Li-MnO_2 Battery Specification

MODEL: CR123A



SAREME

1. Product Specifications

Table 1

No.	Item		Specification
1	Voltage		3.0 V
2	Capacity Discharge to 1.5V @20mA/Upright)	Standard Cap	1500 mAh
3	Max Discharge current	Continuity	1500 mA
		Plus	3000 mA
4	Termination Vol.		1.5 V
5	CCV@15 Ω		2.8 V
6	Weight		Approx. 17g
7	Work Temp		-40℃ to 70℃
8	Storage Temp		10℃ to 25℃
9	Storage Humidity		≤65%
10	Guarantee Period		5 years

2. Performance and Test Conditions

2.1. Standard Test Conditions

Test should be conducted with new batteries within one week Unless otherwise specified, test and measurement shall be done under temperature of 23±2℃ and relative humidity of 45~85%. If it is judged that the test results are not affected by such conditions, the tests may be conducted at temperature 15~30℃ and humidity 25~85%RH.

2.2. Measuring Instrument or Apparatus

2.2.1. Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.

2.2.2. Voltmeter

Standard class specified in the national standard or more sensitive class having inner impedance more than 10kΩ/V

2.2.3. Ammeter

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω.

2.3. Standard Discharge: Cells shall be discharged at a constant current of 20mAto 1.5 volts @23±2℃

2.4. Appearance: There shall be no such defect as flaw, crack, rust, leakage, which may adversely affect commercial value of battery.

2.5.

Table 2

Item	Test Method and Condition	Requirements
(1) Open-Circuit Voltage	Measure with DC Voltage meter	≥3.0V
(2) Minimal Rated Capacity	Discharge to 1.5V 20mA	Discharge Capacity ≥1500mAh
(3) Quickly Discharge Capacity	Discharge to 1.5V 500mA	Discharge Capacity ≥1200mAh

2.6. Temperature Dependence of discharge capacity

Cells shall be discharged per 2.3 and discharged @20mA to 1.5 V. Except to be discharged at temperatures per Table 3. Cells shall be stored for 3 hours at the test temperature prior to discharging and then shall be discharged at the test temperature. The capacity of a cell at each temperature shall be compared to the capacity achieved at 23±2℃ and the percentage shall be calculated. Each cell shall meet or exceed the requirements of Table 3.

Table 3

Discharge Temperature	-40℃	0℃	23±2℃	50℃	65℃
Discharge to 1.5V 20mA	45%	60%	100%	95%	90%

3. Mechanical characteristics and Safety Test

Table 4

No.	Items	Test Method and Condition	Criteria
1	Vibration Test	Fixed the cell to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between10Hz and 55Hz, the excursion of the vibration is 1.6mm. The cell shall be vibrated for 30minutes per axis of XYZ axes.	No leakage No weight loss No short circuit No Fire No explosion
2	Altitude Simulation Test	The batteries should be stored at the pressure of 11.6Kpa or less for at least six hours at ambient temperature 23±2℃.	No leakage No weight loss No short circuit No Fire No explosion

3	Short test (25+5℃)	The fully charged battery is to be short-circuited by connecting the positive and negative terminals of the battery with resistance load does not exceed 100mQ. Tests are to be conducted at room temperature 25+5℃	No Fire No explosion Surface temperature does not exceed 150 ℃
4	Impact	A 56mm diameter bar is inlayed into the bottom of a10kg weight. And the weight is to be dropped from a height of 1m on to a sample battery and then the bar will be across the center of the sample.	No leakage No short circuit No Fire No explosion
5	Free fall	Fresh batteries; Height: 1.2m, 6 times; Each direction two times; Concrete floor.	No leakage No short circuit No Fire No explosion
6	Over discharge	Complete discharge battery, connected in series with two fresh cells and resistor load of 3 ohm for 36h or cell temperature returned to ambient.	No Fire No explosion

4. Environment requirement

4.1. The product does not contain controlled substances of level 1.

5. Producing standard and certification

5.1. The batteries are produced according with the IEC standard.

6. Transportation

6.1. The Batteries should be stored away from solarization, fire, rain, water, and never put together with corrosive during transportation.

6.2. Vibration and shock during transportation and load-and-unload should be restrict to a minimum level.

6.3. The height should not exceed 1.5m for cardboard packages.

6.4. The batteries if transported by sea should be stored away from ship engines during prolonged transit and not left for long periods in unventilated environment during summer.

7. Information and Safety

7.1. Danger

7.1.1. Do not overheat batteries or dispose of batteries in fire.

7.1.2. Do not put batteries together with metalwork such as necklace, coins, etc. in one bag, or store them together.

7.1.3. Do not short-circuit batteries.

7.1.4. Do not inset batteries in reverse. Observe the + and – markings on battery and equipment.

7.1.5. Do not disassemble batteries.

7.1.6. Do not weld or solder directly to batteries.

7.1.7. Do not use deformed batteries or batteries with serious scar.

7.1.8. Do not throw the battery onto the ground or wall.

7.1.9. Read the guide carefully before using batteries. Unsuitable operation will make batteries overheat, fire, explode, destroy or reduce battery's capacity.

7.2. Warning

7.2.1. Do not place the battery in heater, washer or high-pressure container.

7.2.2. Do not use battery together with different kind of or different type battery.

7.2.3. Stop using when battery becomes hot, emits smell, or appears other abnormality during use or storing.

7.2.4. Do not recharge battery.

7.2.5. Do not force-discharge the battery.

7.2.6. Keep away from the battery when the battery is leaking or emitting abnormal smell.

7.2.7. Wash yourself quickly when electrolyte infiltrate to your skin or clothes.

7.2.8. Wash your eyes by clean water quickly and go to hospital for further check if the electrolyte infiltrate to your eyes.

7.2.9. If two or more batteries are to be connected in a series and / or placed in parallel arrangement, protective circuit must be connected with batteries, so that to avoid force-discharging or recharging.

7.3. Caution

7.3.1. Read the guide carefully and pay attention to the guide when using the battery.

7.3.2. Read the instrument guide carefully before installing the battery or uninstalling the battery from the instrument.

7.3.3. Take out the battery from the instrument if the on-load voltage of battery is less than 2V.

7.3.4. Take out the battery and keep it under the condition of normal temperature and low humidity when the battery is not used in a long time.

7.3.5. Clean the battery with dry cloth before use if the connection of the battery is dirty.

8. Storage

8.1. The batteries should be stored at 10℃~25℃ (never exceed 30℃), 45%~75%RH.

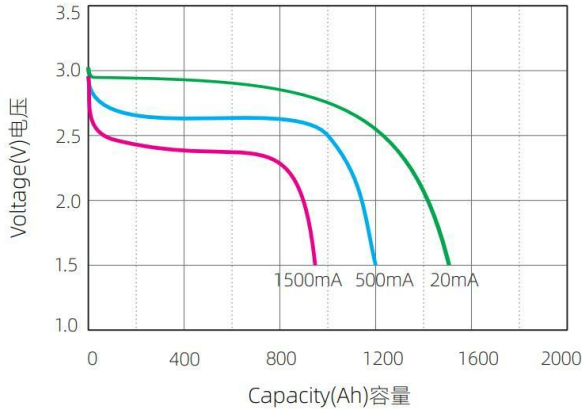
8.2. The batteries should not be stored next to heat sources nor in direct sunlight. The storage area should be clean, cool, dry, ventilated and weatherproof.

8.3. The height to which batteries may be stacked is clearly dependent on the strength of the packaging. As a general rule, this height should not exceed 1.5m for cardboard packages nor 3m for wooden cases.

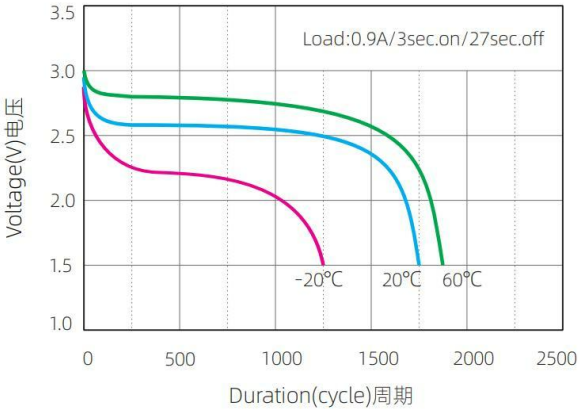
8.4. Store and display batteries in their original package. The batteries may be short-circuited or damaged if been unpacked and stacked mussily.

9. Diagrams

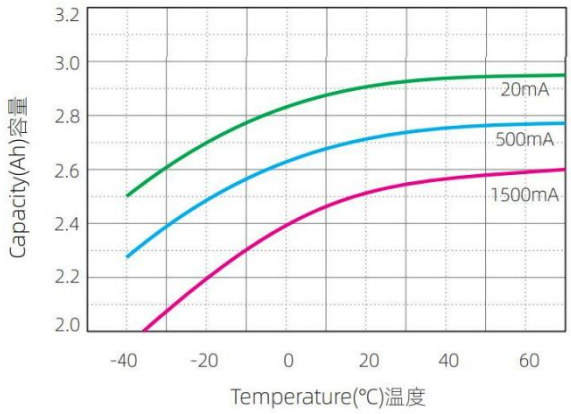
Constant Current Discharge 恒流放电（25℃）



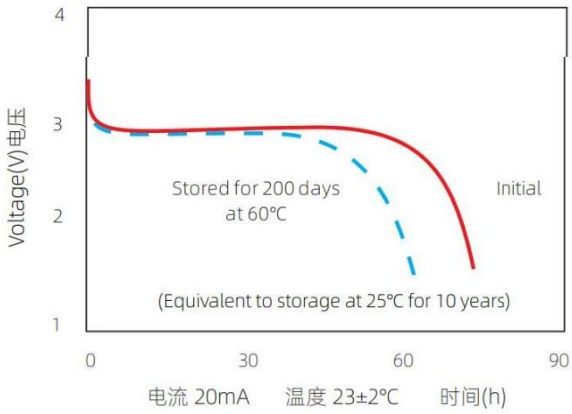
Pulse Discharge 脉冲放电



Voltage vs Temperature 电压vs温度



Storage characteristics 存储特性



10. Battery Dimensions

