

深圳市晨木实业有限公司



SHENZHEN CHENMU INDUSTRY CO., LTD.

深圳市龙华区福城街道大水坑社区一村 300 号沃特思厂房 5 栋 2 楼

[Http://www.chenmubattery.com](http://www.chenmubattery.com)

APPROVAL SHEET

MESSRS	
BRAND	
PRODUCT	3.0V LITHIUM-MANGANESE BUTTON CELL
MODEL	CR2032 (230mAh)
PREPARED BY	
APPROVED BY	
DATE	SEP. 1, 2013

深圳市晨木实业有限公司



SHENZHEN CHENMU INDUSTRY CO., LTD.

深圳市龙华区福城街道大水坑社区一村 300 号沃特思厂房 5 栋 2 楼

[Http://www.chenmubattery.com](http://www.chenmubattery.com)

1. 【SCOPE】

This specification applies to the following 3.0v lithium button cell CR2032 (high capacity of 240mAh) made by SHENZHEN CHENMU INDUSTRY CO., LTD.

2. 【RATINGS】

TABLE I :

ITEM	UNIT	SPECIFICATIONS	CONDITIONS	
Nominal voltage	V	3.0		
Nominal capacity	mAh	230	Standard discharge with load 15kΩ	
Instantaneous short-circuit current	mA	≥250	Time≤0.5 second	
Off-load voltage	V	≥3.2		
Operating temperature	℃	-20~60		
Standard weight	g	3.1	Unit cell	
Service output	Initial	Standard	1400 h	Continuous discharge with load 15kΩ, till 2.0v end-voltage
	After 12 months storage	Standard	1300 h	

TABLE II :

ITEM	CONDITIONS	CHARACTERISTICS	
Thermal durability	Kept for 20 days at 60℃±3℃, then continuously discharge with 15kΩ load till 2.0v end-voltage	Standard	1300 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℃~25℃; 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.

深圳市晨木实业有限公司



SHENZHEN CHENMU INDUSTRY CO., LTD.

深圳市龙华区福城街道大水坑社区一村 300 号沃特思厂房 5 栋 2 楼

[Http://www.chenmubattery.com](http://www.chenmubattery.com)

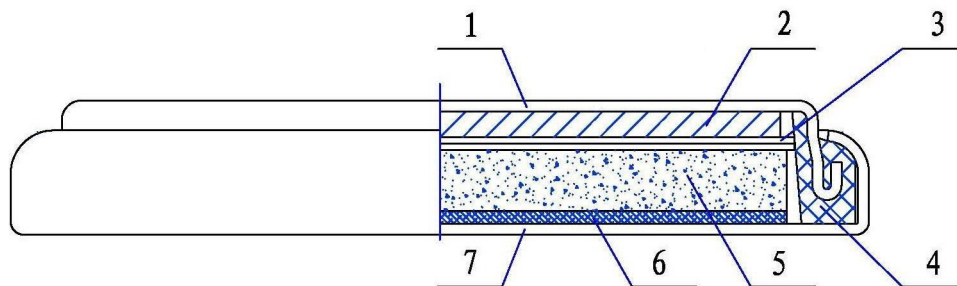
TABLE III:

No	ITEM	TEST METHODS	STANDARD	
1	Dimensions	Using vernier caliper (accuracy ≥ 0.02) while avoiding short-circuit	Diameter	20.0 (-0.2) mm
			Height	3.2 (-0.2) mm
2	Off-load voltage	Using multimeter (accuracy $\geq 0.25\%$) internal resistance $\geq 1M\Omega$	≥ 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	≥ 250 mA	
4	Appearance	Eyeballing	Bright, clean, no rust, no leakage, And no flaw	
5	Capacity	Continuously discharge for 8 hours with load 15k Ω , temperature at 20~25 $^{\circ}C$, humidity at 65 \pm 20% till 2.0v end-voltage (for fresh battery only: within 3 months)	≥ 1400 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 test	Stored under temperature (60 $^{\circ}C$) for 7 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 ₂) | 6、Anode collector net | 7、Anode shell | |

深圳市晨木实业有限公司



SHENZHEN CHENMU INDUSTRY CO., LTD.

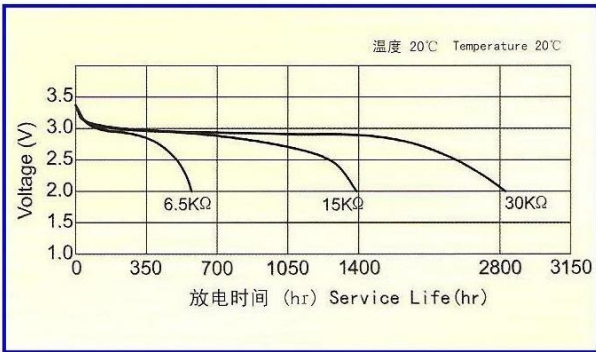
深圳市龙华区福城街道大水坑社区一村 300 号沃特思厂房 5 栋 2 楼

[Http://www.chenmubattery.com](http://www.chenmubattery.com)

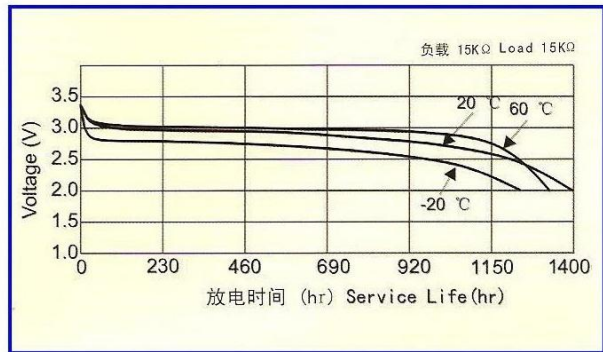
6. 【DISCHARGE CHARACTERISTICS】

标准曲线 STANDARD CHARACTERISTICS

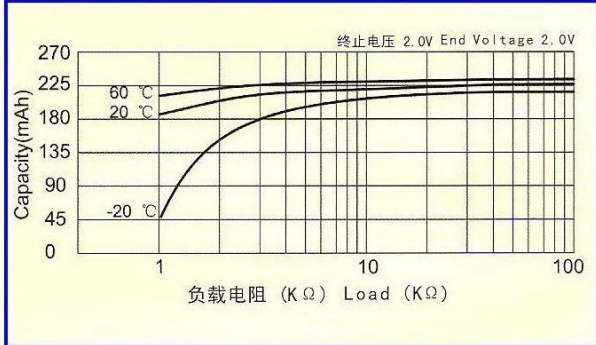
定电阻放电曲线
Discharge Characteristics



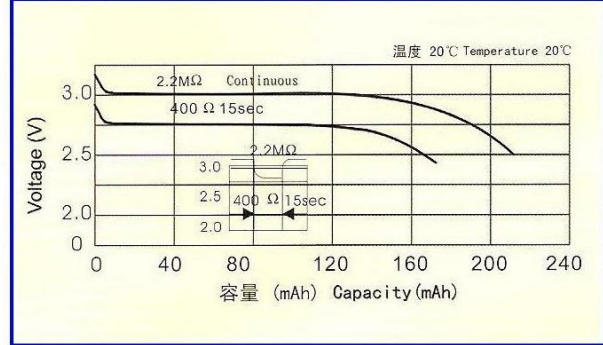
温度放电曲线
Temperature Characteristics



电阻容量曲线
Load-capacity



脉冲放电曲线
Pulse Discharge Characteristics



深圳市晨木实业有限公司



SHENZHEN CHENMU INDUSTRY CO., LTD.

深圳市龙华区福城街道大水坑社区一村300号沃特思厂房5栋2楼

[Http://www.chenmubattery.com](http://www.chenmubattery.com)

放电数据汇总表

深圳市迈洛克实业有限公司

放电位置: 01屏1排
 电池类型: 3.00V
 负载: 1000.0欧姆
 终止电压: 2.00V
 结束方式: 正常结束
 标准时间: 75.0小时
 均匀率: 94.5%
 检测环境: 20℃ RH 50%
 放电员: LIAO
 备注: 1-3#正常 4-5#2.5乙炔黑 6-9#鑫茂石墨

放电方式: 逢放
 生产厂家: 迈洛克
 电池名称: CR2032
 商标名称: 中性
 电池批号: 2014828
 制造日期: 2014-8-28
 放电日期: 2014-08-28
 结束日期: 2014-09-01
 存档文件: C:\nj\2014-09-01 14 33 CR2032-石墨实验乙炔黑.d

	1	2	3	4	5	6	7	8	9	最大值	最小值	平均值
开压(V)	3.496	3.445	3.489	3.451	3.441	3.434	3.448	3.458	3.451	3.496	3.434	3.457
首压(V)	3.441	3.400	3.434	3.414	3.404	3.394	3.414	3.421	3.417	3.441	3.394	3.415
容量(mAh)	227.2	223.8	229.0	220.7	228.4	225.6	224.9	233.1	229.8	233.1	220.7	226.9

到达指定电压的时间(小时)

3.000V	0.6	0.5	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.5	0.7
2.900V	1.1	1.0	1.0	1.3	1.3	1.2	1.6	1.6	1.6	1.6	1.0	1.3
2.800V	7.7	7.8	5.9	8.8	8.5	7.1	9.1	9.9	8.9	9.9	5.9	8.2
2.700V	30.9	30.7	35.2	34.8	31.1	34.1	34.4	35.1	34.9	35.2	30.7	33.5
2.600V	52.1	49.9	49.3	47.9	48.8	49.0	49.0	48.9	49.7	52.1	47.9	49.4
2.500V	64.2	65.5	58.3	56.2	57.4	58.1	58.1	57.3	58.4	65.5	56.2	59.3
2.400V	71.2	72.7	70.6	68.9	69.9	69.8	70.5	72.3	70.6	72.7	68.9	70.7
2.300V	78.4	78.8	78.2	76.6	78.7	77.0	78.0	81.0	78.8	81.0	76.6	78.4
2.200V	83.4	82.3	83.8	82.1	83.9	82.6	82.4	85.9	83.9	85.9	82.1	83.4
2.100V	86.2	84.6	87.0	84.3	87.1	85.8	84.9	88.3	87.1	88.3	84.3	86.2
2.000V	88.1	86.7	89.4	85.7	89.0	87.8	87.0	90.5	89.1	90.5	85.7	88.1

电压(V)

放电曲线

