



PRODUCT SPECIFICATION

Product Code: **LITUMXB8**

Pack of 8 Lithium Coin Cell Batteries  
( 4 x CR2032, 2 x CR2025, 2 x CR2016)

APPROVED SIGNATURE	:
YOUR NAME	
TITLE	:
DATE	:

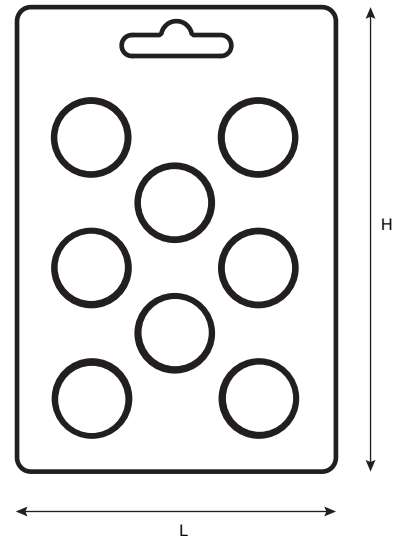
Typed : \_\_\_\_\_

Approved : \_\_\_\_\_

# ULTRA MAX<sup>®</sup>

Product Code: **LITUMXB8**

Pack of 8 Lithium Coin Cell Batteries  
( 4 x CR2032, 2 x CR2025, 2 x CR2016)



Card size: L=83 mm H=120 mm

Weight: 27 g

Packaging:

inner box (x20)

outer box (x100)

Model of battery: CR2016

## 1. 【SCOPE】

This specification applies to the following 3.0v lithium button cell CR2016 made by Ultra Max Batteries Ltd

## 2. 【RATINGS】

TABLE I :

ITEM	UNIT	SPECIFICATIONS	CONDITIONS	
Nominal voltage	V	3.0		
Nominal capacity	mAh	75	Standard discharge with load 15kΩ	
Instantaneous short-circuit current	mA	≥200	Time ≤0.5 second	
Off-load voltage	V	≥3.20		
Operating temperature	℃	-20~60		
Standard weight	g	~1.6	Unit cell	
Service output	Initial	Standard	420 h	Continuous discharge with load 15kΩ, till 2.0v end-voltage at 20~25℃
	After 12 months storage	Standard	395 h	

TABLE II :

ITEM	CONDITIONS	CHARACTERISTICS	
Thermal durability	Kept for 10 days at 50℃ ±3℃, then continuously discharge with 15kΩ load till 2.0v end-voltage	Standard	395 h
Self-discharge rate	Stored for 12 months at normal temperature and humidity	≤1%	

## 3. 【PERFORMANCE AND TEST METHODS】

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

## 4. 【SUGGESTIONS AND CAUTIONS】

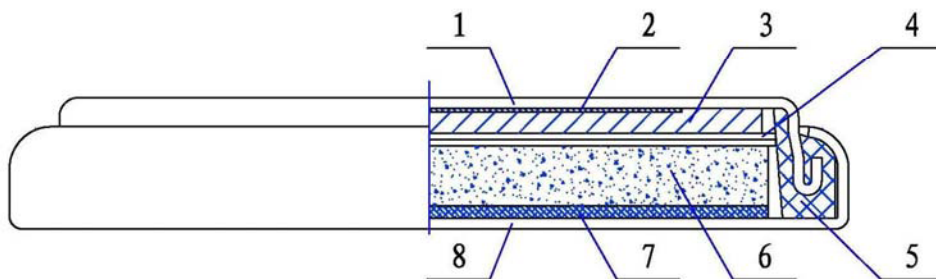
- 4.1 Install batteries correctly.
- 4.2 Ensure the contact points to be clean and conductive.
- 4.3 Do not mix different types, different brands of batteries together.
- 4.4 Do not heat, recharge the batteries.
- 4.5 Do not dispose of the batteries in fire.
- 4.6 Keep away from the small children, if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

TABLE III:

No	ITEM	TEST METHODS	STANDARD	
1	Dimensions	Using vernier caliper (accuracy $\geq 0.02$ ) while avoiding short-circuit	Diameter	20.0 (-0.20) mm
			Height	1.60 ( $\pm 0.1$ ) 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	$\geq 200$ mA	
4	Appearance	Eyeballing	Bright, clean, no rust, no leakage, And no flaw	
5	Capacity	Continuously discharge with load 15k $\Omega$ , temperature at 20~25 $\square$ , humidity at 65 $\pm 20\%$ till 2.0v end-voltage (for fresh battery only: within 3 months)	$\geq 420$ 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 (50 $\square$ ) for 10 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】

Cutaway Diagram of 3.0V Lithium Manganese Dioxide Button Cell

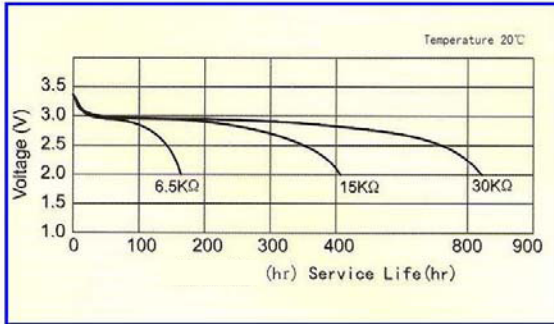


- |                 |                             |                              |               |
|-----------------|-----------------------------|------------------------------|---------------|
| 1、Cathode Shell | 2、Cathode collector net     | 3、Cathode (slice of lithium) | 4、Septum      |
| 5、Gasket        | 6、Anode( MnO <sub>2</sub> ) | 7、Anode collector net        | 8、Anode shell |

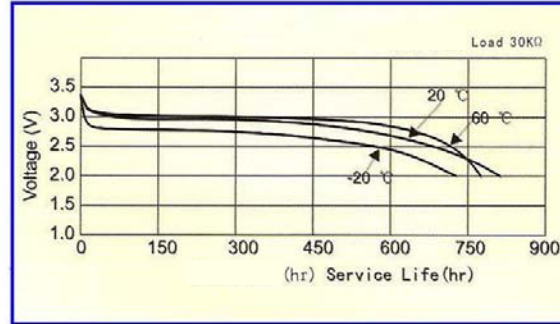
## 6. 【DISCHARGE CHARACTERISTICS】

### STANDARD CHARACTERISTICS

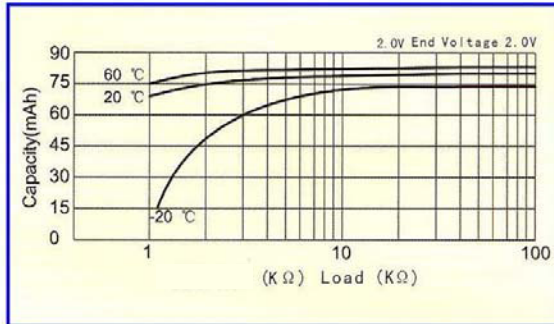
Discharge Characteristics



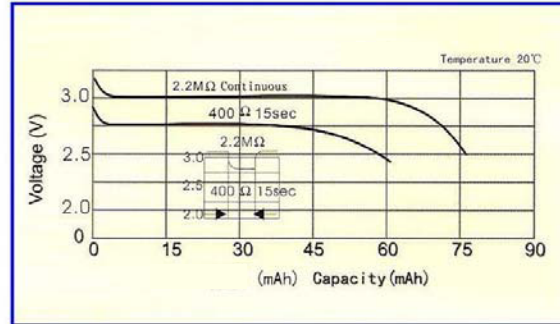
Temperature Characteristics



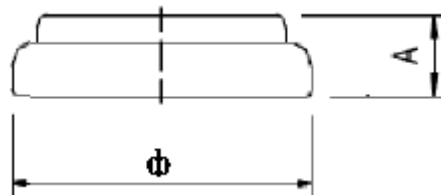
Load-capacity



Pulse Discharge Characteristics



## 7. 【DIMENSIONS】



$\Phi=20.0 (-0.2) \text{ mm}$      $A=1.6 (\pm 0.1) \text{ mm}$

Model of battery: CR2025

## 1. 【SCOPE】

This specification applies to the following 3.0v lithium button cell CR2025 made by Ultra Max Batteries Ltd

## 2. 【RATINGS】

TABLE I :

ITEM		UNIT	SPECIFICATIONS	CONDITIONS
Nominal voltage		V	3.0	
Nominal capacity		mAh	150	Standard discharge with load 15kΩ
Instantaneous short-circuit current		mA	≥250	Time ≤0.5 second
Off-load voltage		V	≥3.20	
Operating temperature		°C	-20~60	
Standard weight		g	~2.3	Unit cell
Service output	Initial	Standard	840 h	Continuous discharge with load 15kΩ, till 2.0v end-voltage at 20~25°C
	After 12 months storage	Standard	790 h	

TABLE II :

ITEM	CONDITIONS	CHARACTERISTICS	
Thermal durability	Kept for 20 days at 50 °C ±3 °C , then continuously discharge with 15kΩ load till 2.0v end-voltage	Standard	790 h
Self-discharge rate	Stored for 12 months at normal temperature and humidity	≤1%	

## 3. 【PERFORMANCE AND TEST METHODS】

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

## 4. 【SUGGESTIONS AND CAUTIONS】

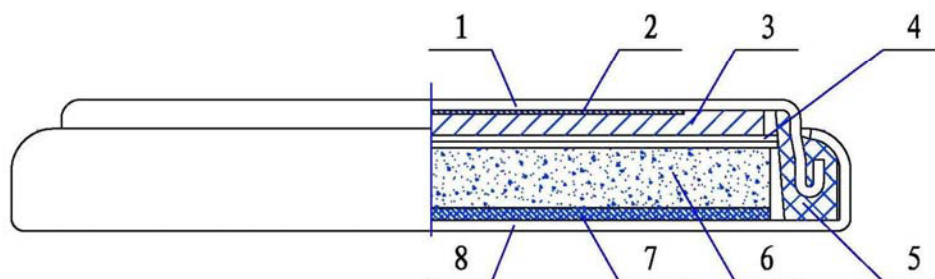
- 4.1 Install batteries correctly.
- 4.2 Ensure the contact points to be clean and conductive.
- 4.3 Do not mix different types, different brands batteries to serve together.
- 4.4 Do not heat, recharge the batteries.
- 4.5 Do not dispose of the batteries in fire.
- 4.6 Keep away from the small children,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

TABLE III:

No	ITEM	TEST METHODS	STANDARD	
			Diameter	Height
1	Dimensions	Using vernier caliper (accuracy $\geq$ 0.02) while avoiding short-circuit	Diameter	20.0 (-0.20) mm
			Height	2.5( $\pm$ 0.1) 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	$\geq$ 250 mA	
4	Appearance	Eyeballing	Bright, clean, no rust, no leakage, And no flaw	
5	Capacity	Continuously discharge for with load 15k $\Omega$ , temperature at 20~25 $\times$ , humidity at 65 $\pm$ 20% till 2.0v end-voltage (for fresh battery only: within 3 months )	$\geq$ 840 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 (50 $^{\circ}$ C) for 10 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】

Cutaway Diagram of 3.0V Lithium Manganese Dioxide Button Cell

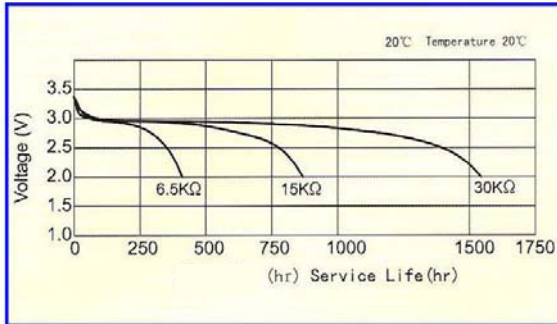


- |                 |                             |                              |               |
|-----------------|-----------------------------|------------------------------|---------------|
| 1、Cathode Shell | 2、Cathode collector net     | 3、Cathode (slice of lithium) | 4、Septum      |
| 5、Gasket        | 6、Anode( MnO <sub>2</sub> ) | 7、Anode collector net        | 8、Anode shell |

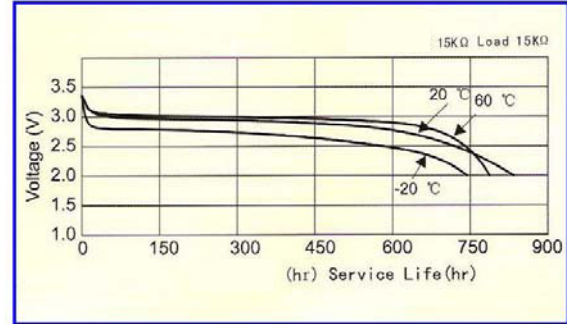
## 6. 【DISCHARGE CHARACTERISTICS】

### STANDARD CHARACTERISTICS

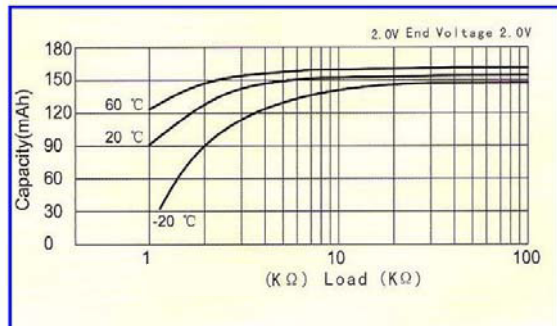
Discharge Characteristics



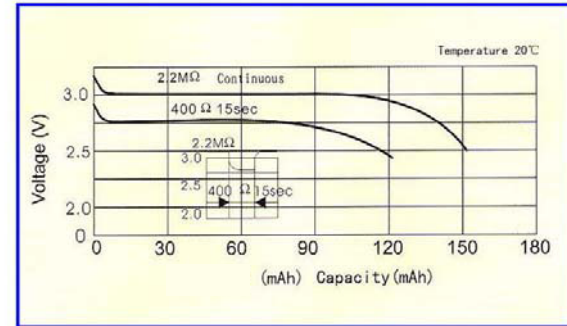
Temperature Characteristics



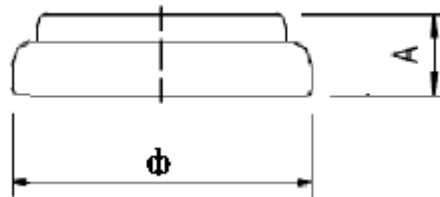
Load-capacity



Pulse Discharge Characteristics



## 7. 【DIMENSIONS】



$$\Phi=20.0 (-0.2) \text{ mm} \quad A=2.5 (\pm 0.1) \text{ mm}$$



Model of battery: CR2032

## 1. 【SCOPE】

This specification applies to the following 3.0v lithium button cell CR2032 made by Ultra Max Batteries Ltd

## 2. 【RATINGS】

TABLE I :

ITEM		UNIT	SPECIFICATIONS	CONDITIONS
Nominal voltage		V	3.0	
Nominal capacity		mAh	210	Standard discharge with load 15kΩ
Instantaneous short-circuit current		mA	≥250	Time ≤0.5 second
Off-load voltage		V	≥3.2	
Operating temperature		°C	-20~60	
Standard weight		g	~2.75	Unit cell
Service output	Initial	Standard	1100 h	Continuous discharge with load 15kΩ, till 2.0v end-voltage
	After 12 months storage	Standard	1050 h	

TABLE II :

ITEM	CONDITIONS	CHARACTERISTICS	
Thermal durability	Kept for 10 days at 50 °C ±3 °C , then continuously discharge with 15kΩ load till 2.0v end-voltage	Standard	1050 h
Self-discharge rate	Stored for 12 months at normal temperature and humidity	≤1%	

## 3. 【PERFORMANCE AND TEST METHODS】

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

## 4. 【SUGGESTIONS AND CAUTIONS】

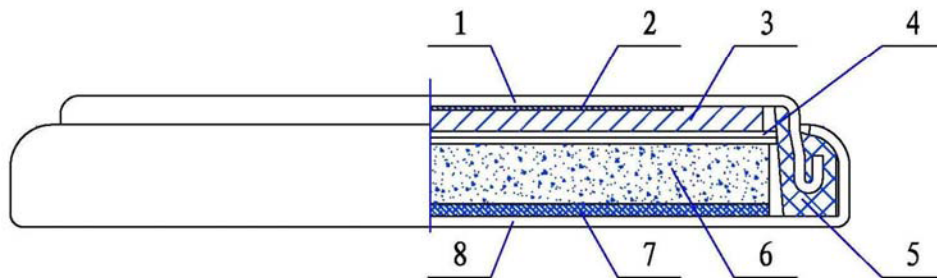
- 4.1 Install batteries correctly.
- 4.2 Ensure the contact points to be clean and conductive.
- 4.3 Do not mix different types, different brands batteries to serve together.
- 4.4 Do not heat, recharge the batteries.
- 4.5 Do not dispose of the batteries in fire.
- 4.6 Keep away from the small children,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

TABLE III:

No	ITEM	TEST METHODS	STANDARD	
			Diameter	20.0 (-0.2) mm
1	Dimensions	Using vernier caliper (accuracy $\geq 0.02$ ) while avoiding short-circuit	Height	3.2 ( $\pm 0.1$ ) 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	$\geq 250$ mA	
4	Appearance	Eyeballing	Bright, clean, no rust, no leakage, And no flaw	
5	Capacity	Continuously discharge with load 15k $\Omega$ , temperature at 20~25 , humidity at 65 $\pm$ 20% till 2.0v end-voltage (for fresh battery only: within 3 months )	$\geq 1100$ 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 (50 $^{\circ}$ C) for 10 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】

Cutaway Diagram of 3.0V Lithium Manganese Dioxide Button Cell

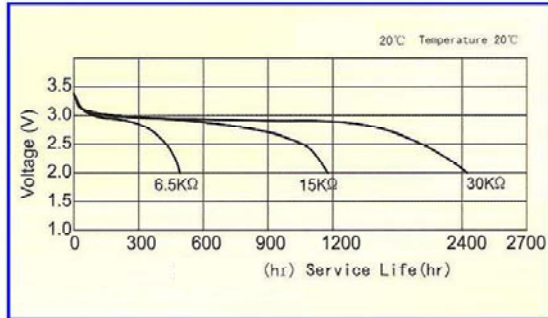


- |                 |                             |                              |               |
|-----------------|-----------------------------|------------------------------|---------------|
| 1、Cathode Shell | 2、Cathode collector net     | 3、Cathode (slice of lithium) | 4、Septum      |
| 5、Gasket        | 6、Anode( MnO <sub>2</sub> ) | 7、Anode collector net        | 8、Anode shell |

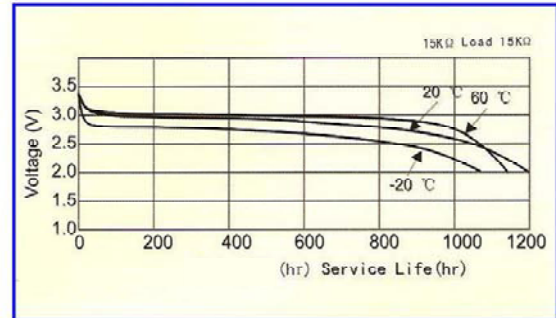
## 6. 【DISCHARGE CHARACTERISTICS】

### STANDARD CHARACTERISTICS

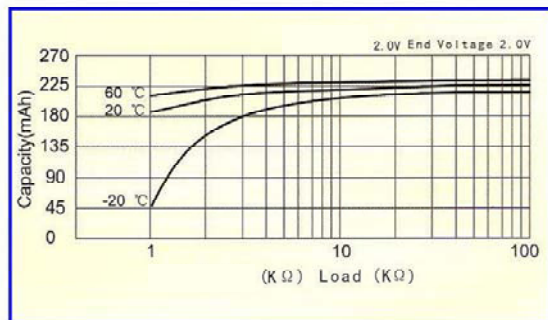
Discharge Characteristics



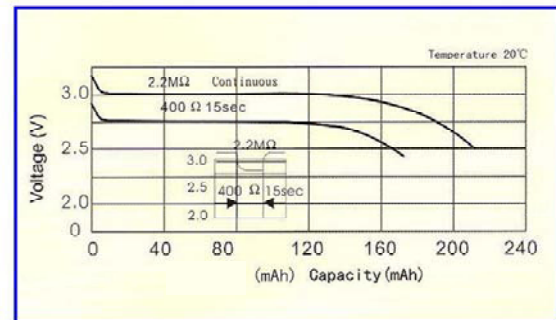
Temperature Characteristics



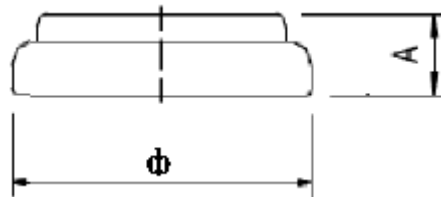
Load-capacity



Pulse Discharge Characteristics



## 7. 【DIMENSIONS】



$$\Phi=20.0 (-0.2) \text{ mm} \quad A=3.2 (\pm 0.1) \text{ mm}$$