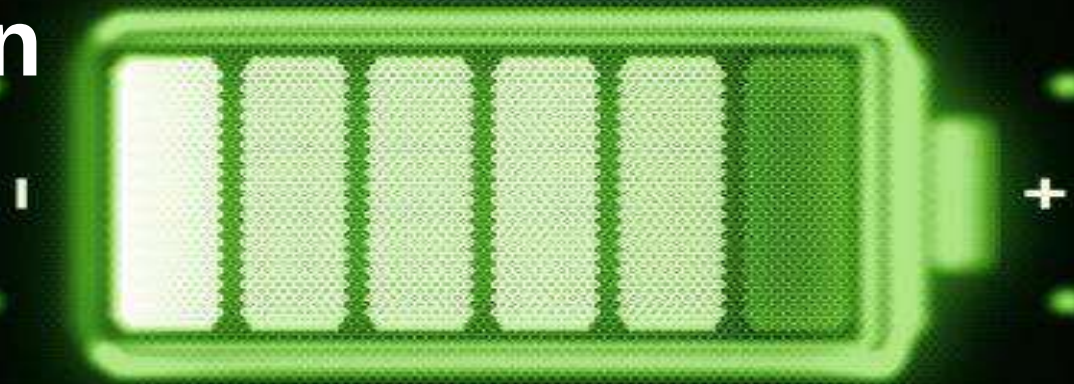


High Temp Lithium 14500R Cell

Technology Introduction



Content

- 1. Lithium 14500R Cell Spec
- 2. Reliability Test Results

1. Lithium 14500R Cell Spec

Model Name		14500R
Dimension	Diameter	14.2 ± 0.2 mm
	Height	48.9 ± 0.3 mm
Capacity	Minimum (0.2 C)	700 mAh
	Typical (0.2 C)	750 mAh
	Capacity (5C)	≈700 mAh
Typical voltage		3.60 V
Working Voltage		2.75 V - 4.20 V
Maximum continuous charge/discharge		1C / 5C
Cycle life (25 °C, 1 C / 1C)		> 500 cycles (70%)
-40 °C Capacity (0.2 C)		> 40%
85 °C 1000 hours aging		> 85% Recoverable capacity
Operating temperature*	Charge	-20~60 °C
	Discharge	-40~85 °C

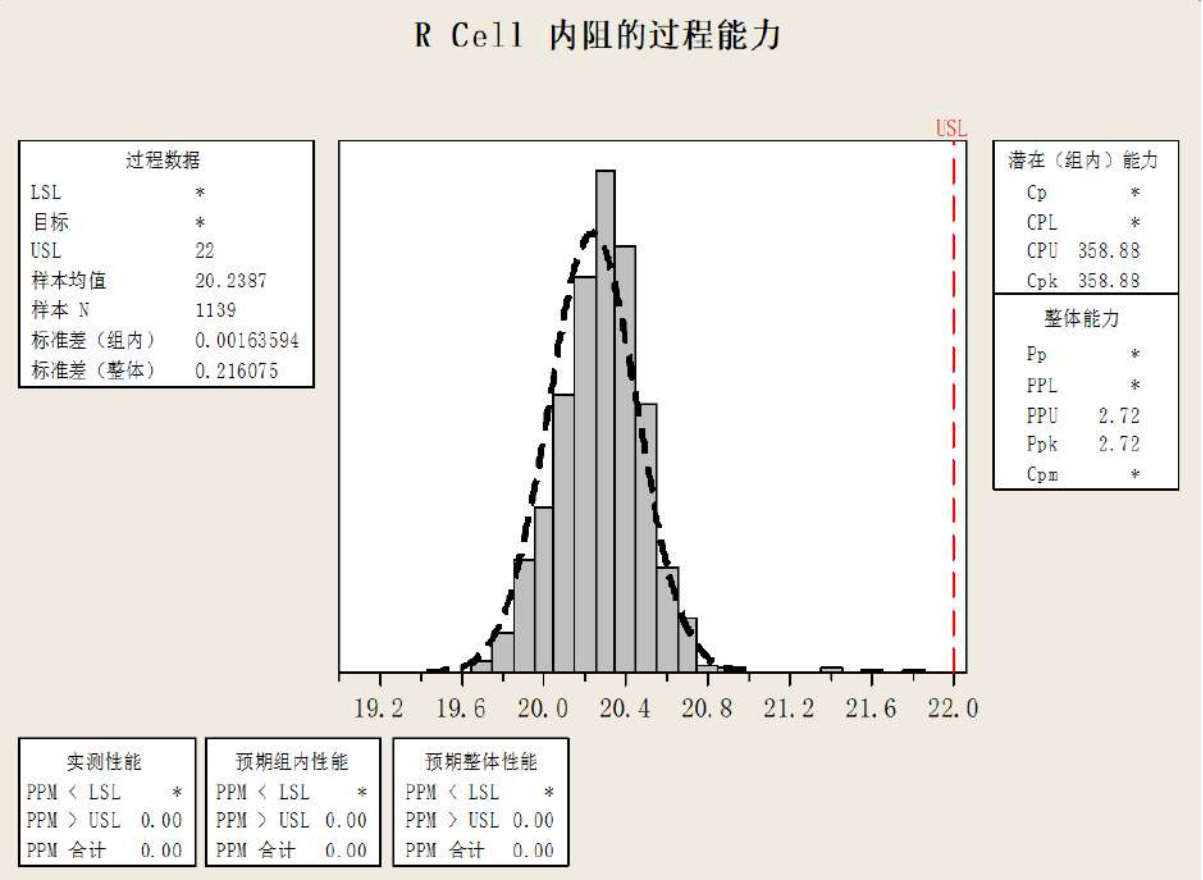
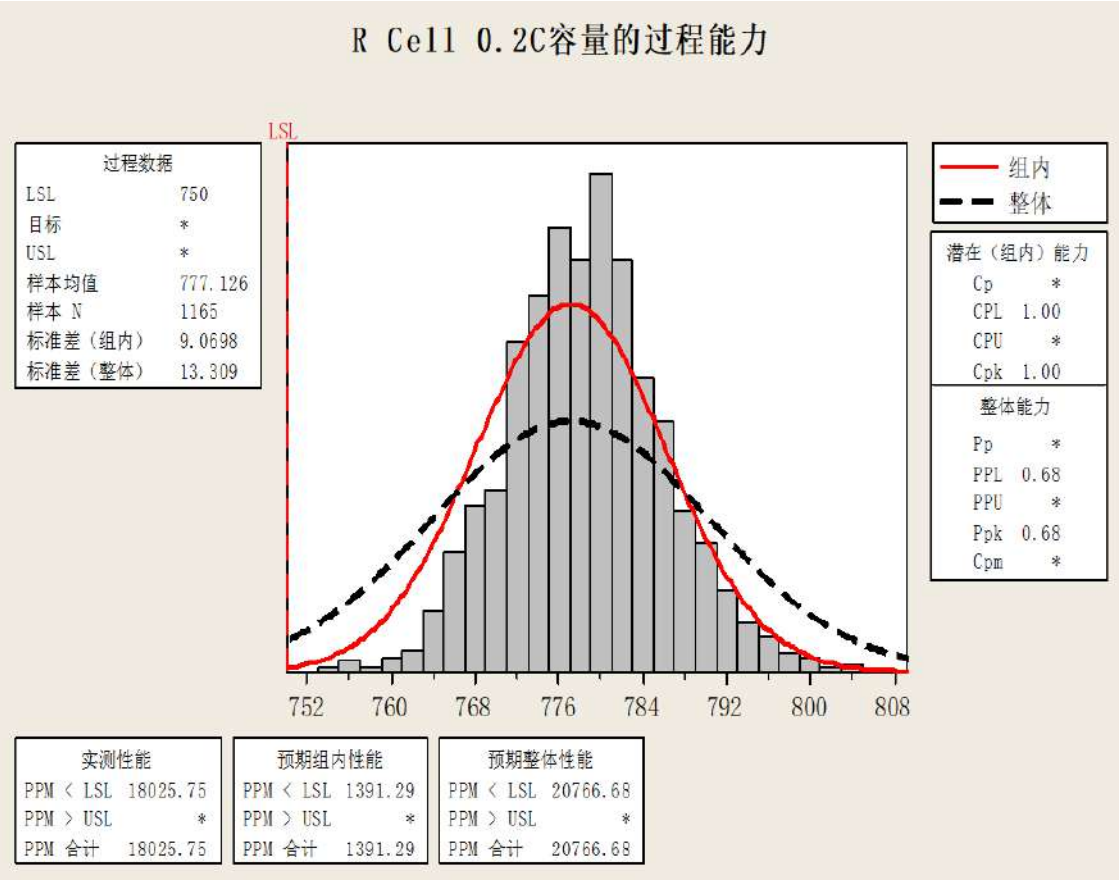


*Remark: Please refer to the SPEC for detailed charging & discharging conditions.



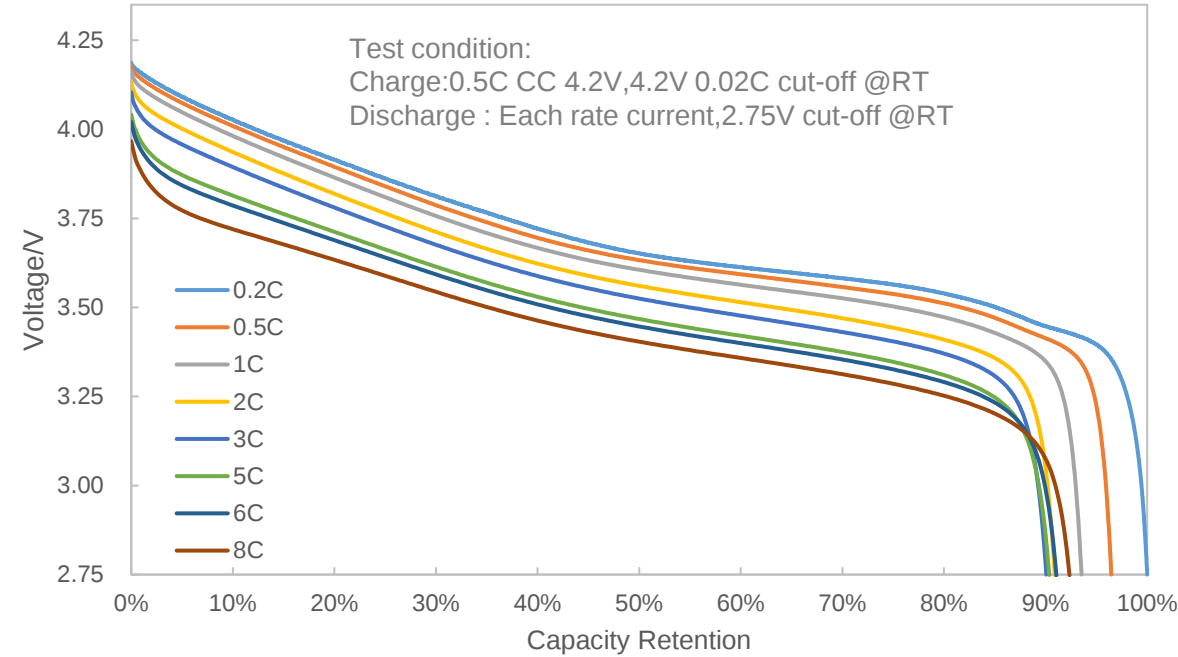
2. Reliability test results

0.2C Capacity & ACR



Rate discharge

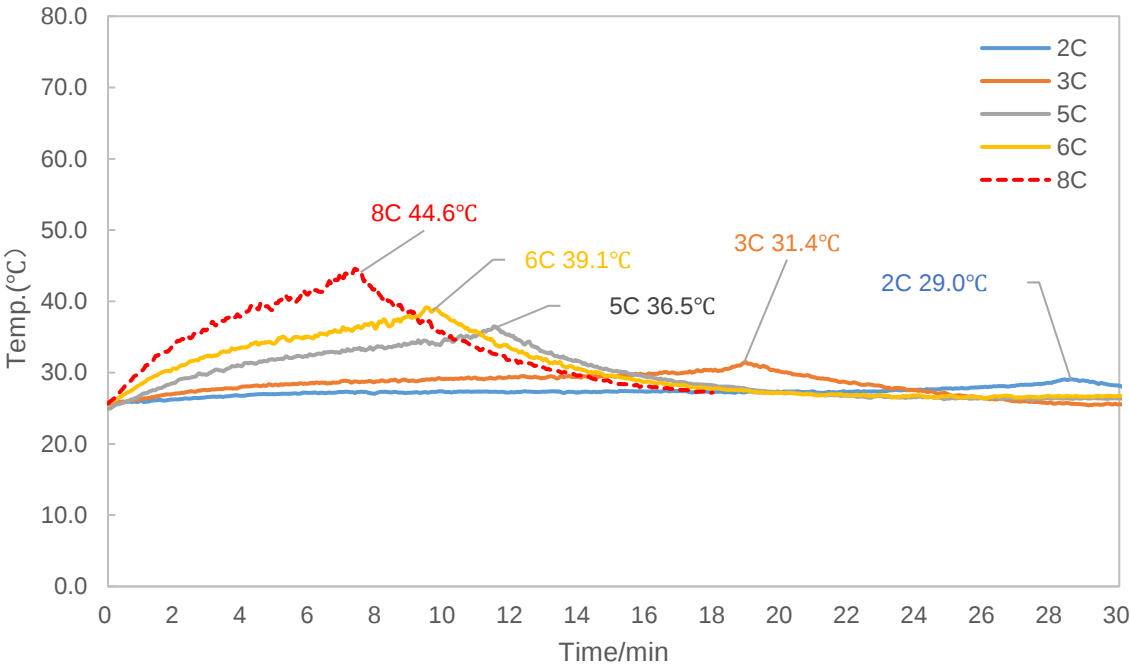
Discharge curve



Rate Discharge

Current	0.2C	0.5C	1C	2C	3C	5C	6C	8C
Capacity Retention	100.0 %	96.5%	93.5%	90.9%	90.1%	90.4%	91.1%	92.4%

Temp. Curve

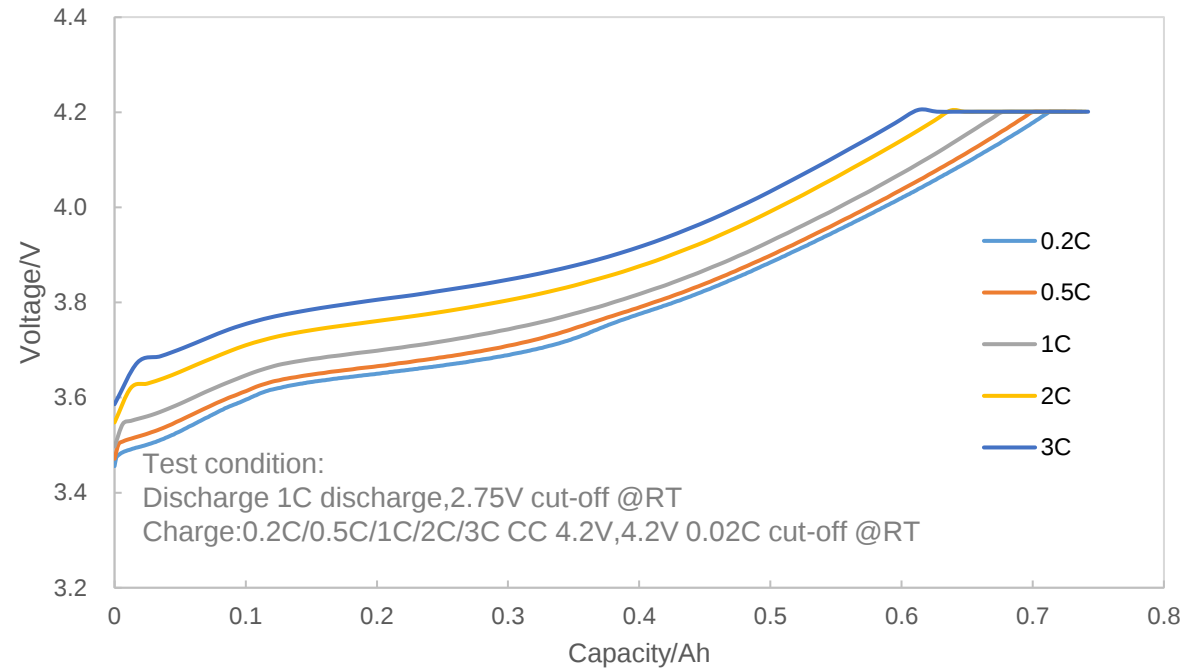


Temp.

Current	2C	3C	5C	6C	8C
Cell Temp.(°C)	29.0	31.4	36.5	39.1	44.6

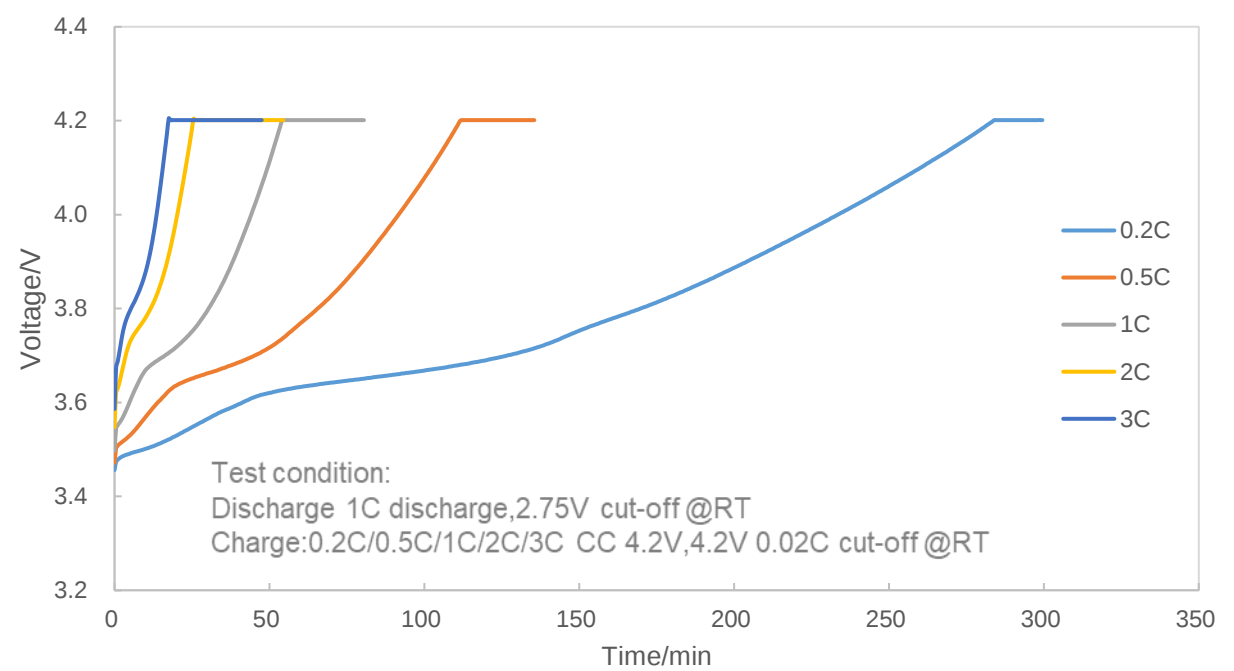
Rate Charge

Rate Charge



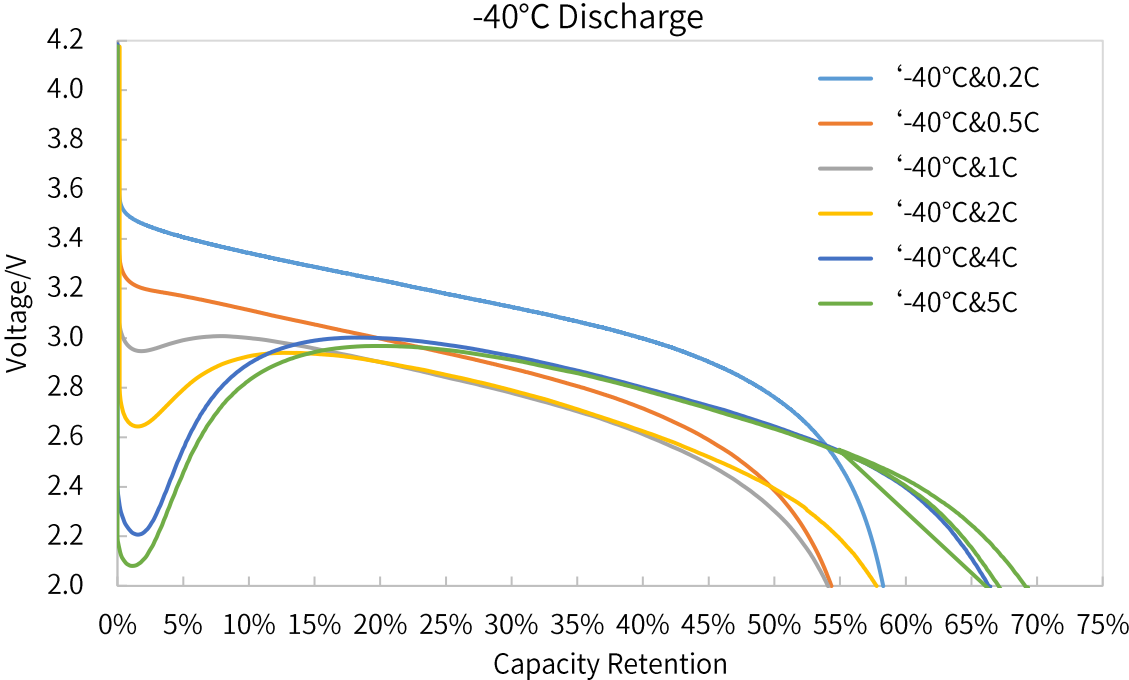
Rate Charge					
Current	0.2C	0.5C	1C	2C	3C
CC Capacity/Ah	0.725	0.733	0.737	0.740	0.742
CC+CV Capacity/Ah	0.713	0.702	0.681	0.638	0.613
Capacity Retention	98.3%	95.8%	92.4%	86.1%	82.5%

Rate Charge

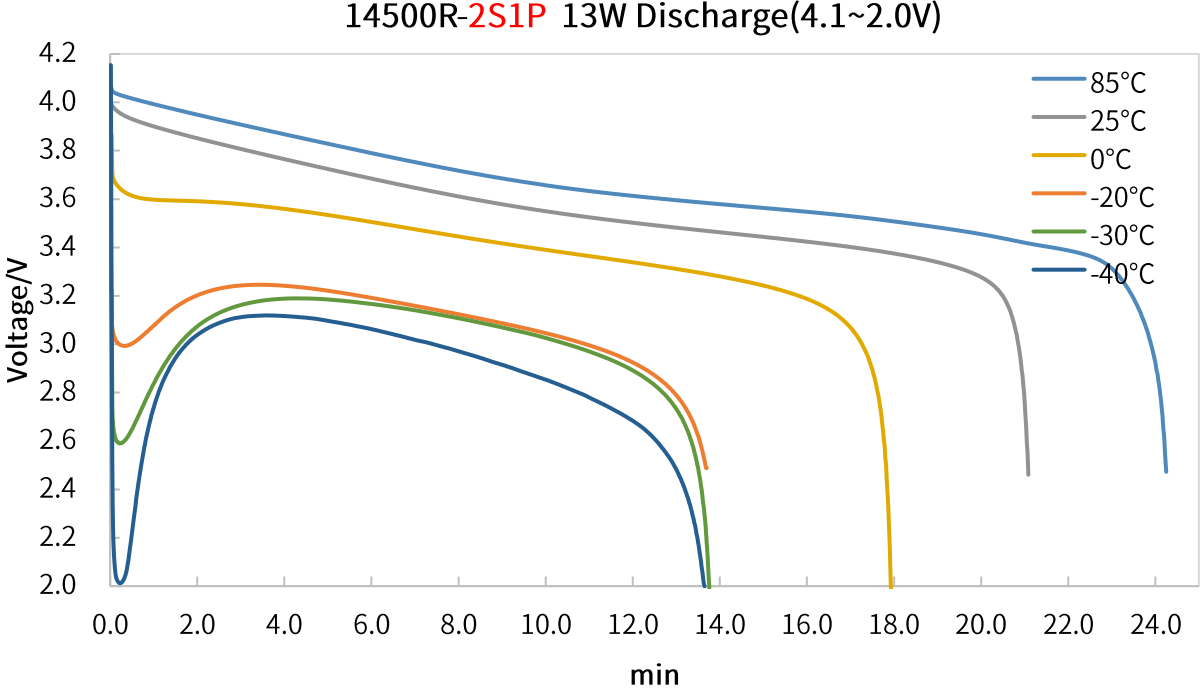


Rate Charge					
Current	0.2C	0.5C	1C	2C	3C
CC time/min	284	112	54.5	25.5	17.5
CC Capacity/Ah	0.713	0.702	0.681	0.638	0.613
Capacity Retention	98.3%	95.8%	92.4%	86.1%	82.5%

H/L discharge performance



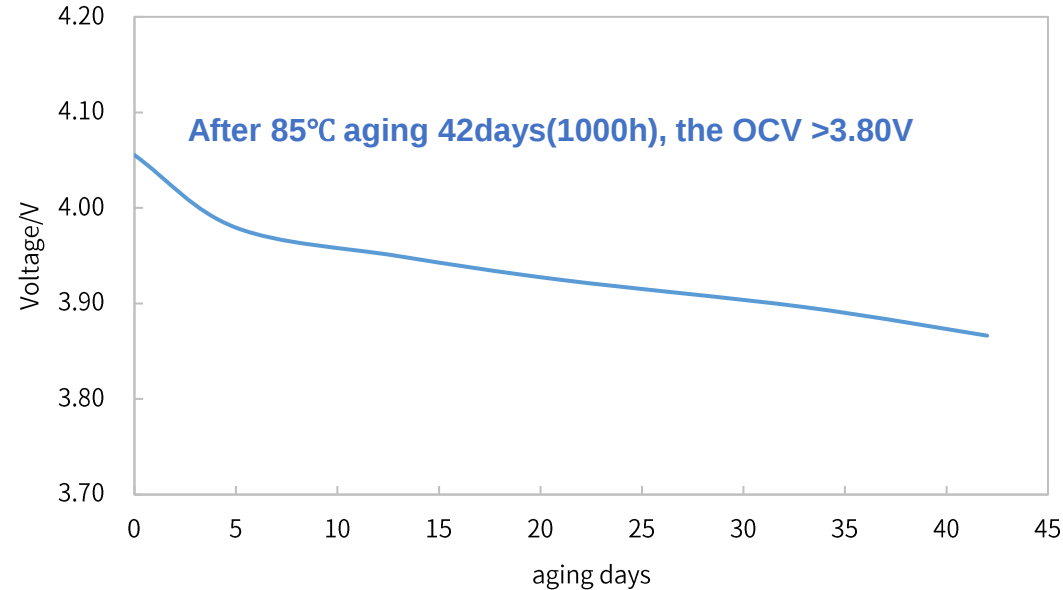
Capacity Retention(-40°C)		
Current	Capacity/Ah	Capacity Retention
0.2C	0.447	58.3%
0.5C	0.416	54.4%
1C	0.415	54.1%
2C	0.443	57.8%
4C	0.509	66.4%
5C	0.537	70.1%



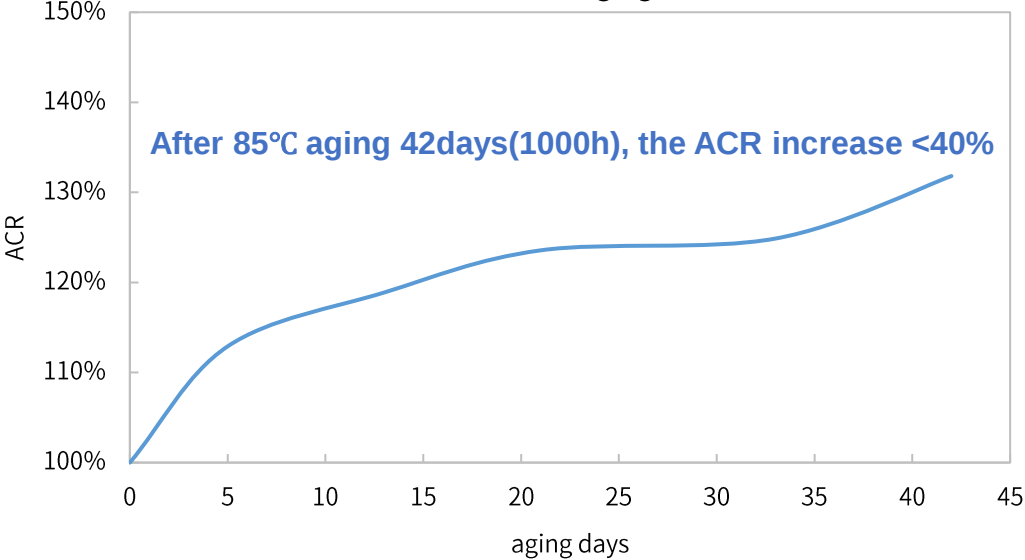
Capacity Retention(13W Discharge)			
Temp.(°C)	time/min	Capacity/Ah	Capacity Retention
85	24.30	1.452	112.56%
25	21.05	1.290	100.00%
0	17.54	1.151	89.22%
-20	13.40	0.964	74.73%
-30	13.44	0.995	77.13%
-40	14.05	1.020	79.07%

85 °C&4.1V aging

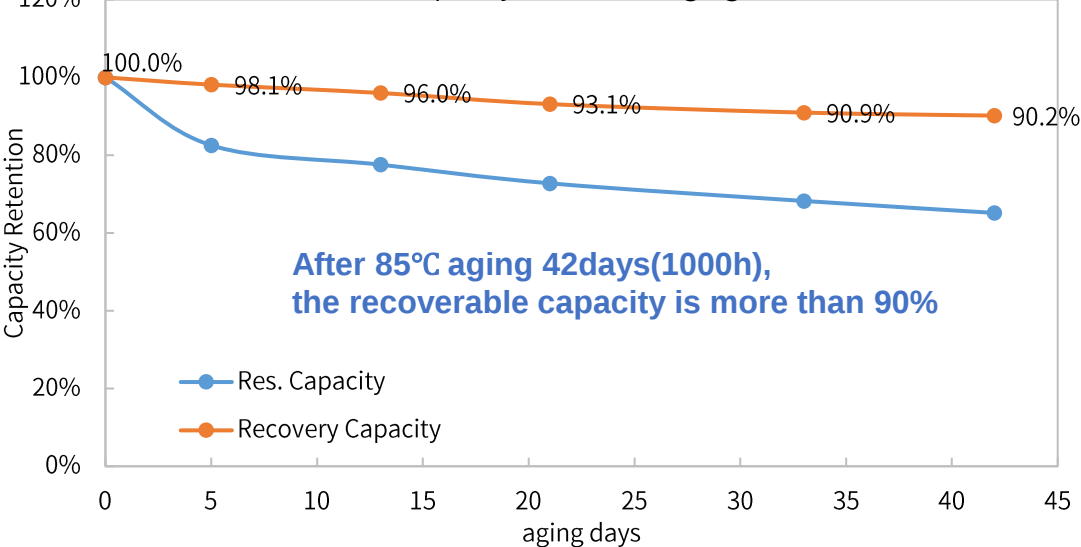
OCV-85°C&4.1V aging



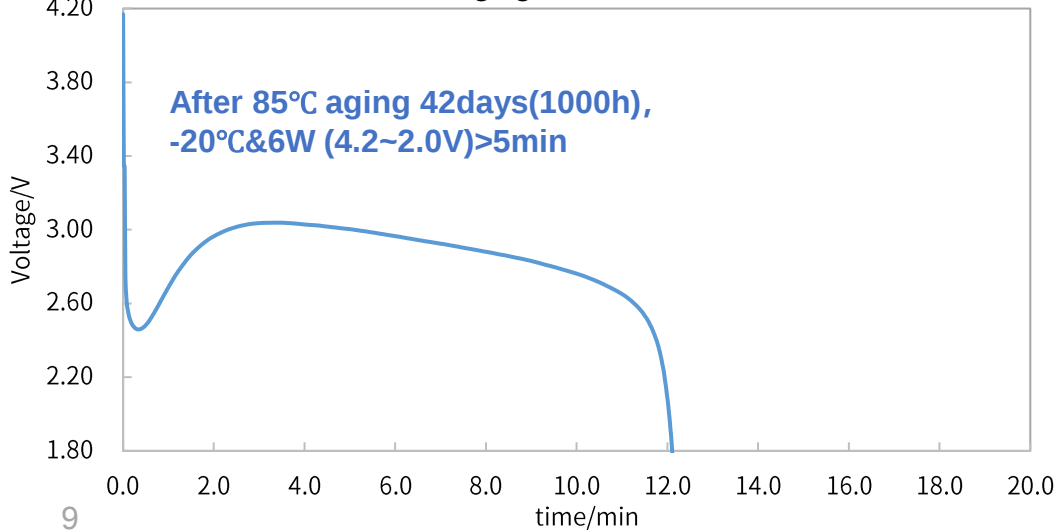
ACR-85°C&4.1V aging



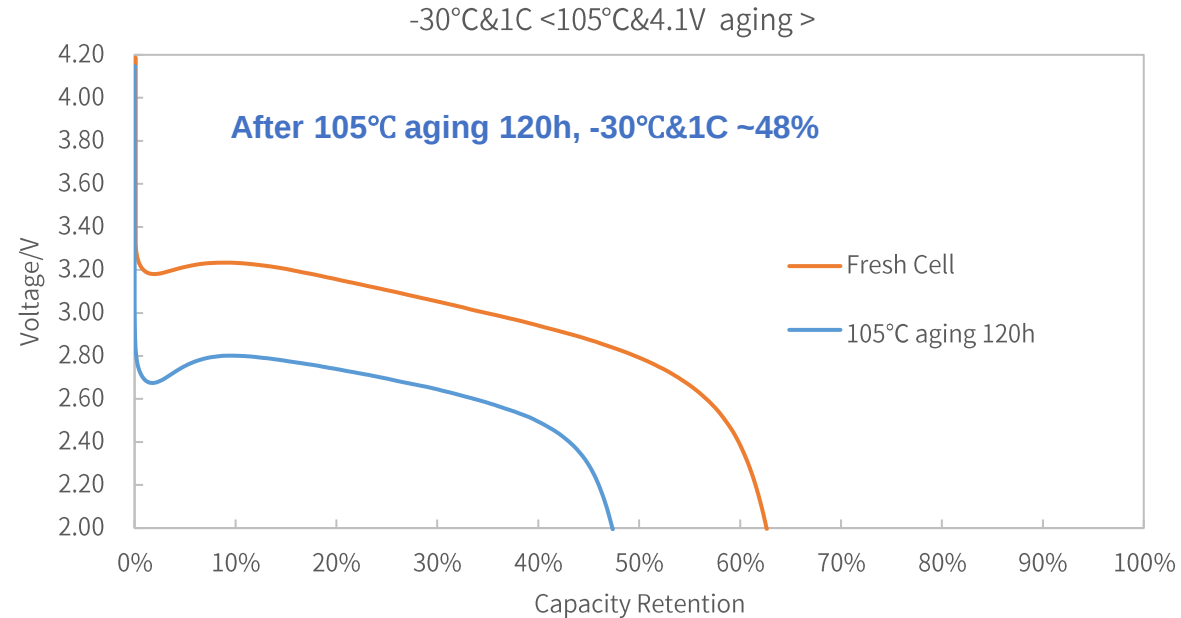
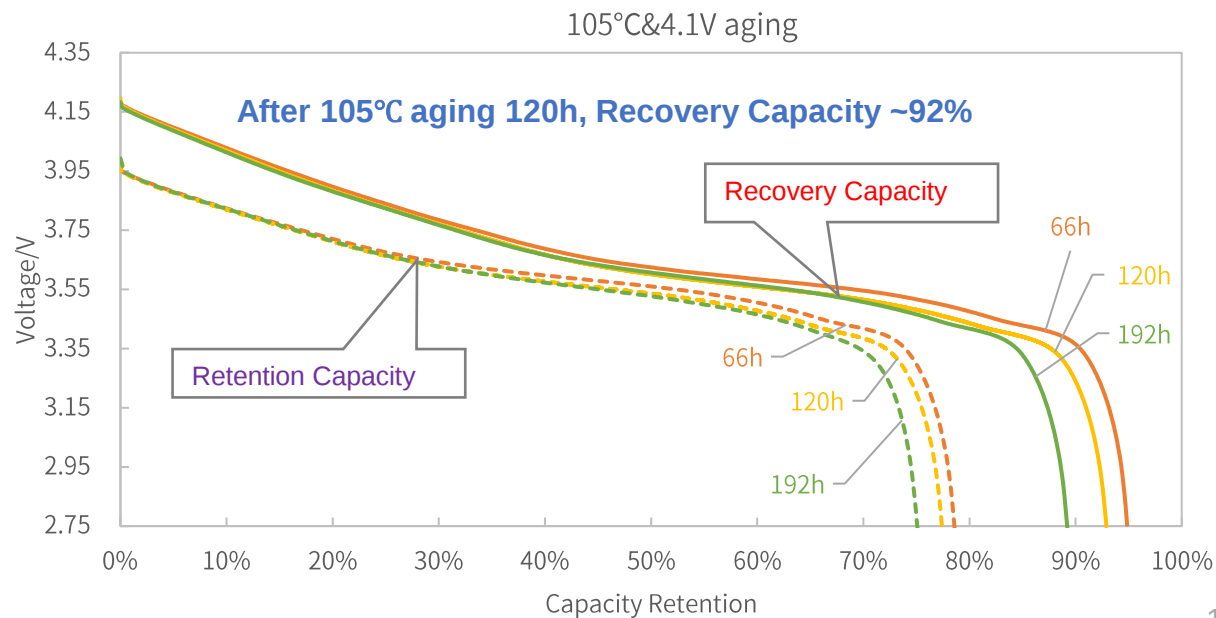
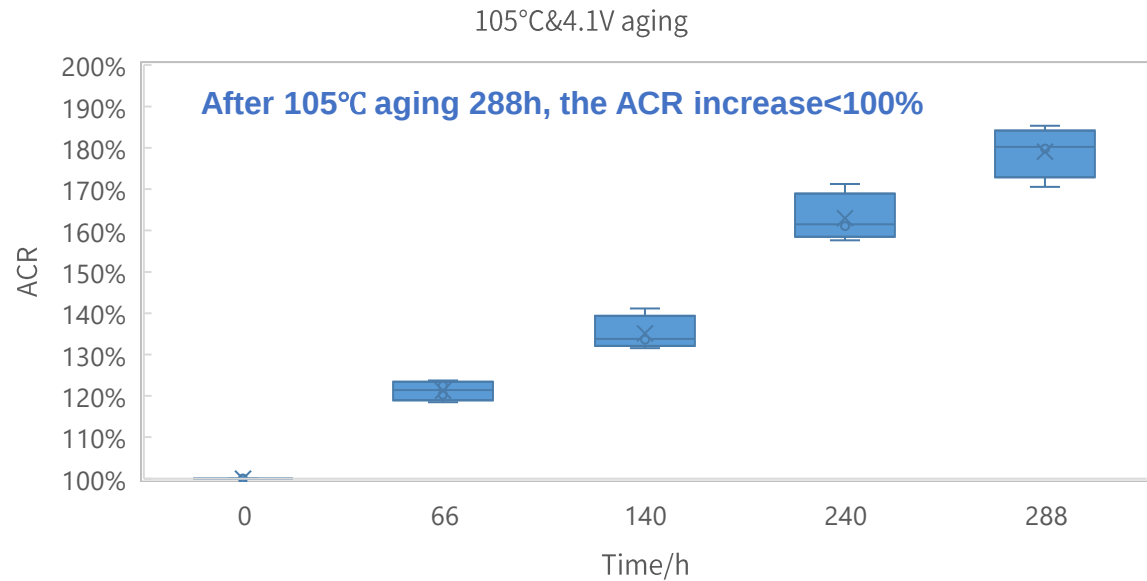
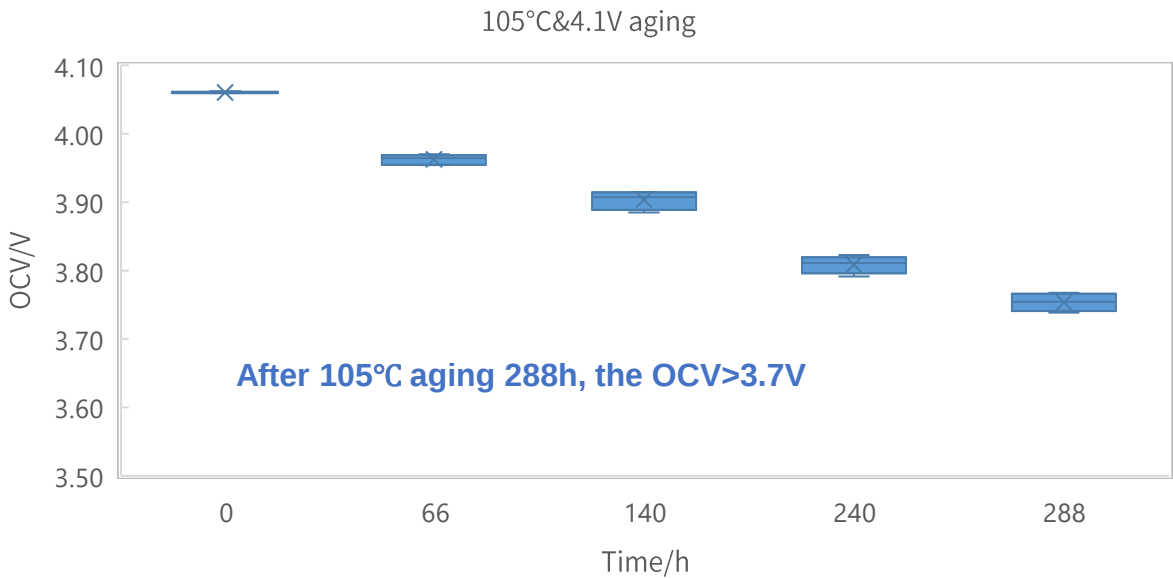
0.2C Capacity-85°C&4.1V aging



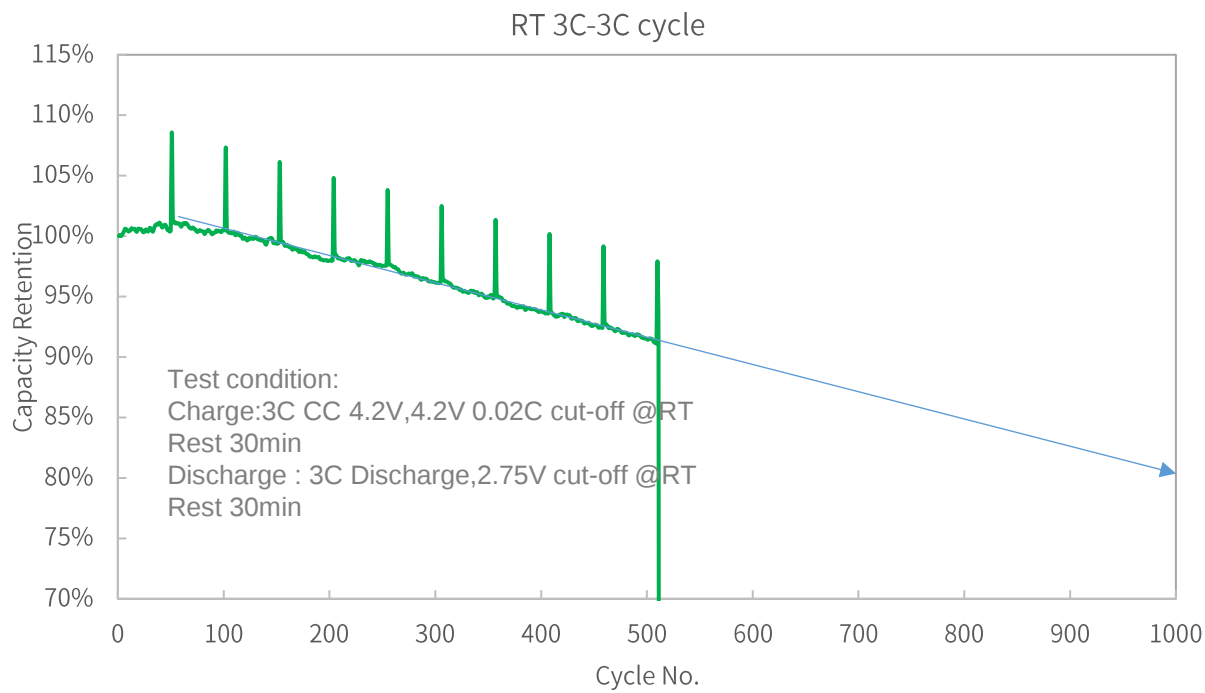
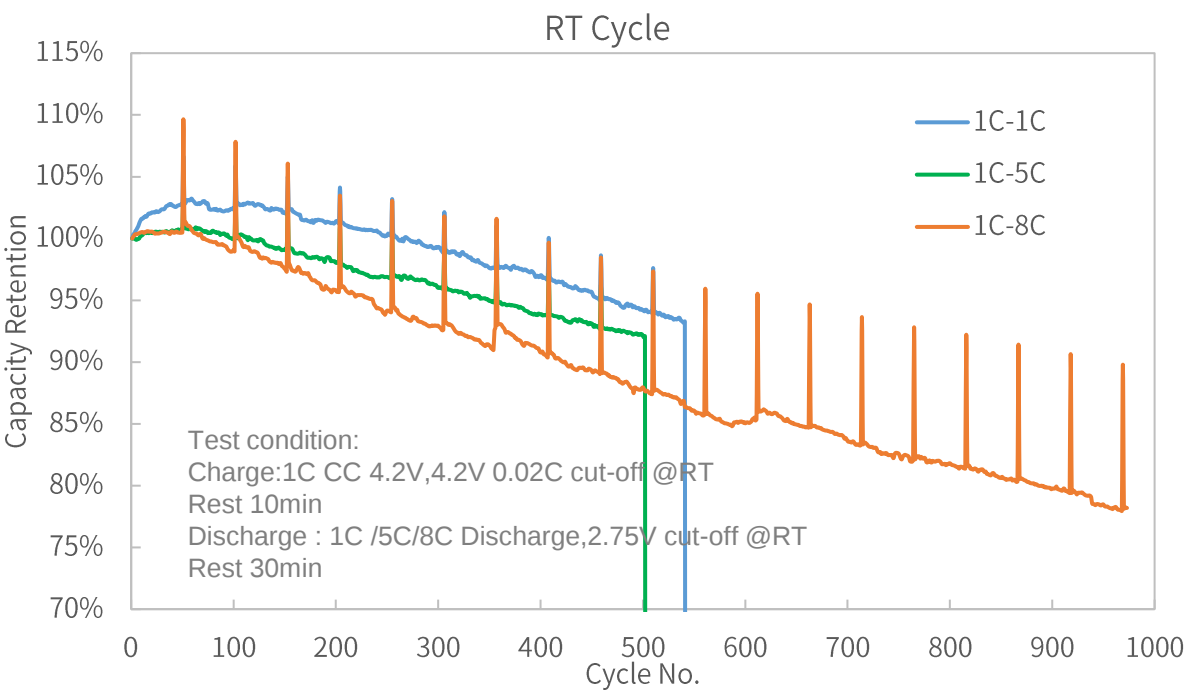
85°C&4.1V aging 42d<-20°C&6W>



105 °C&4.1V aging



RT Cycle life (Different Discharge Current)

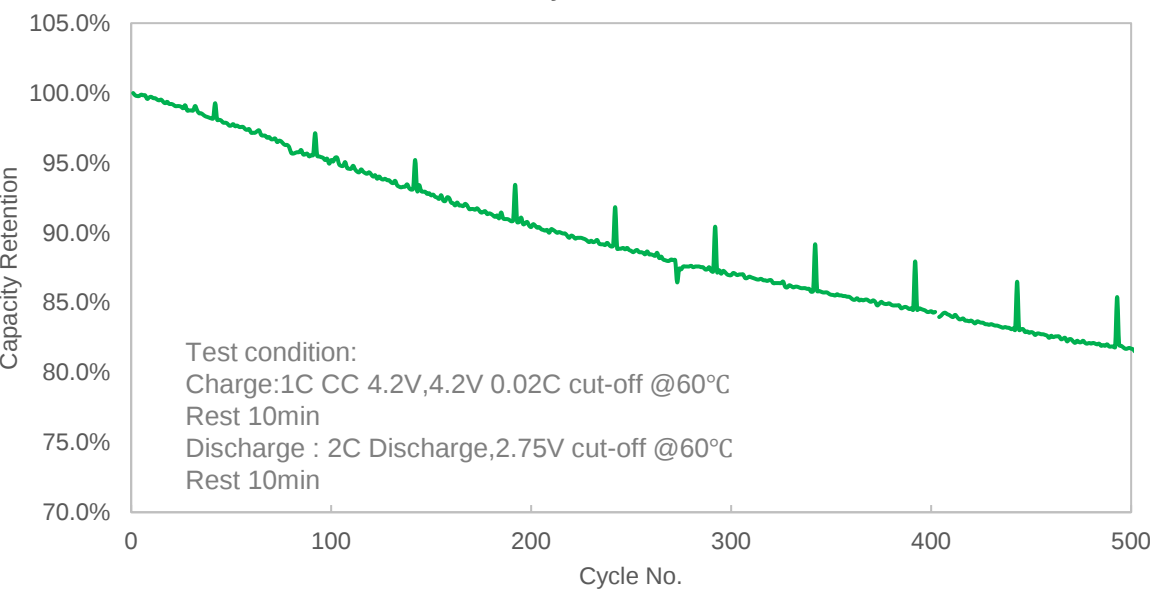


Capacity retention						
	0th	100th	200th	300th	400th	500th
1C-1C	100.0%	102.4%	101.3%	99.2%	96.9%	94.3%
1C-5C	100.0%	100.0%	98.0%	96.0%	93.8%	92.1%
1C-8C	100.0%	98.9%	95.8%	92.9%	90.9%	87.8%

Capacity retention						
	0th	100th	200th	300th	400th	500th
3C-3C	100.0%	100.3%	98.2%	96.2%	93.8%	91.5%

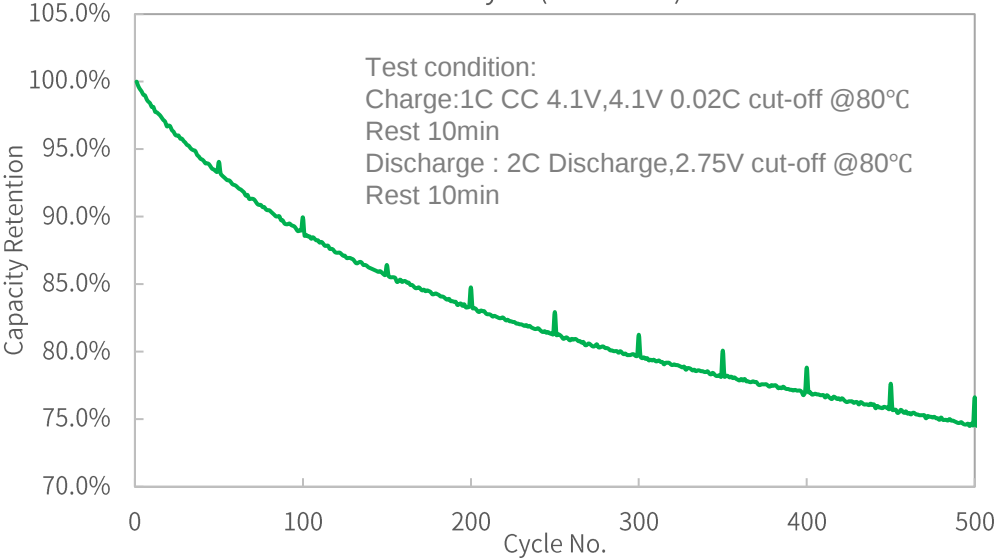
HT Cycle life

60°C 1C-2C Cycle (4.2~2.75V)



Capacity retention						
	0	100th	200th	300th	400th	500th
60°C	100.0%	95.3%	90.5%	87.0%	84.3%	81.7%

80°C 1C-2C Cycle(4.1~2.75V)



Capacity retention						
	0	100th	200th	300th	400th	500th
80°C	100.0%	89.0%	83.3%	79.7%	77.0%	74.6%



CM Batteries designs and manufactures custom 14500 Li-ion battery packs with high energy density, wide temperature performance, and reliable protection circuits.

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