA	⩾ 300	Time ⩽ 0. 5 ’
Open Circuit Voltage		V	3.25~3.45	All CR Series Batteries
Storage temperature		℃	0~40	All CR Series Batteries
Applicable temperature		℃	-20~60	All CR Series Batteries
Standard Weight		G	Approximately 2.9g	Only for this series of batteries
Self-discharge rate		%/year	≤2	Only for this series of batteries
Quick Test	Initial Period	H	≥66.7	At a load of 1.0 k and a temperature of 20 ± 2 ℃, relative humidity ⩽ 75% RH Under the circumstances.
Service Life	12 months later	H	≥65.3	

Note 1: The electrochemical system and size of this product shall comply with IEC 60086-1: 2007 (i.e. GB/T8897.1-2008, original electricity Pool, Part 1: General).

5. Product Specifications and Testing Methods

Unless otherwise specified, all tests of the product shall be carried out under the following conditions:

(1) Ambient temperature: 20 ± 5 ℃.

(2) Relative humidity: 60% RH ± 15%.

Table 2

Test Items	Test Method	Quality standard
1. Outline dimensions	Test and test with vernier caliper with accuracy not less than 0.02 mm Insulation materials should be pasted on the contact surface of calipers to prevent Short circuit.	Diameter (mm): 20.0 (-0.20) Height (mm): 3.20 (-0.20)
2. Open Circuit Voltage	Use numbers with accuracy not less than 0.25% and internal resistance greater than 1M Multimeter.	3.25~3.45 V
3. Instantaneous short circuit current	Test with pointer multimeter, each time for no more than 0.5 ', but it is necessary to avoid repeating the test and testing the time again. The interval should be more than 0.5 hours.	≥ 300 mA
4. Appearance	Purpose Measure	Clean and tidy, clearly marked, without deformation, Rust, leakage. Installed in-use device In the device, the two poles of the battery should always The ability to form and maintain good contact Yes.
5. Rapid discharge capacity	At standard temperature 20 ± 2 ℃, relative humidity ≤ 75% RH, negative When the load is 1.0 k and the termination voltage is 2.0 V.	≥ 66.7 hours
6. Vibration test	On a vibrating machine with a vibration frequency of 100-150 times per minute Continuous vibration for 1 hour.	Stable performance
7. Liquid leakage resistance at high temperature	Stored at 45 ± 2 ℃ for 30 days.	Leakage rate ≤ 1/10000
8. Overdischarge leakage resistance Can	When the termination voltage reaches 2.0 V, the discharge is continuously discharged for 5 hours.	No leakage
Note 2: The overall dimensions and performance of this product comply with IEC 60086-2: 2007 (i.e. GB/T8897.2-2008, Primary Battery, Part 2: Requirements for overall dimensions and electrical properties).		
Note 3:		

1. The above tests have been confirmed by a large number of tests.
2. The company's standard is completely stricter than GB/T8897 "Primary Battery" standard promulgated by the state.
3. If the customer has special requirements, the company can adopt special testing methods according to the customer's requirements.

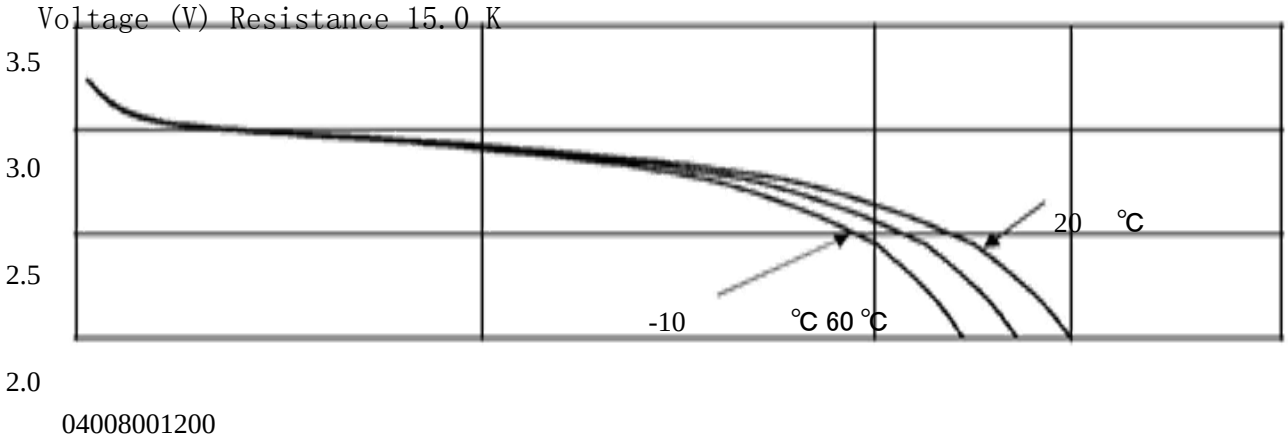
6. Discharge life

Load resistance	1 5 0 00hm
Discharge method (standard)	24-hour continuous discharge
Termination Voltage	2.0 V
Standard Time (Initial Period)	1000 hours
Standard time (after 12 months of storage)	980 hours

Initial test: The test carried out within one month after delivery.

Storage test: Under specific conditions, storage has been carried out after 12 months of testing.

7. Discharge characteristics on load



8. Battery Test

8.1 Temperature and humidity

8.1. 1 Test conditions

Unless otherwise specified, the test is generally carried out in an environment with a temperature of 20 ± 2 ℃ and a relative humidity of 65% RH ± 20%. 8.1. 2 Storage conditions

Unless otherwise specified, the sample battery shall be stored in an environment with a temperature below 25 degrees and a relative humidity below 75% RH, and tested within one month of storage.

8.2 Testing Instruments, Instruments and Equipment

8.2. 1 Voltage shall be measured with a voltmeter in the area of 0V to 4V, with an accuracy of ± 1 mV, or with a more accurate sum input

Multimeter test with input impedance exceeding 10M.

8.2. 2 The discharge load resistance will include the load of all external circuits with a tolerance not exceeding 0.5%.

8.2. 3 Outline dimensions will be measured using electronic digital display calipers with a distance of 0 to 150 mm and an accuracy of 5/100 mm or more accurate measuring tools.

8.3 Test Methods (or Procedures)

8.3. 1 Outline Dimensions

The measurement uses an electronic digital display caliper (refer to 8.2. 3).

8.3. 2 Appearance

Use visual inspection.

8.3. 3 Open Circuit Voltage

Use a voltmeter to measure the voltage (refer to 8.2. 1).

8.3. 4 Service life

After storing at normal temperature (20 ± 5 ℃) for 12 hours, discharge continuously as shown in Table 1 until the termination voltage is 2.0 V

(Not suitable for this voltage), its service life will meet the requirements of Table 1.

8.3. 5 Leakage resistance inspection

Check the leak resistance. Under the condition of no cover, place it at a 40-watt fluorescent lamp 1 meter above and 30 cm away from the eyes to observe the smooth and clean surface of the battery without dirt.

9. Quality Assurance

(1) If it is confirmed that the product has defects in technology and materials, please replace the product with Dongguan Shenneng Battery Technology Co., Ltd. Free of charge. Please

Note that our company is only obliged to replace the battery. Other loss, damage, destruction, including indirect costs or expenses, directly caused or

Indirectly caused losses of any nature, such as products that have been used or cannot be used, are excluded.

(2) The battery must comply with the requirements of this specification when working. Otherwise, Dongguan Shenneng Battery Technology Co., Ltd. Cannot assume any responsibility, including (but not limited to) safety and customer claims, as well as losses, damages, actions or legal proceedings, costs (legal or other aspects) caused thereby.

(3) It is the customer's responsibility for the matching and reliability of batteries in actual settings or component applications.

(4) Dongguan Shenneng Battery Technology Co., Ltd. Will not be responsible for the following circumstances:

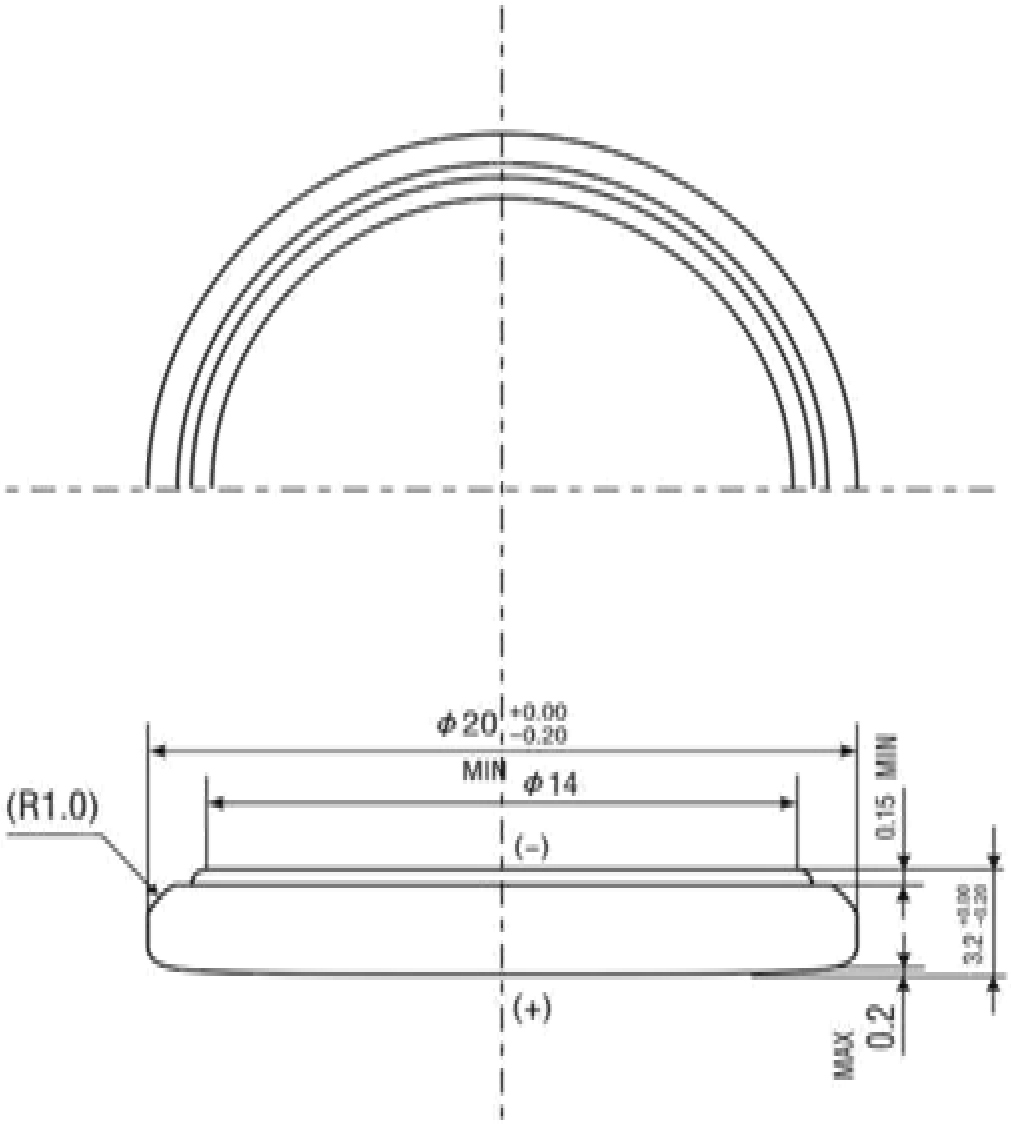
(I) Improper handling when using, installing or inspecting batteries.

(II) Failure to comply with the following instructions, precautions or warnings mentioned in this product specification.

(III) Failing to comply with the instructions and suggestions of Dongguan Shenneng Battery Technology Co., Ltd.

10. Other

Subject to RoHS instructions, this battery does not contain the following chemicals: lead, mercury, cadmium, hexavalent chromium, bromide, flame retardant, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE).



单位：mm

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

+

CR2032
LITHIUM BATTERY
リチウムバッテリー
3V

			设 计	比例	型 号
				5/1	CR2032
制 图	史国国	2012.2.28	深能电池科技有限公司		深能工程图编号 SN18.2017.05-A
审 核	朱敏飞	2012.2.29			
批 准	解玉新	2012.2.29			

Usage and safety instructions

The battery consists of lithium, organic solvent and other flammable materials. Proper handling of batteries is crucial. Otherwise, the battery may cause deformation, liquid leakage (accidental leakage of liquid), overheating, explosion, fire, personal injury to others or damage to equipment. Please strictly follow the following instructions to avoid accidents.

Warning matter

- Do not swallow

  In order to prevent children from easily taking in batteries and putting them in their mouths, batteries should be stored away from them. However, if all this

When it happens, you should take them to the hospital immediately.

- Non-rechargeable

  The battery is not a rechargeable battery. You should not charge it because it may cause internal short circuit and gas generation.

Causing deformation, leakage, overheating, explosion, or fire.

- No heating

  If the battery is heated above 100 degrees Celsius, it will increase the internal pressure, causing deformation, leakage, overheating, explosion, or fire. • No burning

  If the battery is burned or exposed to flame, lithium metal will melt, causing explosion or fire.

- Do not disassemble the battery

  Non-professionals are not allowed to disassemble batteries. Because it will cause sealing ring damage, deformation, leakage, overheating, explosion, or fire. • Avoid improper setup

  Improper setting may lead to forced discharge of the battery. It may cause battery deformation, leakage, overheating, explosion, fire and other adverse consequences.

When set, the positive and negative terminals of the battery should not be connected backwards.

- No short-circuit battery

  Direct connection between the positive and negative terminals of the battery should be avoided. If the metal items you carry or keep come into contact with the battery, the battery may

Deformation, leakage, overheating, explosion or fire occur.

- Do not solder batteries directly

  Welding will cause the battery to increase heat, damage the sealing ring and melt lithium, damaging the battery. May lead to leakage, overheating, explosion or lead

A fire broke out. The battery should not be soldered directly to the equipment, it must be connected by connecting pieces or wires. The temperature of the soldering iron shall not exceed 50 centigrade.

The degree and welding time shall not exceed 5 seconds; It is important to keep the temperature low and the time short. When not soldering, do not put the battery in the soldering

In the pool, the soldering iron should not be placed on the battery. When welding, multiple welding should be avoided, because it is equivalent to the pair of

The battery is charged or shorted.

- Do not use different types of batteries

  Different types of batteries must be avoided, because batteries produced by different manufacturers, of different types or with new and old combinations can

Can cause battery leakage, overheating, explosion, or fire. If it is necessary to use two or more batteries in series or in parallel. Recommendation

Obtained from Dongguan Shenneng Battery Technology Co., Ltd.

- Do not touch the leaking battery

  If liquid leaks into your mouth, please rinse your mouth immediately. If liquid enters your eyes, you should rinse your eyes with water immediately.

In any case, you should go to the hospital to be treated by medical professionals.

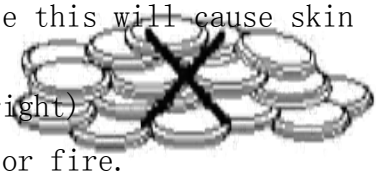
- Keep the battery away from flammable liquids

  If the battery leaks or smells strange smell, immediately keep the battery away from flammable liquid.

- Do not touch the battery directly

  Try to avoid skin touching the battery directly, because this will cause skin injury.

Do not overlap and cross-stack batteries (as shown on the right)



If so, the battery may deform, leak, overheat, explode or fire.

- Warning processing

There are different regulations in different countries or regions, please abide by these regulations. In general, the battery (+) and (-) ends should be covered with insulating tape prior to disposal. This is because the waste battery still has capacity. When it comes into contact with other metals or metal materials, it can cause the battery to deform, leak, overheat or explode.