

SWY 21700 5.0Ah 5C Product Performance Introduction

Shineway

浙江深伟业科技有限公司



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Parameter Overview

Type			SWY 21700 5.0Ah 5C	
●	Capacity@0.2C	Nominal	5000	mAh
●		Minimum	4900	mAh
●	AC.IR	Typical	12	mΩ
●	Nominal Voltage	0.2C	3.6	V
●	Voltage Range	Charge	4.2	V
●		Discharge	2.5	V
●	Charge Current	Standard	2.5	A
		Rapid	5.0	A
●	Temperature Condition (Cell Surface)	Charge	0~50	°C
		Discharge	-20~80	°C
●	Discharge Current	Standard	2.5	A
		Max. Continuous	25	A
●	Cycle	2.5A/25A(2.5-4.2V)	60%@300	cycles
●	Weight	Typical	66	g
●	GED	0.2C	265	Wh/kg
●	ED	0.2C	707	Wh/L

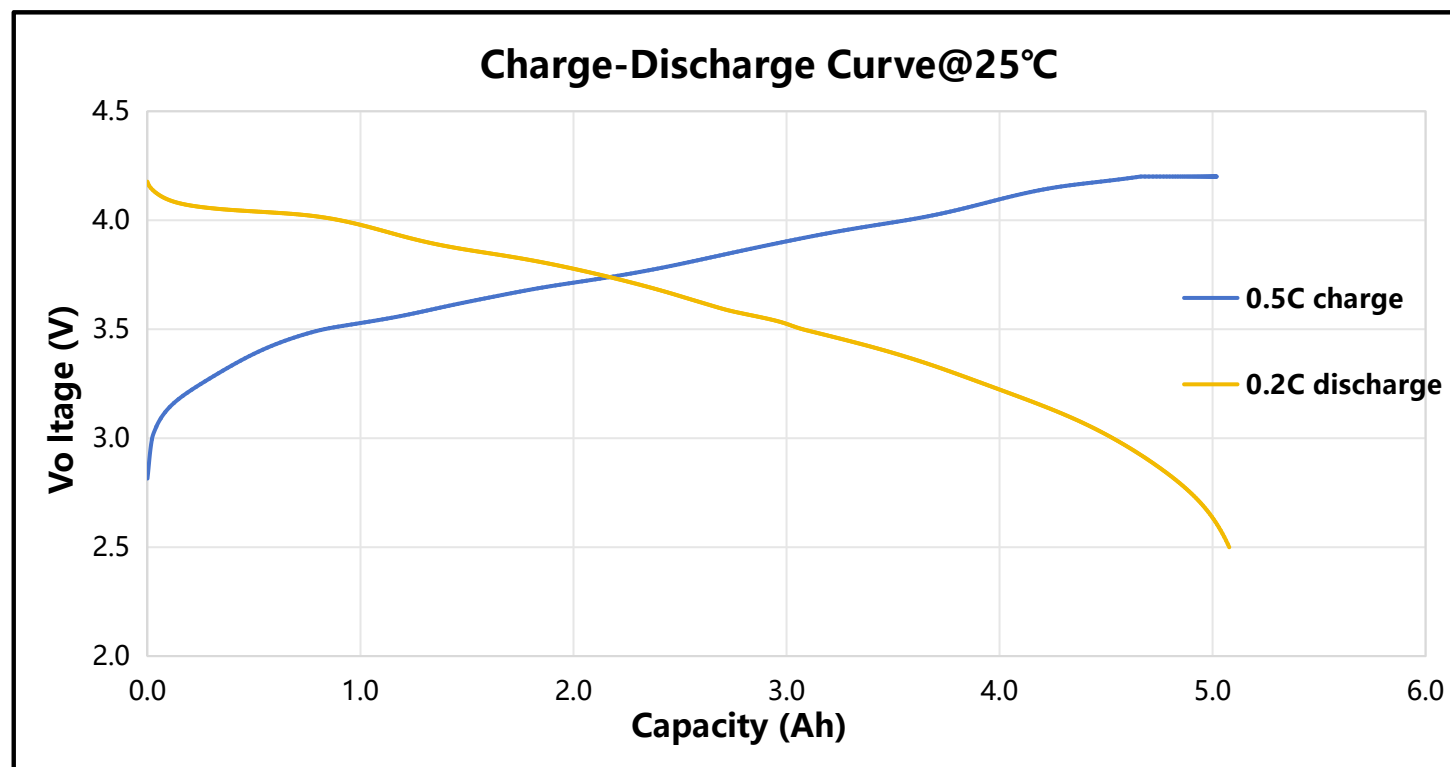
02

Electrical performance

Capacity@0.2C

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.02C

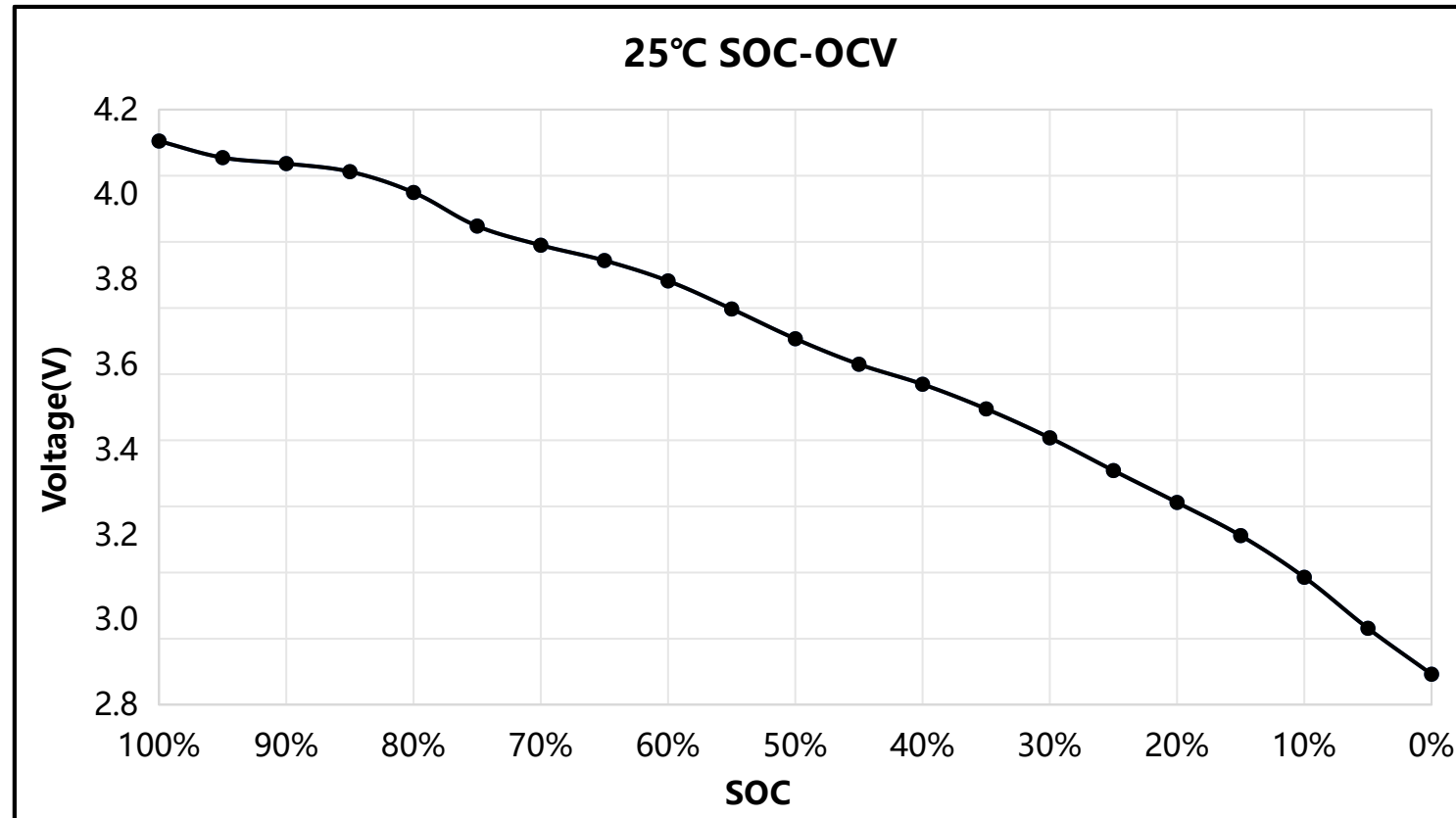
Discharge: CC(0.2C) to 2.5V



Discharge SOC-OCV @25°C

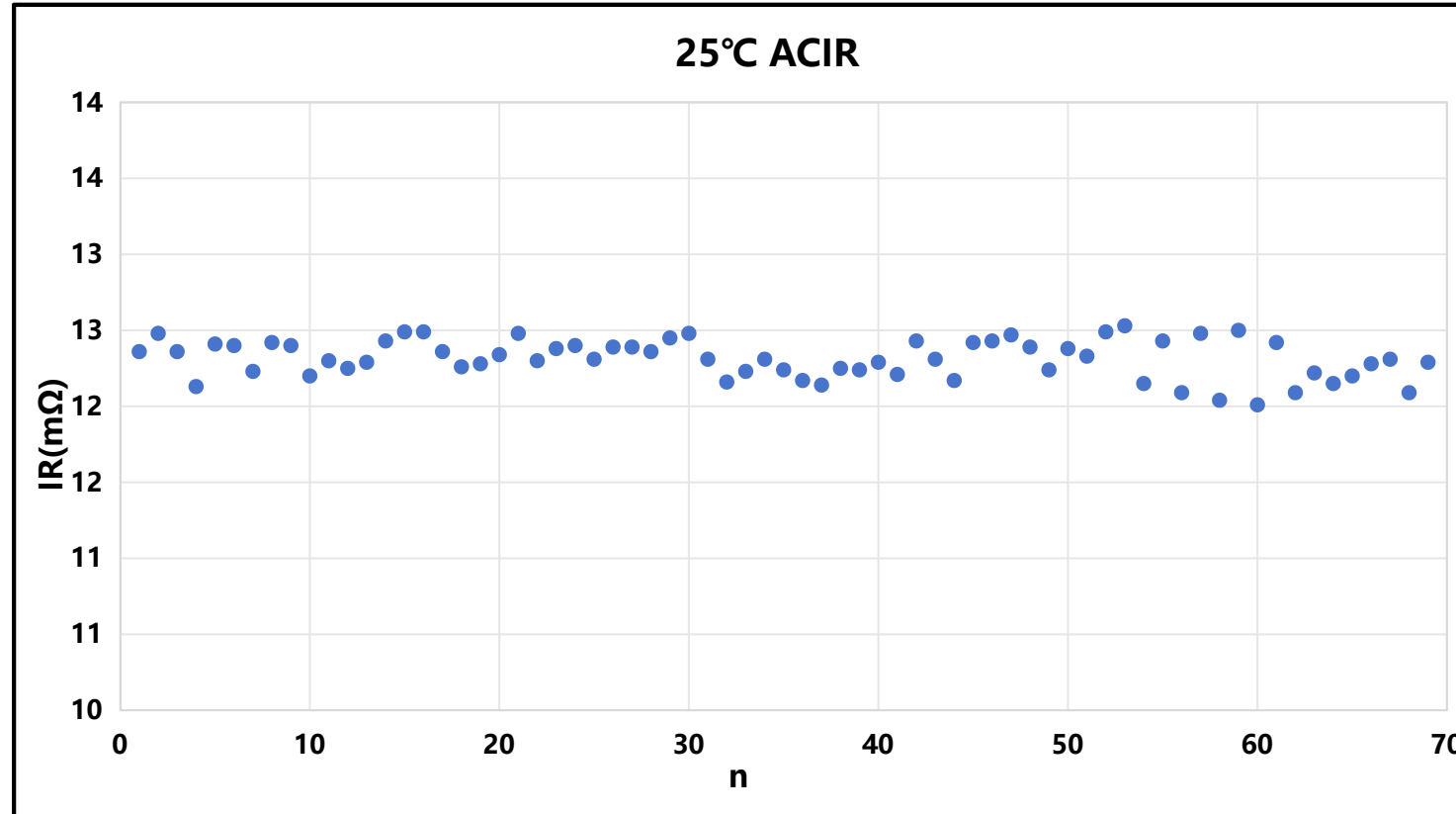
Charge: CC(0.2C) to 4.2V, CV(4.2V) to 0.02C @ 25°C

Discharge: CC(0.2C) 5 % capacity@ 25°C, rest for 24h and take OCV, until voltage $\leq 2.5V$



ACIR@25°C

ACIR at 25°C: 1kHz

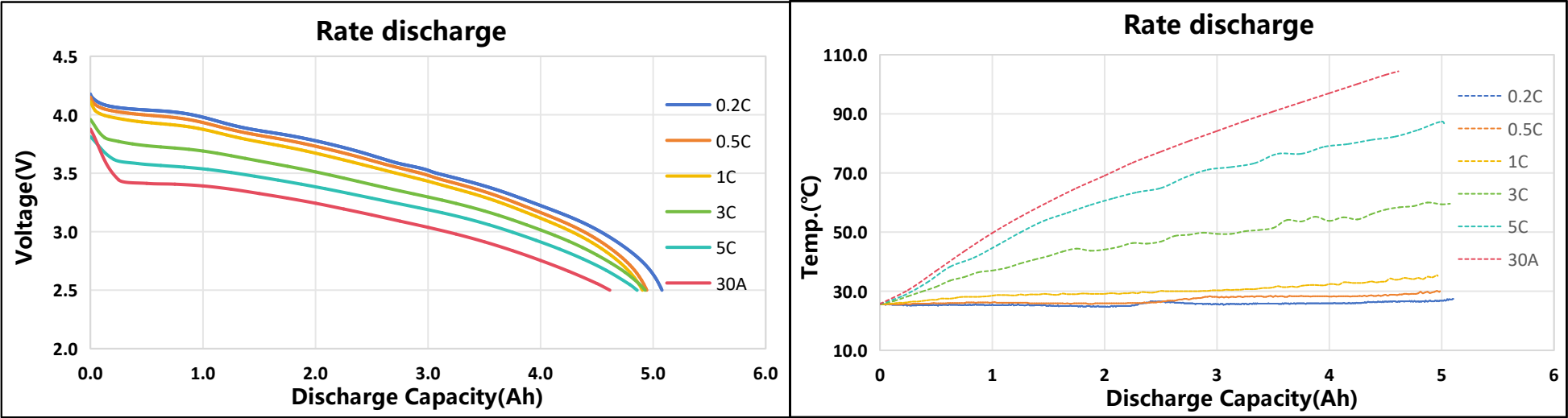


● Rate Discharge

Rate Discharge @25°C

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.02C

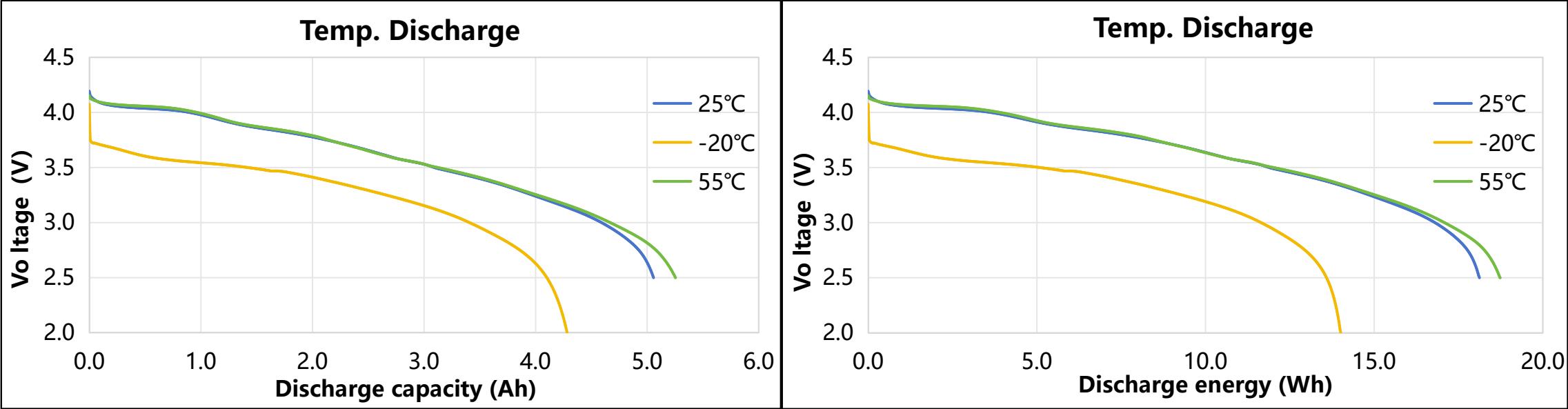
Discharge: CC(0.2C/0.5C/1C/3C/5C/30A) to 2.5V



Rate Discharge						
Item	0.2C	0.5C	1C	3C	5C	30A
Discharge Capacity (Ah)	5.078	4.943	4.905	4.929	4.857	4.615
Discharge Capacity (%)	102.7%	100%	99.2%	99.7%	98.3%	93.4%
Discharge Energy (Wh)	18.14	17.53	17.16	16.53	15.75	13.15
Max.Surface Temp. (°C)	27.4	30.1	35.4	60.0	87.4	104.4
Temp. Raise (°C)	2.7	4.6	9.8	34.4	61.7	78.7

Different Temp. Discharge @ 0.2C

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.02C @ 25°C
Discharge: CC(0.2C) to 2.5V @ (25°C/55°C), CC(0.2C) to 2.0V @ (-20°C)



Different Temp. Discharge			
Temperature (°C)	25°C	55°C	-20°C
Discharge Capacity (Ah)	5.057	5.254	4.282
Discharge Capacity (%)	100%	103.9%	84.7%
Discharge Energy (Wh)	18.12	18.74	14.01
Discharge Energy (%)	100%	103.4%	77.3%

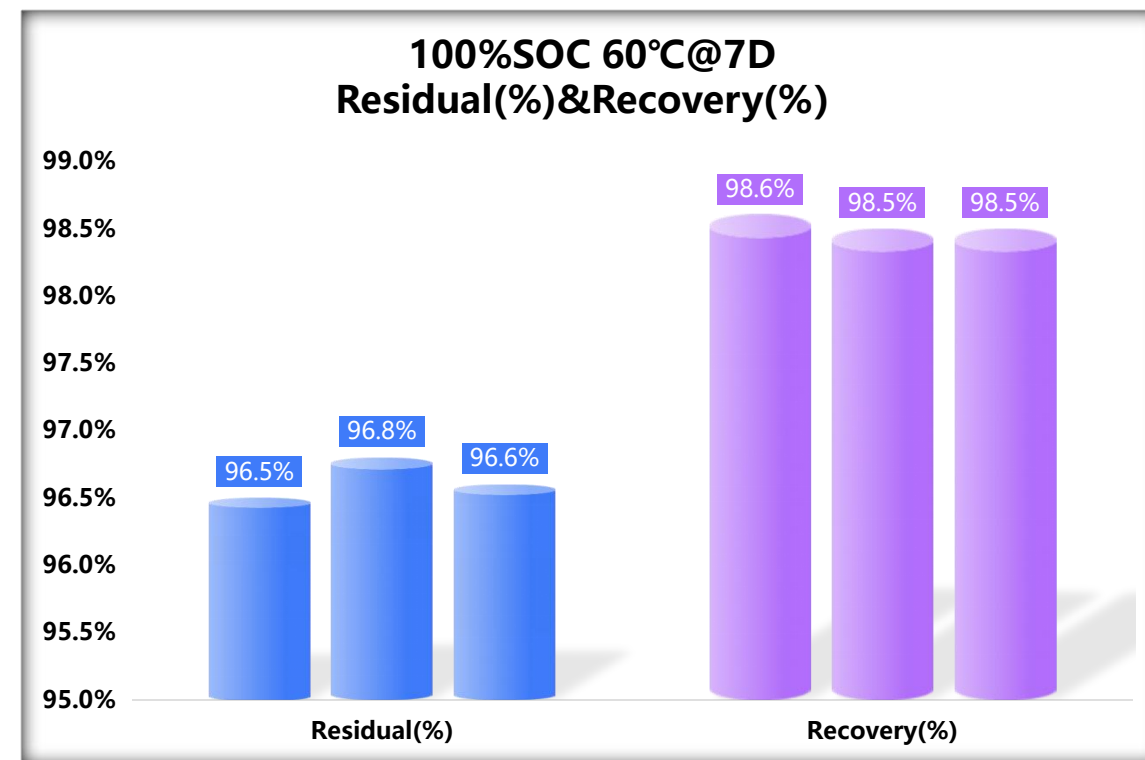
60°C Storage (100%SOC)

Charged at standard charge method, store the testing cells at 60±2°C for 7 days.

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.02C

Discharge: CC(0.5C) to 2.5V

Item		1#	2#	3#
Before	IR(mΩ)	12.0	12.0	12.0
	Voltage(V)	4.175	4.175	4.174
	Capacity(Ah)	5.025	5.040	5.029
After	IR(mΩ)	12.3	12.3	12.6
	Voltage(V)	4.116	4.114	4.115
	Residual(Ah)	4.849	4.879	4.858
	Recovery(Ah)	4.955	4.964	4.954
Residual(%)		96.5%	96.8%	96.6%
Recovery(%)		98.6%	98.5%	98.5%



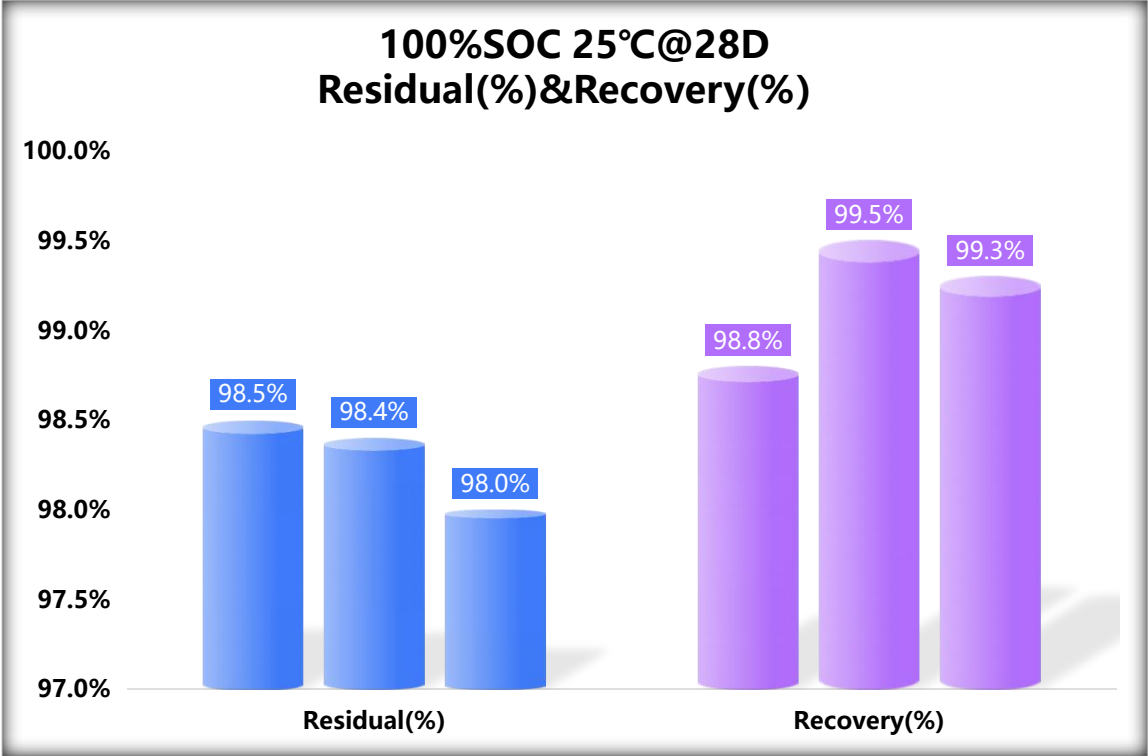
25°C Storage (100%SOC)

Charged at standard charge method, store the testing cells at 25±2°C for 28 days.

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.02C

Discharge: CC(0.5C) to 2.5V

Item		1#	2#	3#
Before	IR(mΩ)	12.0	12.0	12.0
	Voltage(V)	4.176	4.178	4.175
	Capacity(Ah)	4.985	5.021	4.974
After	IR(mΩ)	12.1	12.2	12.1
	Voltage(V)	4.101	4.106	4.102
	Residual(Ah)	4.910	4.941	4.875
	Recovery(Ah)	4.925	4.996	4.939
Residual(%)		98.5%	98.4%	98.0%
Recovery(%)		98.8%	99.5%	99.3%



85°C Storage (100%SOC)

Charged at standard charge method, store the testing cells at 85±2°C for 3 days.

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.02C

NO.	Before		After		$\Delta IR(m\Omega)$	$\Delta V(V)$
	IR(m Ω)	Voltage(V)	IR(m Ω)	Voltage(V)		
1#	12.0	4.171	13.3	4.082	1.3	0.089
2#	12.0	4.173	13.4	4.083	1.4	0.090
3#	12.0	4.171	13.5	4.082	1.5	0.089
4#	12.1	4.172	13.6	4.083	1.5	0.089
5#	11.9	4.172	13.5	4.080	1.6	0.092
6#	12.0	4.174	13.5	4.080	1.5	0.094
7#	12.0	4.175	13.6	4.082	1.6	0.093
8#	11.9	4.170	13.4	4.081	1.5	0.089
9#	12.1	4.174	13.6	4.084	1.5	0.090
10#	12.0	4.173	13.6	4.081	1.6	0.092

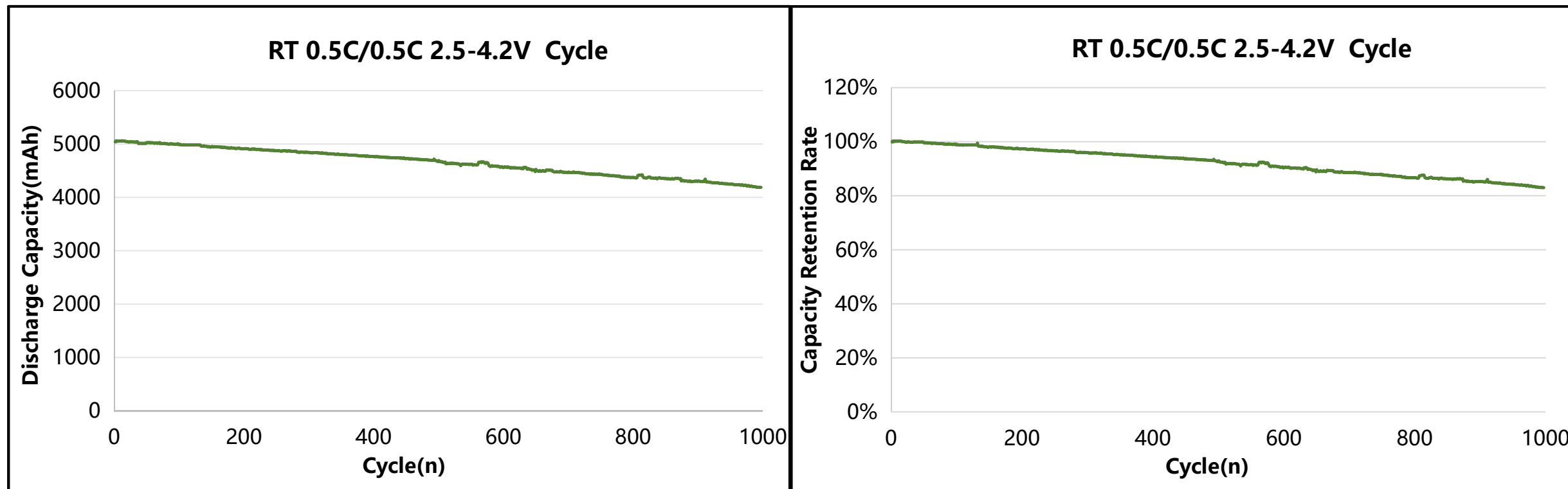
03

Cycle Test

a: Cell Cycle @ 25°C

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.05C

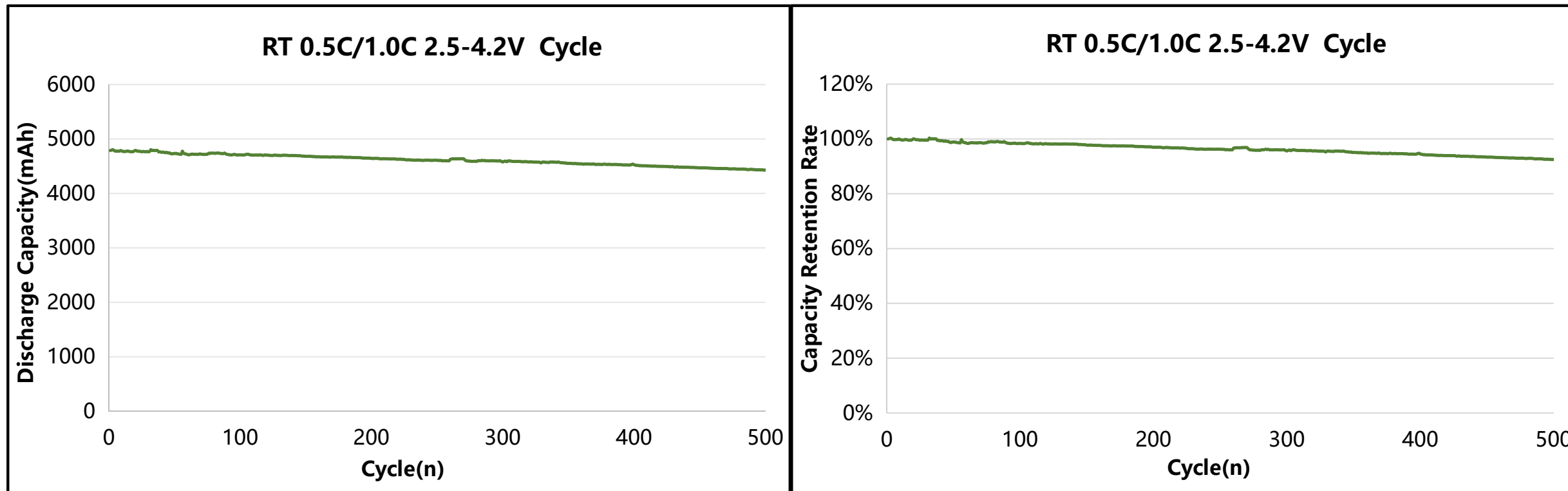
Discharge: CC(0.5C) to 2.5V



b: Cell Cycle @ 25°C

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.05C

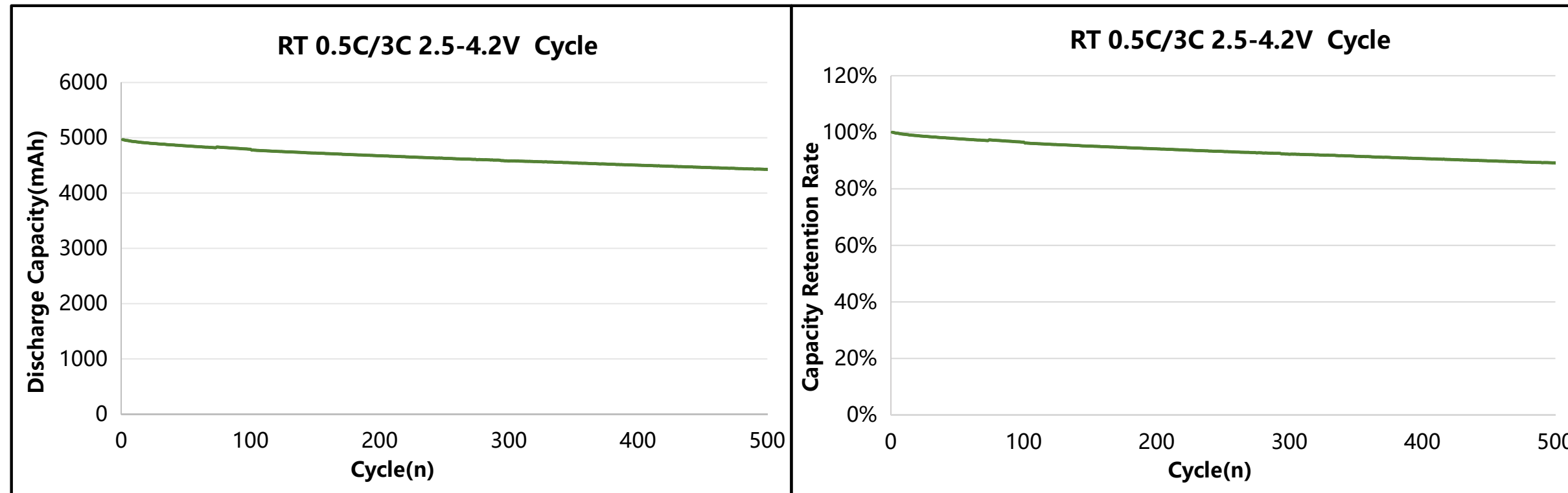
Discharge: CC(1.0C) to 2.5V



c: Cell Cycle @ 25°C

Charge: CC(0.5C) to 4.2V, CV(4.2V) to 0.02C

Discharge: CC(3.0C) to 2.5V



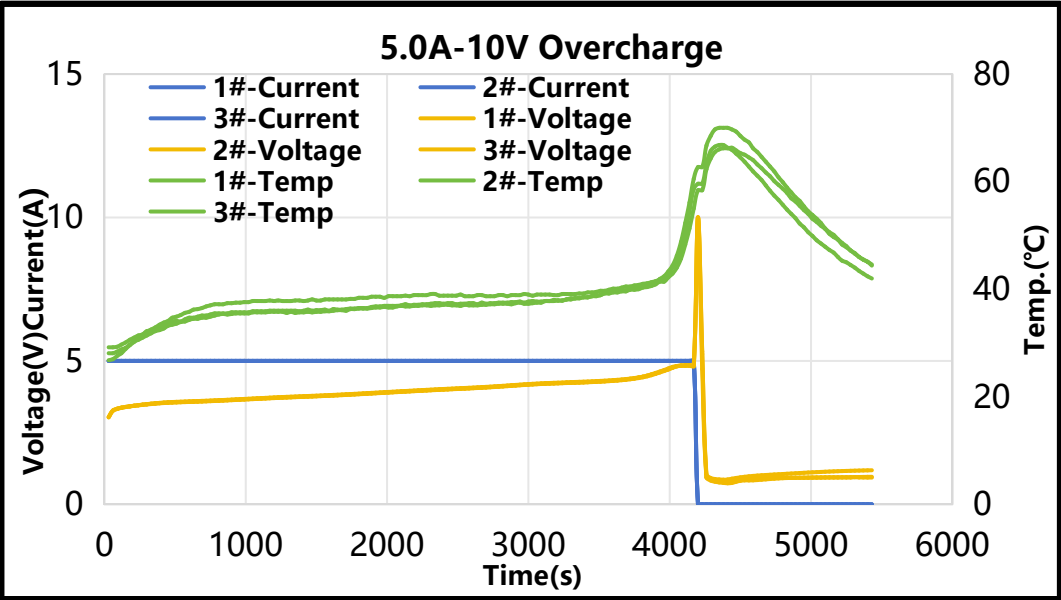
04

Safety Test

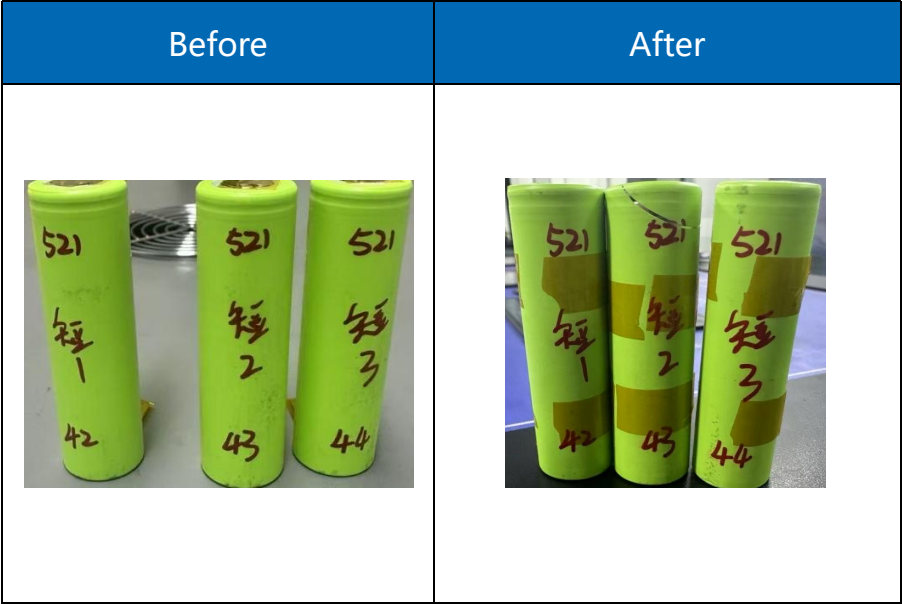
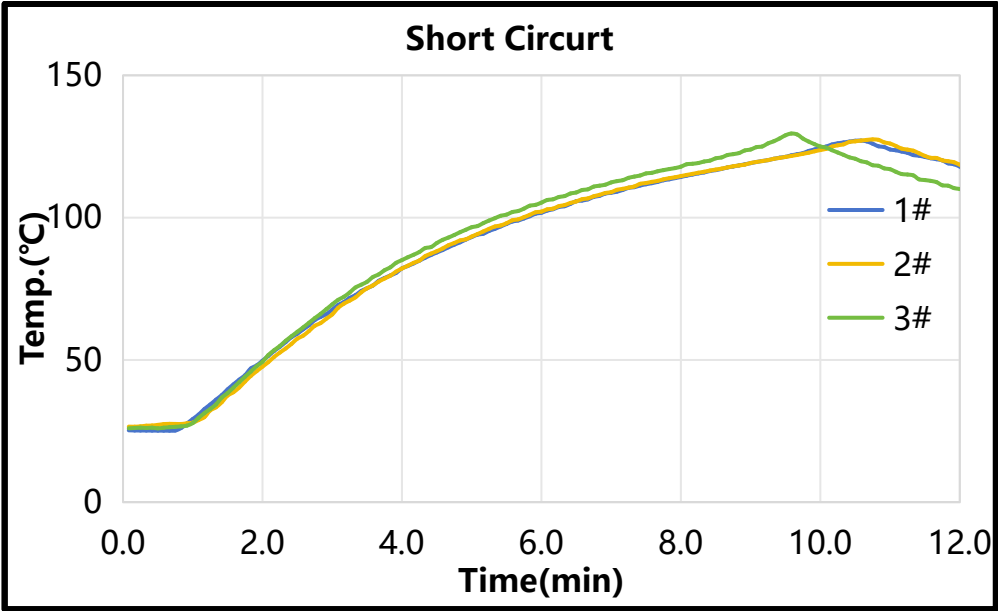
No.	Test Item	No.	Voltage Before Testing (V)	Max. Temp (°C)	Criterion	Result
1	1C 10V Over charge	1	2.962	70.0	No fire, No explosion	PASS
		2	2.960	66.3	No fire, No explosion	PASS
		3	2.964	66.8	No fire, No explosion	PASS
2	25°C 80mΩ Short Circuit	1	4.178	127.0	No fire, No explosion	PASS
		2	4.177	127.5	No fire, No explosion	PASS
		3	4.178	130.0	No fire, No explosion	PASS
3	130°C 30min Hot box	1	4.180	128.8	No fire, No explosion	PASS
		2	4.178	133.6	No fire, No explosion	PASS
		3	4.176	132.0	No fire, No explosion	PASS
4	Forced discharge	1	2.960	71.8	No fire, No explosion	PASS
		2	2.963	71.5	No fire, No explosion	PASS
		3	2.965	72.1	No fire, No explosion	PASS
5	Crush	1	4.175	24.7	No fire, No explosion	PASS
		2	4.172	25.1	No fire, No explosion	PASS
		3	4.173	25.2	No fire, No explosion	PASS
No.	Test Item	No.	Voltage Before Testing (V)	After Testing (V)	Criterion	Result
6	Free full	10 pcs	4.174-4.179	4.160-4.163	No fire, No explosion, No leakage	PASS

● Overcharge

Overcharge (1C 10V) Cell State: 0%SOC (CC(0.5C) to 2.5V)					
Test: Cell CC charge at 1C to 10V until voltage at 10V or the time of charge to 90min					
Criterion: No fire, No explosion					
No.	OCV/V	IR/mΩ	Max. Temp./°C	Result	Judgment
1	2.962	11.8	70.0	No fire, No explosion	PASS
2	2.960	11.7	66.3	No fire, No explosion	PASS
3	2.964	11.9	66.8	No fire, No explosion	PASS

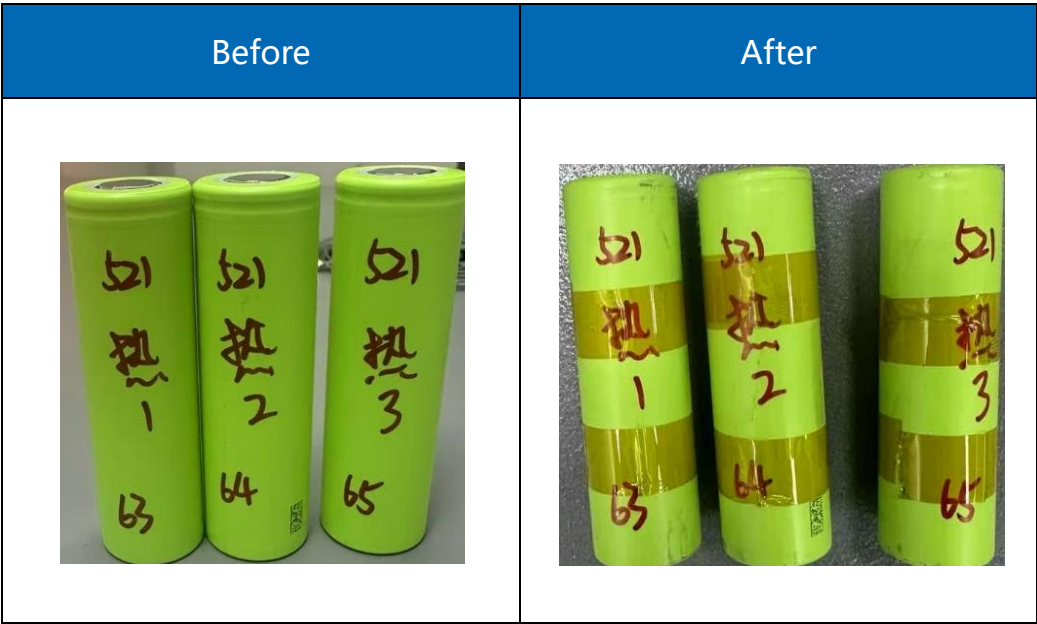
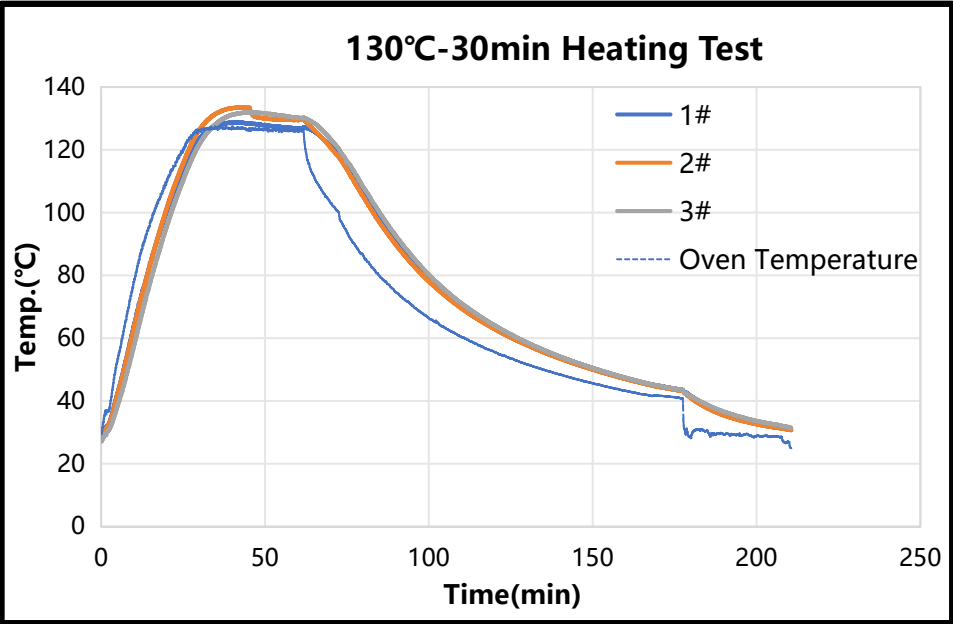


25°C 80mΩ Short Circuit Cell State: 100%SOC (CC(0.5C) to 4.2V , CV(4.2V) to 0.02C)					
Test: Cell is short-circuited with a wire of 80 mΩ at 25°C					
Criterion: No fire, No explosion					
No.	OCV/V	IR/mΩ	Max. Temp./°C	Result	Judgment
1	4.178	11.8	127.0	No fire, No explosion	PASS
2	4.177	12.0	127.5	No fire, No explosion	PASS
3	4.178	12.9	130.0	No fire, No explosion	PASS

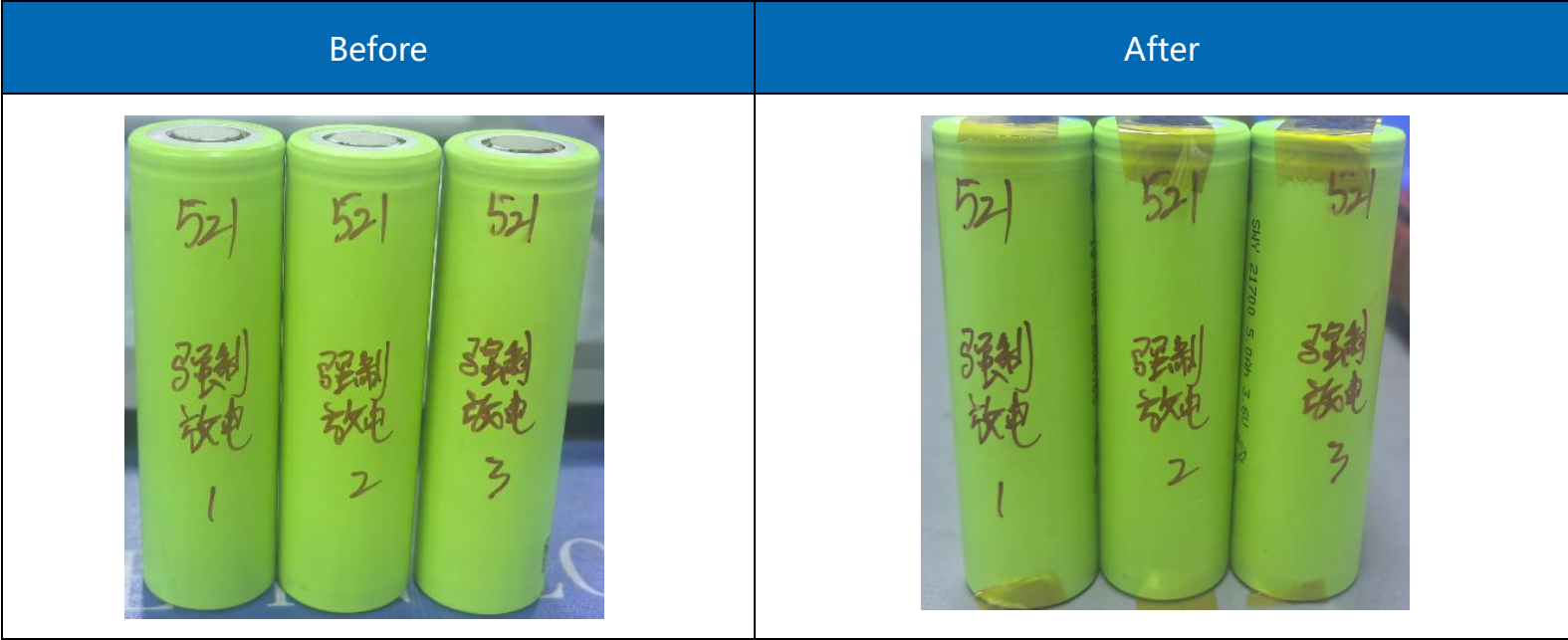


● 130°C Heating Test

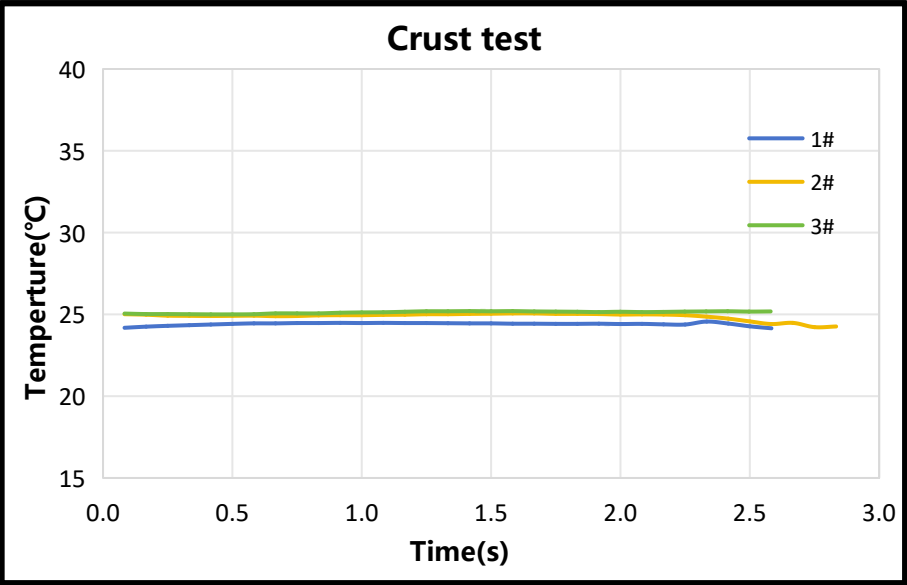
130°C Hot Box Cell State: 100%SOC (CC(0.5C) to 4.2V , CV(4.2V) to 0.02C)					
Test: Cell is heated to 130°C at a rate of 5°C/min and kept at 130°C for 30min					
Criterion: No fire, No explosion					
No.	OCV/V	IR/mΩ	Max. Temp./°C	Result	Judgment
1	4.180	11.9	128.8	No fire, No explosion	PASS
2	4.178	11.9	133.6	No fire, No explosion	PASS
3	4.176	11.8	132.0	No fire, No explosion	PASS



Forced discharge Cell State: 0%SOC (CC(0.2C) to 2.5V)						
Test: Reverse charge until the time of charge ≥90 min						
Criterion: No fire, No explosion						
No.	OCV/V	IR/mΩ	OCV ' /V	IR' /mΩ	Max. Temp./°C	Judgment
1	2.960	12.0	0	13.3	71.8	PASS
2	2.963	11.9	0	13.2	71.5	PASS
3	2.965	11.8	0	13.4	72.1	PASS



Crush Cell State: 100%SOC (CC(0.5C) to 4.2V , CV(4.2V) to 0.02C)					
Test: Cell is crushed between two flat surfaces till crushing force is approximately 13KN.					
Criterion: No fire, No explosion					
No.	OCV/V	IR/mΩ	Max. Temp./°C	Result	Judgment
1	4.175	12.1	24.7	No fire, No explosion	PASS
2	4.172	12.3	25.1	No fire, No explosion	PASS
3	4.173	12.2	25.2	No fire, No explosion	PASS



Crush Cell State: 100%SOC (CC(0.5C) to 4.2V , CV(4.2V) to 0.02C)				
Test: Drop the positive and negative terminals of the battery downward from a height of 1.0 meters onto the cement floor freely.				
Criterion: No fire, No explosion, No leakage				
No.	OCV/V	IR/mΩ	Result	Judgment
1	4.176	12.0	No fire, No explosion, No leakage	PASS
2	4.178	12.1	No fire, No explosion, No leakage	PASS
3	4.177	12.0	No fire, No explosion, No leakage	PASS
4	4.175	12.2	No fire, No explosion, No leakage	PASS
5	4.174	12.3	No fire, No explosion, No leakage	PASS
6	4.177	12.0	No fire, No explosion, No leakage	PASS
7	4.176	12.2	No fire, No explosion, No leakage	PASS
8	4.178	12.0	No fire, No explosion, No leakage	PASS
9	4.179	12.3	No fire, No explosion, No leakage	PASS
10	4.174	12.1	No fire, No explosion, No leakage	PASS

05

Certification

Certification	Status
BIS(IS 16046:2018)	Completed
CB IEC62133	Completed
CCC	Completed
CE	Completed
PSE	Completed
UL1642	Completed
UN38.3	Completed

The background of the slide features a large, stylized graphic of interlocking gears. The gears are composed of a grid of small dots, with some dots highlighted in a darker blue. The graphic is set against a solid blue background. The Shineway logo is positioned in the top left corner.

Shineway

To a great partnership!

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