


# APPROVAL SHEET

MESSRS	
BRAND	
PRODUCT	3.0V LITHIUM-MANGANESE BUTTON CELL
MODEL	CR1616 (50mAh)
PREPARED BY	
APPROVED BY	
DATE	

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## 1. 【SCOPE】

This specification applies to the following 3.0v lithium button cell CR1616 made by GUANGZHOU MARKYN BATTERY CO., LTD.

## 2. 【RATINGS】

TABLE I :

ITEM		UNIT	SPECIFICATIONS	CONDITIONS
Nominal voltage		V	3.0	Standard discharge
Nominal capacity		mAh	50	Standard discharge
Instantaneous short-circuit current		mA	$\geq 100$	Time $\leq 0.5$ second
Off-load voltage		V	$\geq 3.20$	
Storage temperature		$^{\circ}\text{C}$	0~35	
Standard weight		g	0.9	Unit cell
Service output	Initial	Standard	290 h	Continuous discharge with load 15k $\Omega$ , till 2.0v end-voltage at 20~25 $^{\circ}\text{C}$
	After 12 months storage	Standard	275 h	

TABLE II :

ITEM	CONDITIONS	CHARACTERISTICS	
Thermal durability	Kept for 20 days at 60 $^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , then continuously discharge with 15k $\Omega$ load till 2.0v end-voltage	Standard	275 h
Self-discharge rate	Stored for 12 months at normal temperature and humidity	$\leq 5\%$	

## 3. 【PERFORMANCE AND TEST METHODS】

Unless otherwise stated, all the testing is carried out under the condition: environmental temperature, 20 $^{\circ}\text{C}$ ~25 $^{\circ}\text{C}$ ; environmental humidity, 65 $\pm$ 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.

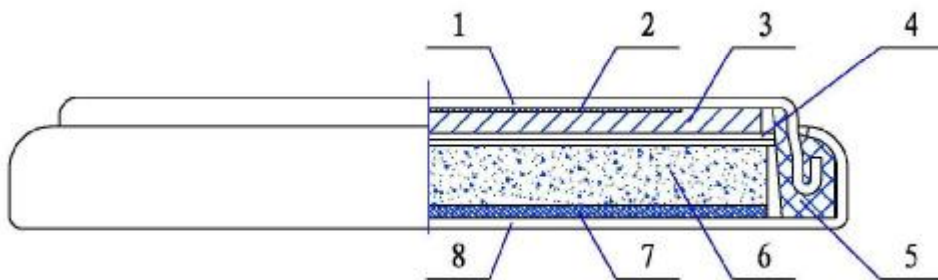
TABLE III:

No	ITEM	TEST METHODS	STANDARD	
1	Dimensions	Using vernier caliper (accuracy $\geq$ 0.02) while avoiding short-circuit	Diameter	12.5(-0.20) mm
			Height	2.5(-0.20) mm
2	Off-load voltage	Using multimeter (accuracy $\geq$ 0.25%) internal resistance $\geq$ 1M $\Omega$	$\geq$ 3.20v	
3	Instantaneous short-circuit current	Time of short-circuit should be less than 0.5 second and avoid repeated test within half an hour	$\geq$ 100 mA	
4	Appearance	Eyeballing	Bright, clean, no rust, no leakage, And no flaw	
5	Capacity	Continuously discharge for 8 hours with load 15k $\Omega$ , temperature at 20~25 $^{\circ}$ C, humidity at 65 $\pm$ 20% till 2.0v end-voltage (for fresh battery only: within 3 months )	$\geq$ 290 h	
6	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	
7	Leakage at high temperature	Stored under temperature (60 $^{\circ}$ C) for 20 days	No leakage allowed	
8	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、负极集流网                      | 3、负极锂片                        | 4、隔膜           |
| 5、密封胶圈           | 6、正极片                        | 7、正极集流网                       | 8、正极壳          |
| 1、 Cathode Shell | 2、 Cathode collector net     | 3、 Cathode (slice of lithium) | 4、 Septum      |
| 5、 Gasket        | 6、 Anode( MnO <sub>2</sub> ) | 7、 Anode collector net        | 8、 Anode shell |

6. 【DISCHARGE CHARACTERISTICS】

CR1616

外形 APPEARANCE

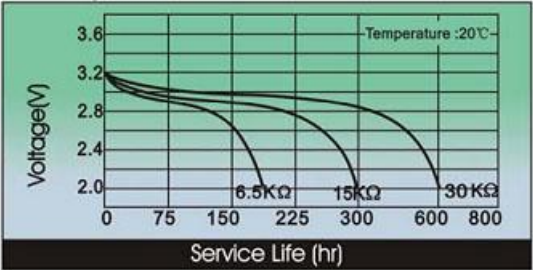


规格 SPECIFICATIONS

型号 Model	CR1616	尺寸 Dimensions(mm)
标称电压 Nominal Voltage	3(V)	
标称容量 Nominal Capacity	50(mAh)	
标准电阻 Load Resistance	30(KΩ)	
重量 Weight	1.1(g)	
使用温度 Using Temperature	-20℃~60℃	

STANDARD CHARACTERISTICS

Discharge Characteristics



Temperature Characteristics

