



Shandong Huatai New Energy Battery Co., Ltd.

# SPECIFICATION

**MODEL NAME: LITHIUM BATTERY**

Model code: CR2032

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**1. Applicability:**

This specification is applicable to the following product: Coin type high temperature manganese lithium battery CR2016.

ITEM: CR2016

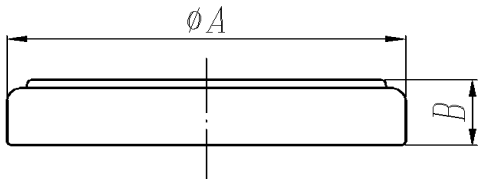
IEC: CR2016

Maxell: CR2016

SONY: CR2016

DURACELL: DL2016

**2. Battery type and ratings**

Electrochemical System		Lithium manganese dioxide/organic electrolytes
Nominal Voltage		3V
Nominal Capacity (Continuous Discharging Under 30k $\Omega$ load to 2.0V End-Voltage at 20°C)		80mAh
Operating temperature range		-20°C~70°C
		diameter (A) 20.0(-0.3)mm
		height (B) 1.6(-0.2)mm
Mass		Approx1.6g
Appearance and poles	Appearance should be smooth, clear mark, no deformation, rust, and leakage	
minimum average duration	Initial test (New battery in 60 days)	800h
	After 12 months	750h
Open Voltage	Initial test (New battery in 60 days)	3.10V-3.45V
	After 12 months	3.10V-3.45V
Closed Circuit Voltage (30k $\Omega$ )	Initial test (New battery in 60 days)	3.10V-3.45V
	After 12 months	3.00V-3.45V
Leakage Characteristics (Over discharge)		No Leakage

**3. Test Method**

	Item	Condition
1	Dimensions	When measure with vernier calipers which precision is up 0.02mm. to avoid short circuit, should paste on one insulation material on one end of the vernier calipers.
2	Open voltage	the precision of multimeter is not lower than 0.25%, intel resistance is bigger than 1MΩ
3	Instant short-circuit current	When test with multimeters, not surpass 0.5 second each time, avoid duplicating tests, if need once more, the time-gap should above half hour
4	Appearance	Appearance of batteries shall be inspected by visual means.
5	Min time of discharge	Lay aside above 8 hours in the temperature of 20±2℃ and under the humidity of 60±15% conditions, with the condition that Resistance is 15kΩ, end-point voltage is 2.0V. The new battery (Initial stage) should be tested in 60 days after produce. The old battery (Delayed for 12 months) should be tested in 14 days after the storage period.
6	Over-discharge Characteristics	Take nine battery in the temperature of 20±2℃ and under the humidity of 60±15% conditions, with the condition that Resistance is 15kΩ, end-point voltage is 1.2V. visual test.

#### 4. Acceptance rule

- 4.1 Delivery inspection for each shipment quantity for a test batch。
- 4.2 Delivery inspection using GB2828.1-2003 Normal inspection sampling plan at a time, inspection item、inspection level (IL)、acceptance quality limit (AQL) According to the provisions of the table below。

	Check item	IL	AQL
1	Dimensions	I	0.25
2	Open voltage		0.25
3	Appearance	II	0.25

#### 5. Important Notes (Warranty)

##### 5.1 No swallowing

Keep the battery out of reach of children. Never put batteries in mouth. If ingested, immediately seek medical attention.

##### 5.2 No recharging

Forbid using any other power supply to charge the battery. Recharging can lead to produce gas and internal short circuit, causing cell deformation, leakage, overheat, explode or catch fire.

##### 5.3 Do Not Dispose In Fire

The lithium will be melted when dispose in fire.

**5.4 Do Not Disassemble**

Do not disassemble the battery or it will cause the damage of gasket or the separator, deformation, leakage, over-heat, explosion or firing will happen.

**5.5 Insert Batteries Correctly**

Depending on the application device, incorrect insertion of batteries, with positive(+) and negative(-) poles reversed, may result in short circuits and the risk of heat generation, fire or explosion.

**5.6 Do Not Short-circuit**

Do Not Short-circuit. Do not keep or store the battery with metal or it will cause deformation, leakage, over-heat, explosion or firing.

Do not take several pieces of batteries from the packing box at one time or stock mixed, it can lead deformation, leakage, over-heat or firing.

**5.7 Do Not Mix Different Types Of Batteries**

For some application, mixing different types of batteries, or new and old batteries, can cause over discharge due to difference in voltage and electrical capacities. This may lead to the risk of swelling or explosion.

**5.8 Do Not Weld Pin Or Wire Directly On The Battery**

The lithium will melt when welding or cause damage of insulation material. This will lead deformation, over-heat, explosion or firing. If weld is needed, please contact supplier or professional welder.

**6. Cautions**

6.1 Shaking、jumbling、Scatters or trampled batteries, may cause short circuits, heat generation, fire or explosion.

6.2 Install batteries, please be careful when operating, don't let the battery come into contact with metal objects could make the battery short circuit.

6.3 Selecting suitable batteries as the operation instructions.

6.4 Do not use or store the batteries in high-temp places like exposure sunshine or in car which in burning hot, it will lead deformation, leakage, over-heat, explosion or firing.

6.5 Do not let the battery contact water or store in a wet environment or it will cause rust, deformation, leakage, over-heat, explosion or firing.

6.6 The voltage may lower than target one by bad contact so pls keep 2N contact pressure.

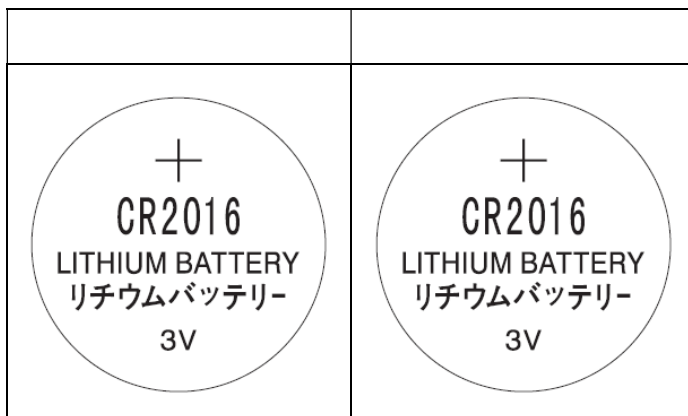
6.7 If any questions please contact .

**7. Storage Environment**

The storage environment should be clean, cool, dry, ventilation, do not close to high-temp or high moisture, the environment temp should 0℃-30℃, RH not exceed 75%.

## 8. Marking and Packing

### 8.1 Sign Of Positive Pole



Different brands can be as customers' requests.

### 8.2 Date Code

If customers need date code as IEC standard with 2 words: □□, the first one expresses year by 0-9, the second one expresses Jan-Sep by 1-9, O, Y, Z means Oct-Dec.

Examples: 01 means manufactured in Jan-2020;      0O means manufactured in Oct-2020;  
             0Y means manufactured in Nov-2020;      0Z means manufactured in Dec-2020。

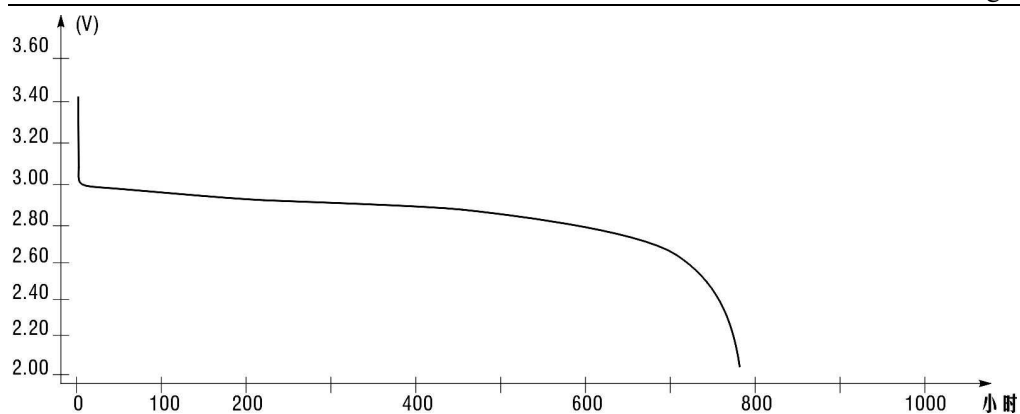
Different date code can be made.

### 8.3 Packing

Each 20pcs in a PVC tray, 25 trays(500pcs) be packed by PVC film, 8 small packages in one inner box, 2 inner boxes(8000pcs) in a outer carton..

If the batteries need to be with pins, the packing will be changed by product appearance

## 9. Discharge characteristics



With the progress of product technology, technical parameters, the specification will be updated too, please contact for latest specification.