



# Bonrex Technology Co.,Ltd

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## APPROVAL SHEET

CUSTOMER	
BRAND	
PRODUCT	3.0V LITHIUM-MANGANESE BUTTON CELL
MODEL	CR2450
WERCSmart ID	
PREPARED BY	
APPROVED BY	
DATE	June. 16, 2022

# Bonrex Technology Co.,Ltd

## 1. 【SCOPE】

This specification applies to the following 3.0v lithium button cell CR2450 .

## 2. 【RATINGS】

TABLE I :

ITEM		UNIT	SPECIFICATIONS	CONDITIONS
Nominal voltage		V	3.0	
Nominal capacity		mAh	550	Standard discharge with load 7.5kΩ
Instantaneous short-circuit current		mA	≥120	Time≤0.5 second
Max discharge current		mA	3	Continuous
		mA	20	Pulse
Off-load voltage		V	≥3.2	Without load
Storage temperature		°C	0~+40	All CR battery series
Operating temperature		°C	-20~60	All CR battery series
Standard weight		g	6.5	Unit cell
Service output	Initial	Standard	1690 h	Continuous discharge with load 7.5kΩ, till 2.0v end-voltage
	After 12 months storage	Standard	1660 h	
Red LED light flash test		times	≥1,300,000 (Theoretical)	Pulse discharge with 6pcs red LED light, flash each 1.5 seconds till 1.6v end-voltage
Blue LED light flash test		times	≥5,200,000 (Theoretical)	Pulse discharge with 6pcs blue LED light, flash each 1.5 seconds till 2.0v end-voltage

TABLE II :

ITEM	CONDITIONS	CHARACTERISTICS	
Thermal durability	Kept for 20 days at 60°C±3°C, then continuously discharge with 7.5kΩ load till 2.0v end-voltage	Standard	1660 h
Self-discharge rate	Stored for 12 months at normal temperature and humidity	≤5%	

## 3. 【PERFORMANCE AND TEST METHODS】

Unless otherwise stated, all the testing is carried out under the condition: environmental temperature, 20°C~25°C; environmental humidity, 65±20%. Please refer to Table III

## 4. 【SUGGESTIONS AND CAUTIONS】

- 4.1 Install batteries correctly.
- 4.2 Ensure the contact points to be clean and conductive.
- 4.3 Do not mix different types, different brands batteries to serve together.
- 4.4 Do not heat, recharge the batteries.
- 4.5 Do not dispose of the batteries in fire.
- 4.6 Keep away from the small children, if swallowed promptly see doctor.
- 4.7 Pay attention to the producing date.

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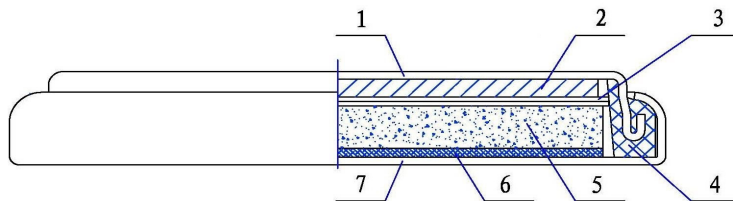
TABLE III:

No	ITEM	TEST METHODS	STANDARD	
1	Dimensions	Using vernier caliper (accuracy $\geq$ 0.02) while avoiding short-circuit	Diameter	24.5 (-0.2) mm
			Height	5.0 (-0.2) mm
2	Off-load voltage	Using multimeter (accuracy $\geq$ 0.25%) internal resistance $\geq$ 1M $\Omega$	$\geq$ 3.2 v	
3	Instantaneous short-circuit current	Time of short-circuit should be less than 0.5 second and avoid repeated test within half an hour	$\geq$ 120 mA	
4	Appearance	Eyeballing	Bright, clean, no rust, no leakage, And no flaw	
5	Capacity	Continuously discharge for 8 hours with load 7.5k $\Omega$ , temperature at 20~25 $^{\circ}$ C, humidity at 65 $\pm$ 20% till 2.0v end-voltage (for fresh battery only: within 3 months)	$\geq$ 1690 h	
6	Red LED light flash test	Pulse discharge with red LED light, temperature at 20~25 $^{\circ}$ C, humidity at 65 $\pm$ 20%, flash each 1.5 seconds till 1.6v end-voltage (for fresh battery only: within 3 months)	$\geq$ 1,300,000 (Theoretical)	
	Blue LED light flash test	Pulse discharge with blue LED light, temperature at 20~25 $^{\circ}$ C, humidity at 65 $\pm$ 20%, flash each 1.5 seconds till 2.0v end-voltage (for fresh battery only: within 3 months)	$\geq$ 5,200,000 (Theoretical)	
7	Vibration test	Put battery on the platform of the vibrations machine, start the machine and adjust the frequency form 10 times per minute to 15 times per minute. keep it running for an hour	Characteristics keep stability	
8	Leakage at high temperature test	Stored under temperature at 60 $^{\circ}$ C and relative humidity (RH) below 75% for 7 days	No leakage allowed	
9	Over discharge Test	After 2.0v end-voltage, continuously discharged for 5 hours	No leakage allowed	

## 5. 【CUTAWAY DIAGRAM OF 3.0V LITHIUM MANGANESE DIOXIDE BUTTON CELL】

3.0V 锂—二氧化锰扣式电池剖面图

Cutaway Diagram of 3.0V Lithium Manganese Dioxide Button Cell



- |                             |                              |               |          |
|-----------------------------|------------------------------|---------------|----------|
| 1、负极壳                       | 2、负极锂片                       | 3、隔膜          | 4、密封胶圈   |
| 5、正极片                       | 6、正极集流网                      | 7、正极壳         |          |
| 1、Cathode Shell             | 2、Cathode (slice of lithium) | 3、Septum      | 4、Gasket |
| 5、Anode (MnO <sub>2</sub> ) | 6、Anode collector net        | 7、Anode shell |          |

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## 6. 【DISCHARGE CHARACTERISTICS】

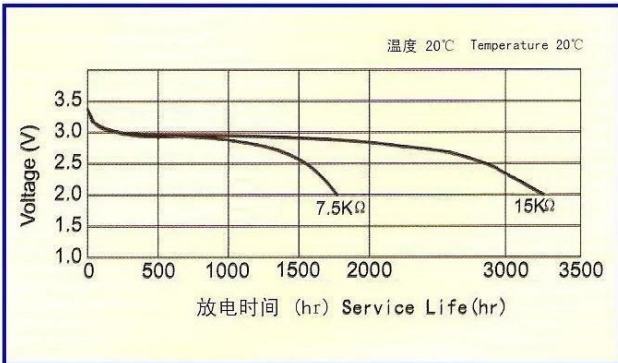
### 规格参数 SPECIFICATIONS



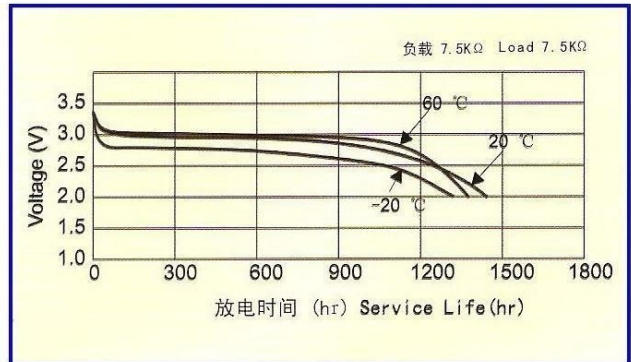
型号 Model No.	CR2450	结构图 Dimensions (mm)
标称电压 Nominal Voltage	3 (V)	
标称容量 Nominal Capacity	600 (mAh)	
标准电阻 Load Resistance	7.5 (k $\Omega$ )	
重量 Weight	6.7 (g)	
使用温度 Using Temperature	-20 $^{\circ}$ C~60 $^{\circ}$ C	

### 标准曲线 STANDARD CHARACTERISTICS

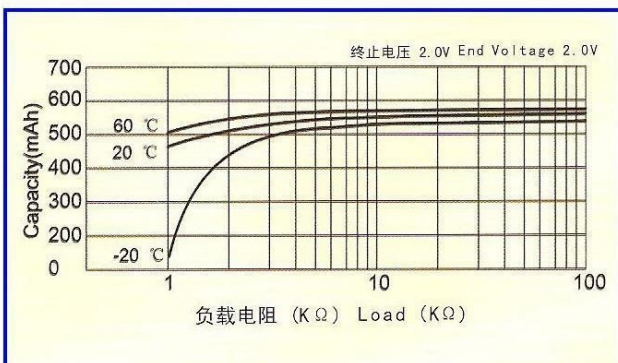
定电阻放电曲线  
Discharge Characteristics



温度放电曲线  
Temperature Characteristics



电阻容量曲线  
Load-capacity



脉冲放电曲线  
Pulse Discharge Characteristics

