Specification

Customer	
Product	3V Li-MnO2 battery
Model	CR2354
P/N	
Approval	

Brand	MaKumi	Origin	SHENZHEN
Sales manager		Sample date	
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Design by		Check by	
Design date	2023/03/07	Version	1.0

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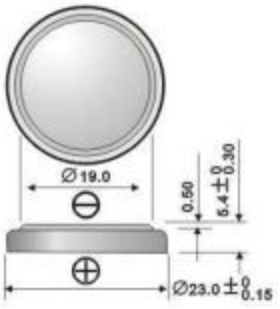
1. Product name and applicable range

This specification is applicable to the following product: 3V Coin type manganese lithium battery CR2354

The applicable range of CR2354 are mainly used in: RTC clock circuit, RFID tags, Led products and etc.

2. Dimensions

diameter(mm)	D1	Φ23(-0. 15)
	D2	Φ19.0(-0.2)
height(mm)	H1	5.4(-0.3)
	H2	0.5
weight(g)	6.3±0. 1	



3. Nominal specification and Characteristics

Item		technical parameters	Conditions
Nominal voltage		3.0 V	apply to all CR batteries
Nominal capacity		550mAh	Continuous discharge with load 15kΩ, till 2.0v end-voltage at 20~25℃
Instantaneous short–circuit current		≥300mA	Time≤0.5′
open-circuit voltage		≥3.20V	No load test
Storage temperature		20-30℃	apply to all CR batteries
Operate temperature		-20-60℃	apply to all CR batteries
Self-discharge rate		≤5% / year	annual mean
Fast test life	New cell	≥550hrs	load 7.5kΩ, till 2.0v end-voltage at 20~25℃, humidity≤75%
	12 M.	≥525hrs	
Comments 1:the product standard on electrical chemistry system and dimension is set according to IEC6008-1:2007(i.e.GB/T8897.1-2008 Primary cell, Chapter 1, Profile).。			

4. Performance test

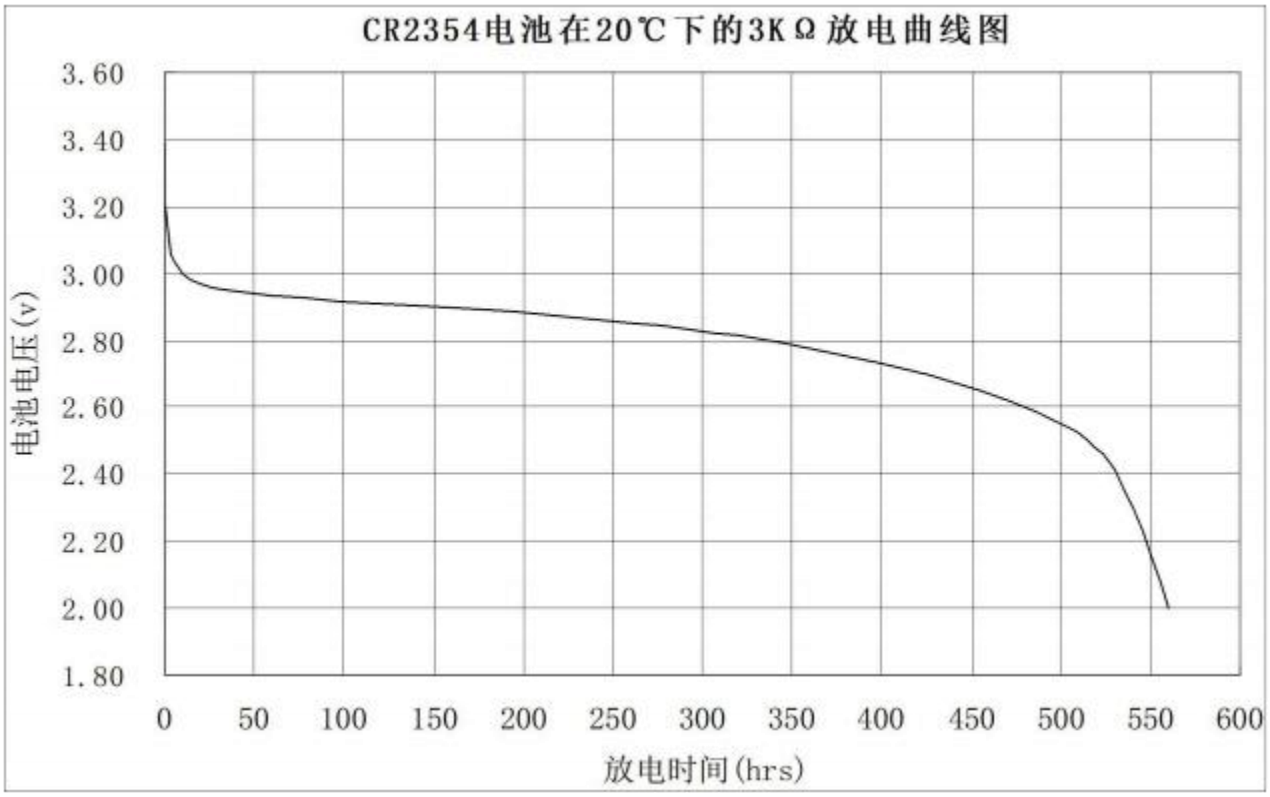
Item	Test method	Standard
1. dimension	With vernier caliper(tolerance≤0.02 ㎜) test, paste on the surface of the caliper contact insulation materials, don't short circuit.	Diameter（㎜）：23（-0.2） height（㎜）：5.4（-0. 15）
2. open-circuit voltage	With multimeter or voltmeter	≥3.20V
3. Short-circuit current	With multimeter or amperemeter, ， test time not more than 0.5 second, must avoid repeating test, test interval shall be more than 0.5 hours.	≥300mA
4. appearance	visual inspection	Clean, clear and correct mark，no rusting, no leakage
5. Fast test capacity	at 20~25℃ ， humidity≤75%,with load 7.5kΩ ， till 2.0v end-voltage	≥550 hrs
6. vibration test	vibration 1 hours on a vibration mac hine ,with frequency is 100 to 150 ti mes/min	stable performance
7. high temperat ure test	Store 30days at 45±2℃	No leakage
8. overdischarge test	Continuously discharge with 1K load for 5 hours while the voltage get to 2.0V	No leakage
Comments 2: The dimension and performance standard is set according to IEC 60086-2:2007(i.e GB/T 8897.2-2008, Primary cell, Chapter 2: Dimension and technical requirement)		

5. safety test

Experimental project		Project name	Test condition	Standard
The test of the the expected use	A	Altitude simulation	battery under the condition of pressure is less than 1 1.6 kPa at least 6 hours.	According to the (i. According to IE/GB/T 8897 .4-2008 , Primary cell , Chapter 4 : Safety requirement on lithium cell)
	B	heat Shock	Battery under the change condition from – 40 to +75 ℃ for 12 hours,and repeated 10 cycles	
	C	vibration	Test the battery in accordance with the requirements of standard sine wave of vibration. In three perpendicular fixed bearing for 12 cycles each azimuth, the cycle time of each bearing a total of 3 hours.	
	D	shock	Tested the battery in three perpendicular fixed position of each azimuth through three times, a total of 18 times.	
The expected error use test	E	short circuit	When the battery in 55 ℃ environment and reaching the temperature balance. The total resistance should be less than 0. 1 / Ω for short circuit to the shell temperature dropped to 55 ℃ for at least another short circuit after 1 hour.Continue to observe 6 hours.	
	F	strike	Put a 9. 1 ㎏ weight object free fall to strike the battery on a steel rod (diameter 15.8mm) from 610 + 25 ㎜ altitude	
	G	extrusion	Make pressure on the battery, with the initial speed until 1.5 ㎝ / SEC,and power to 13 kn,then release pressure immediately	
	H	forced discharge	Connect the battery with 12 v DC power supply series,make the battery orced discharged after the discharge current reached the maximum	
	I	abnormally charge	Connect the battery with a DC power supply with the cells reversed, withstand 3C(regulated by manufacturer) charging current	
	J	naturaldrop	The battery from 1m and drop to concrete surface,continue 6 times, placed observation in an hour.	
	K	high temperature	put the battery in oven, control the temperature rose to 130 ℃ at a speed of 5 ℃ / min, and heat preservation 10 mins.	
	L	improper installation	A reverse connection with three battery. Circuit resistance is less than 0. 1 Ω .	

	M	overdischarge	discharge a battery with 50% depth and in series connection with three qualified batteries.	
Comments 3 : The safety performance standard is set according to IEC 60086-4:2007(i.e GB/T8897.4-2008, Primary cell, Chapter 4: Safety requirement on lithium cell)				

6. Discharge characteristic



7. Material description and MSDS

ITEM	ELEMENT
Anode	Manganese Dioxide Powder
	Colloid Graphite Powder
Cathode	Lithium slice
Electrolyte	Ethylene Glycol Dimethyl Ether
	Propylene Carbonate
	Lithium Perchloride
Rind	Stainless steel shell

others	Fiberglass Septum, Acetylene Black

Attchment 1 : MAKUMI CR batteries MSDS

8. Environmental management and safety reports

This product comply with the EU RoHS directive and international/national related laws and regulations, has passed RoHS testing from SGS, and also pass UN38.3.

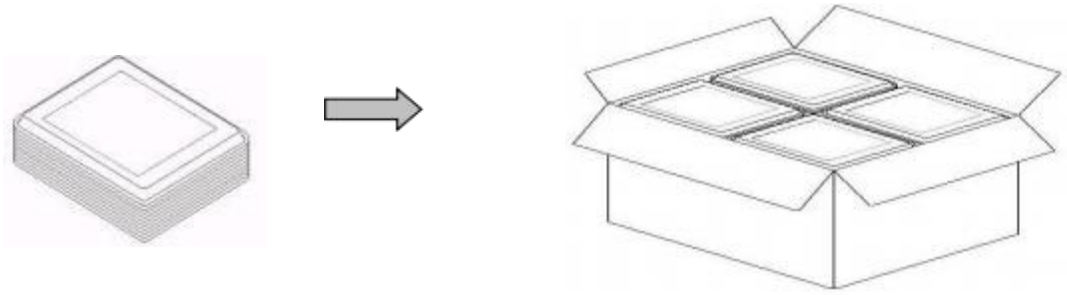
Attchment 2 : CR batteries ROHS test report.

9. Packaging specification

PART NAME	3V Button cell	MODEL	CR2354

1. packing diagram





2.packing SOP:

1)20PCS batteries in a tray.

2). 100PCS in a hyaline PE bag.

3).24 bags(2400pcs) in a carton.

4). Packing the carton and delivery to clients.

3.carton packing details.

Unit weight：6.3g /PCS	Quantity ：2400PCS
Size: 34.5*28.5*21.0 cm；；	G.W .: 17KG/Ctn

10. battery holder

Please download the specification of battery holder on our official site: http://www.makumi.cn .

11. battery with pins

We supply the battery with tin-plated solder pins ,we can produce kinds of pins according to your design, please download the drawing of tagged battery with pins on our official site: http://www.makumi.cn .

12. Cautions

1)、Read the instructions on your device before installing batteries. Only use the size and type of battery specified in the instructions.

2)、Keep the contact point or surface clean .Check the contact point or surface to prevent the short circuit of the battery

3)、Insert the batteries properly. Follow the symbols showing the correct way to position the positive (+) and negative (-) ends of the batteries.

4)、Don't mix old and new batteries, or mix different types or makes of batteries.

5)、Don't heat,charge,crush, puncture, or otherwise damage batteries, This can result in leakage or rupture.

6)、Don't dispose of batteries in a fire — they may leak or rupture

7)、Don't dispose of batteries in water.

8)、Don't stack batteries.

9)、Don't disassemble the battery.

10)、Keep in a dry and cool place. Storage at place with high temperature(over +60'C)or low temperature(under -20'C) or place with humidity over 75% will lead to the capacity loss , derated electric performance and also safety problem.

11)、Keep away from the strong acid, alkali, oxide, and other corrosive materials.

12)、Keep batteries out of reach of children.

13)、Pay attention to the expire date of the battery.

14)、Do not dispose of used battery in natural environment ,like river ,lake, sea and land .Do not bury the used in battery the soil .

13. Handling instruction for emergency

1)、If short circuit, disconnect the wire or other conductor with the battery

2)、If installed battery with wrong direction, take out battery and follow the symbols showing the correct way to position the positive (+) and negative (-) ends of the batteries.

3)、If your skin get contact with the electrolyte, wash with water immediately.

4)、If bare batteries stacked (especially with very large quantity), which may generate heat, or even explosion, please separate them immediately.

5)、If swallowed, contact a physician immediately.

6)、If fire or explosion happened, cover them with sand or soil to put out the fire . Dry powder fire extinguisher can be used to put out the fire. Do not use water .

7)、Avoid inhaling the irritative gas, which generated by the fire or explosion of battery .Clothes, towel or cotton material can be used to prevent inhaling, wet clothes or towel will be better. If inhaled the irritative gas ,please contact a physician.

14. Others

With product technology updates, the specification will be updated, please visit our w

ebsite for the latest information, or contact with us to get the latest version of the s pecification.

Website: http://www.makumi.cn

Service hotline 400-0505-618