

CB3914895EA-50Ah performance index

R&D Center



Test Item

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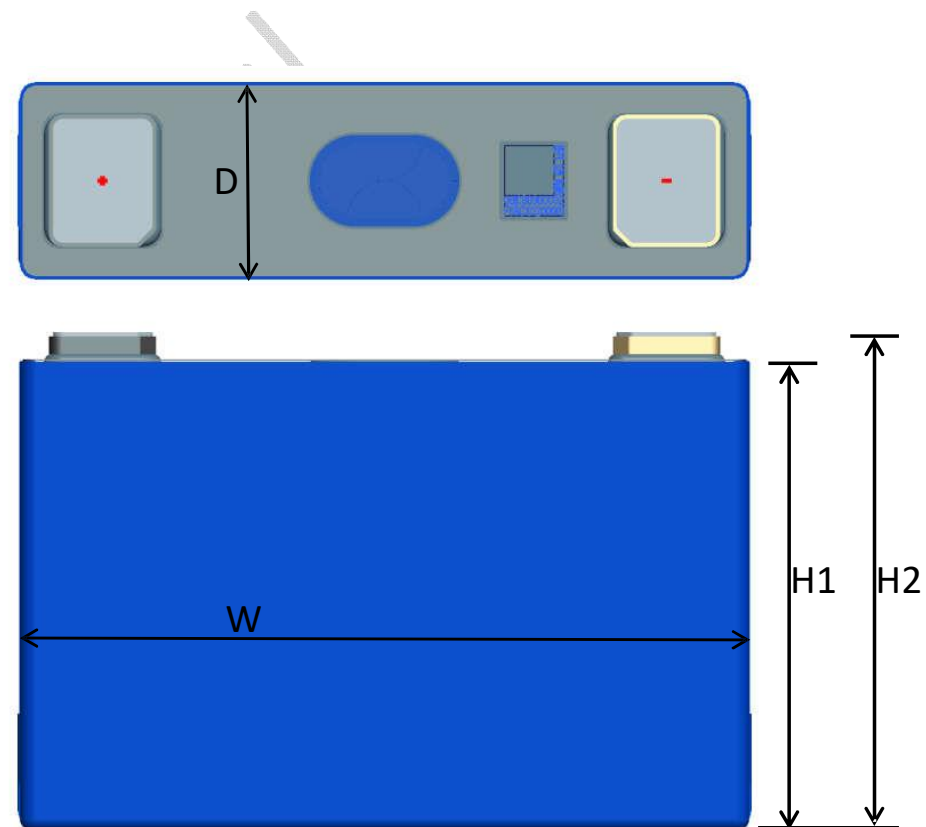
Basic performance index



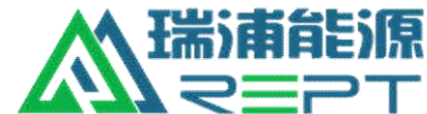
Item	Specification	Remarks
Model	CB3914895EA	
Chemistry system	LFP/C	
Nominal capacity	50Ah	@1C, Min value
Nominal voltage	3.2V	
Work voltage range	2.5-3.65V	
Nominal discharge current	0.5C	
Max continuous discharge current	≤1C	
Max pulse discharge current*	≤3C	@30s
Nominal charge current	0.5C	
Max continuous charge current	≤1C	
Max pulse charge current	≤2C	@10s
Work temperature	Charge: 0°C~55°C	
	Discharge: -20°C~55°C	
Storage temperature	-30°C~55°C	
AC internal resistance	≤0.6mΩ	1KHz
DC internal resistance	≤2.0mΩ	@10s, 50%SOC, 25°C
Dimension	W: 39.5±0.5mm 宽 H: 148.0±0.5mm Shoulder H: 95.0±0.5mm Total H: 101.65±0.5mm	Without insulation film @300Kgf
Weight	1.18±0.03kg	
Nominal energy	160Wh	
Energy density	≥140Wh/kg	
Life cycle	≥3000 Cycles	@1C/1C, 25°C

Dimension

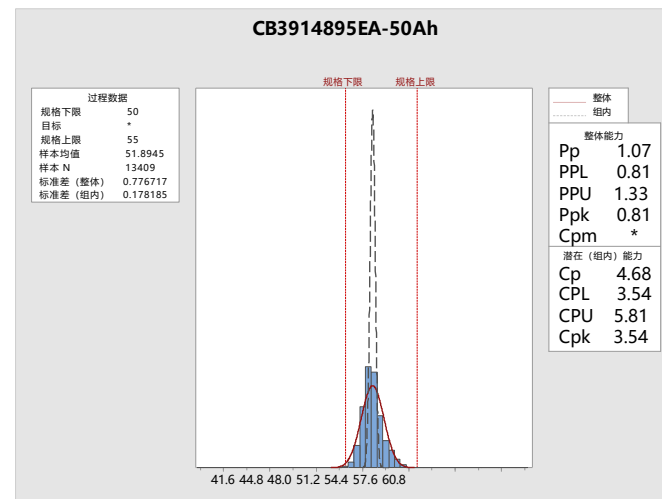
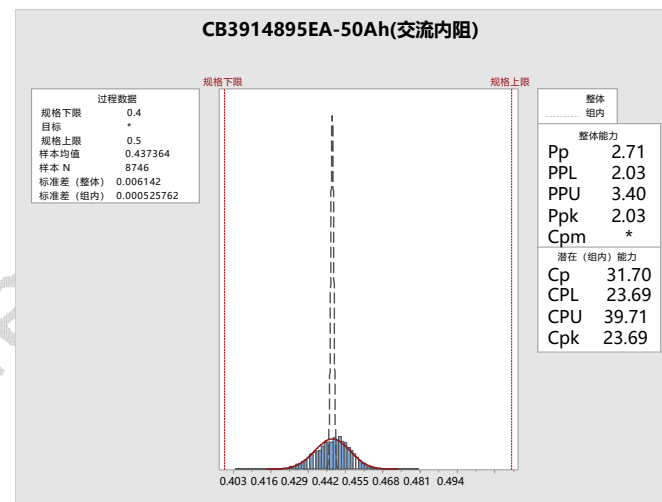
编号	厚度(D/mm)	宽度(W/mm)	高度(H1/mm 不含极柱)	高度(H2/mm 含极柱)
1#	39.60	148.76	95.76	101.63
2#	39.58	148.71	95.75	101.70
3#	39.60	148.76	95.68	101.71
4#	39.60	148.79	95.70	101.69
5#	39.59	148.81	95.74	101.75
6#	39.60	148.83	95.72	101.73
7#	39.60	148.83	95.69	101.74
8#	39.62	148.76	95.88	101.68
9#	39.58	148.83	95.75	101.67
10#	39.58	148.75	95.74	101.69
11#	39.61	148.74	95.69	101.67
12#	39.60	148.74	95.61	101.71
13#	39.61	148.74	95.68	101.69
14#	39.60	148.79	95.69	101.76
15#	39.61	148.75	95.58	101.71
16#	39.60	148.80	95.56	101.71
Avg	39.60	148.78	95.70	101.70
Min	39.58	148.71	95.56	101.63
Max	39.61	148.83	95.88	101.75



Internal resistance and standard capacity



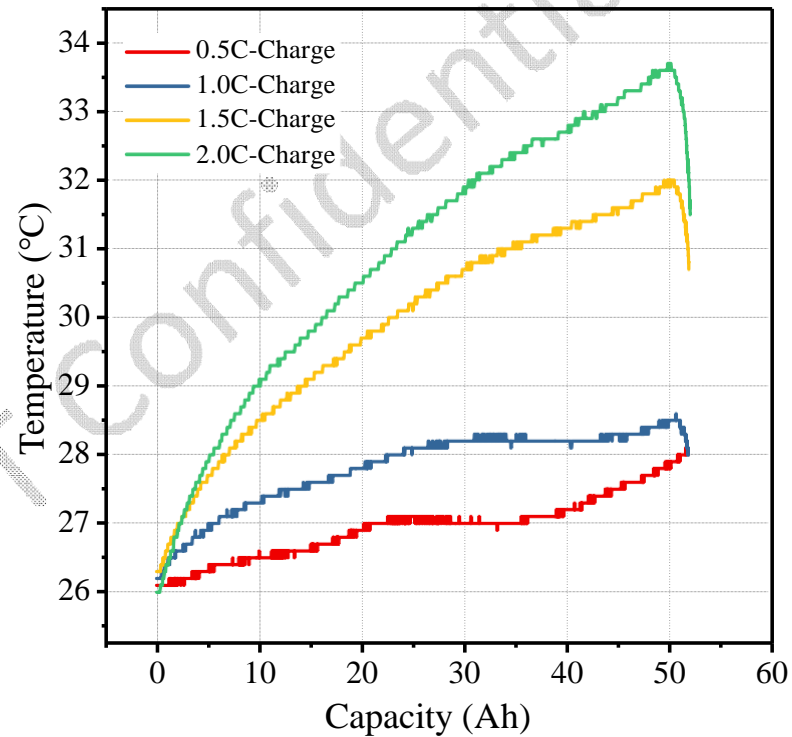
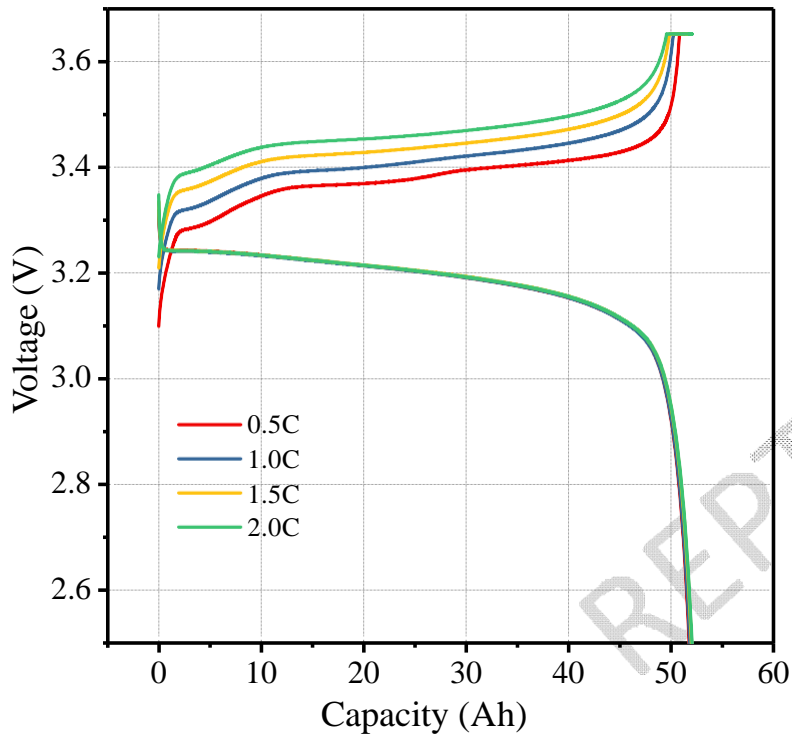
编号	容量(Ah)	开路电压@50%SoC	交流内阻(mΩ)
1#	51.547	3.3024	0.4573
2#	51.831	3.3024	0.4661
3#	51.079	3.3024	0.4577
4#	51.146	3.3025	0.4564
5#	51.824	3.3025	0.4595
6#	51.405	3.3025	0.4615
7#	51.389	3.3026	0.4608
8#	51.387	3.3022	0.4669
9#	51.265	3.3024	0.4675
10#	51.801	3.3024	0.4635
11#	51.843	3.3025	0.4589
12#	51.685	3.3026	0.4686
13#	51.823	3.3025	0.4621
14#	51.732	3.3024	0.4669
15#	51.338	3.3025	0.4582
16#	51.875	3.3024	0.4562
Avg	51.561	3.3025	0.4617
Min	51.079	3.3022	0.4562
Max	51.875	3.3026	0.4686



Charging performance @25°C

Test Condition

- Step1. Charging condition: 0.5C/1.0C/1.5C/2.0C CC-CV to 3.65V, cutoff 0.05C @25°C;
- Step2. Discharging condition: 1.0C DC to 2.5V @25°C.



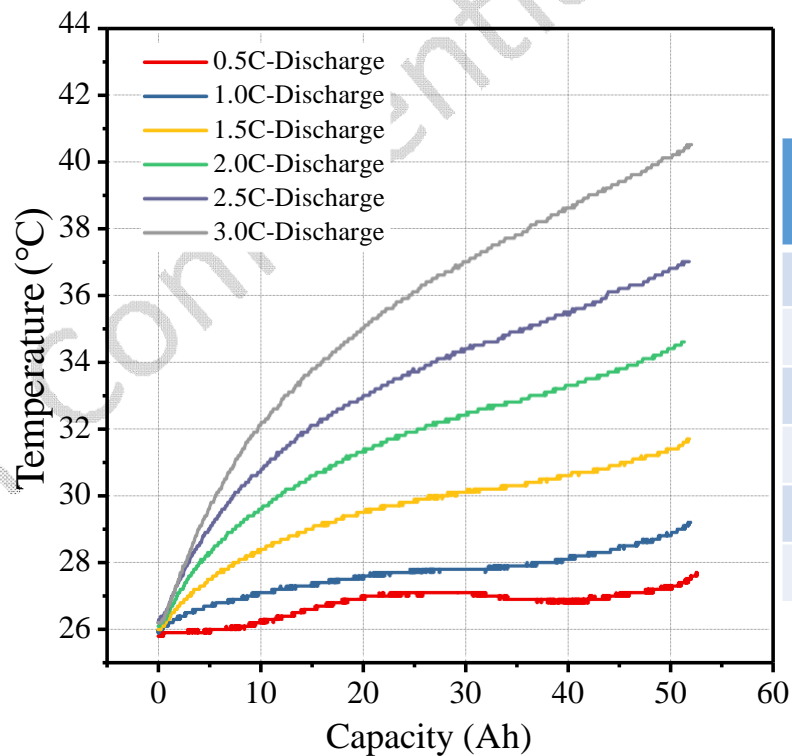
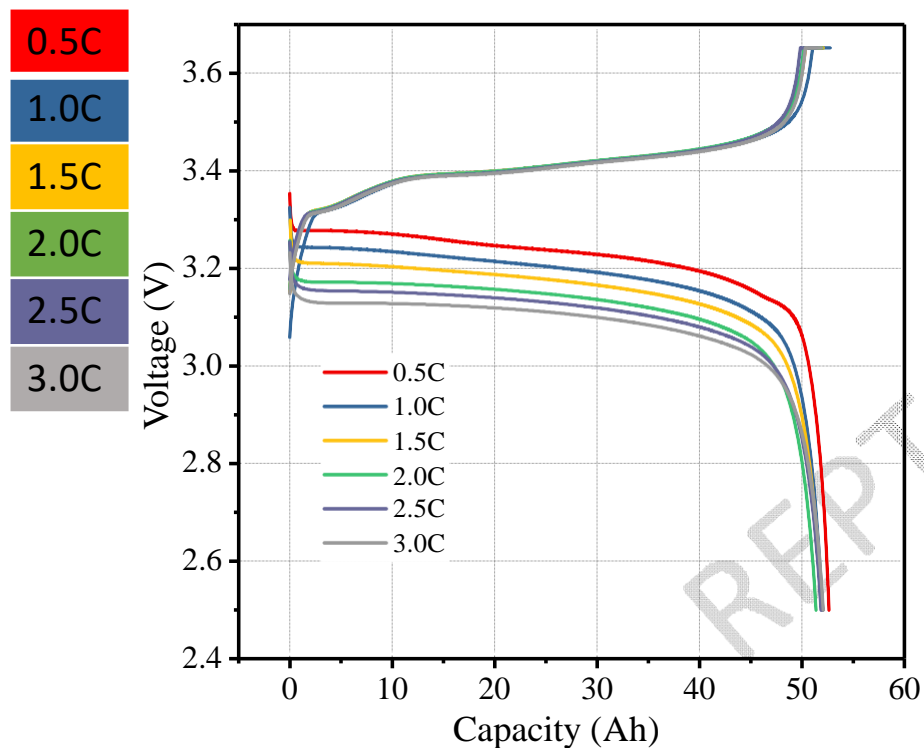
Current (A)	Charge capacity(Ah)
25	51.83
50	51.82
75	51.87
100	52.01

Charge curve in different rate

Discharge performance @25°C

Test Condition

- Step1. Charging condition: 1C CC-CV to 3.65V, cutoff 0.05C @25°C ;
- Step2. Discharging condition: 0.5C/1.0C/1.5C/2.0C/2.5C/3.0C DC to 2.5V @25°C.



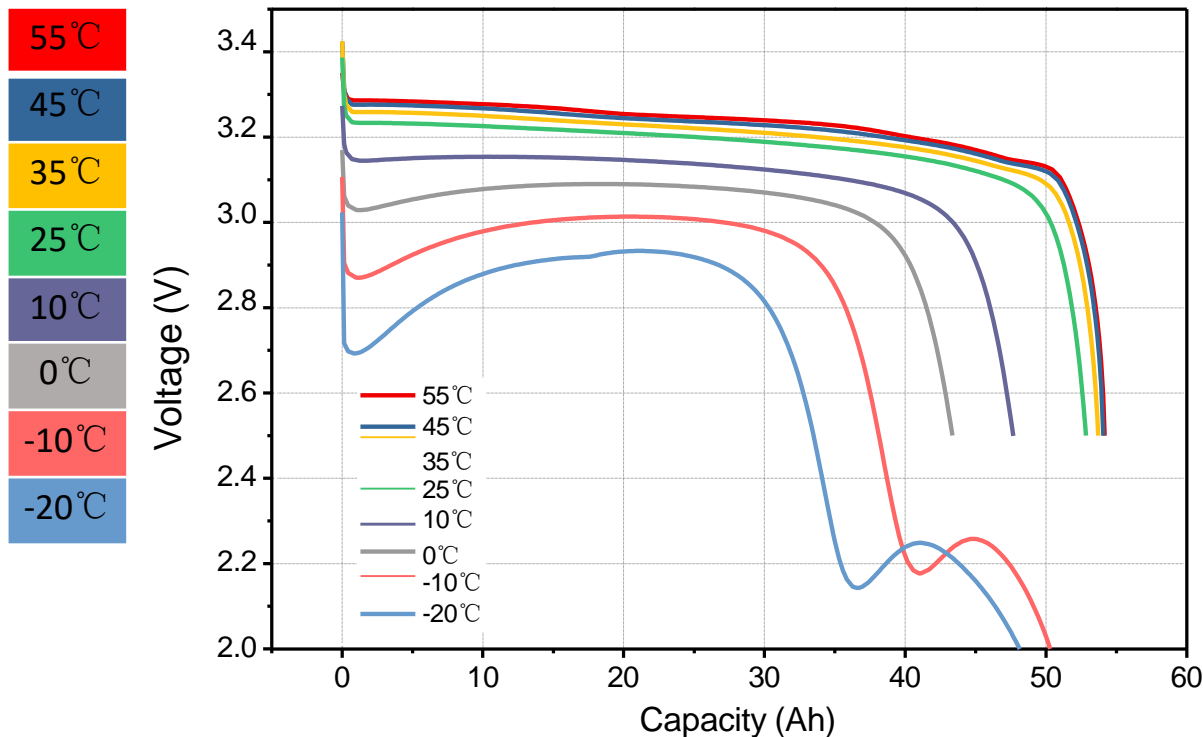
C-rate	Current (A)	Charge capacity(Ah)
0.5C	25	52.58
1C	50	51.94
1.5C	75	51.83
2.0C	100	51.32
2.5C	125	51.80
3.0C	150	52.03

Discharge curve in different rate

Discharge performance @different temperature

Test Condition

- Step1. Charging condition: 1C CC-CV to 3.65V, cutoff 0.05C @25°C ;
- Step2. Discharge temperature storage time: 6h@ 10-55°C and 16h@ below 10°C ;
- Step3. Discharging condition 1.0C DC to 2.5V @0,10,25,35,45,55°C
1.0C DC to 2.0V @-20,-10°C

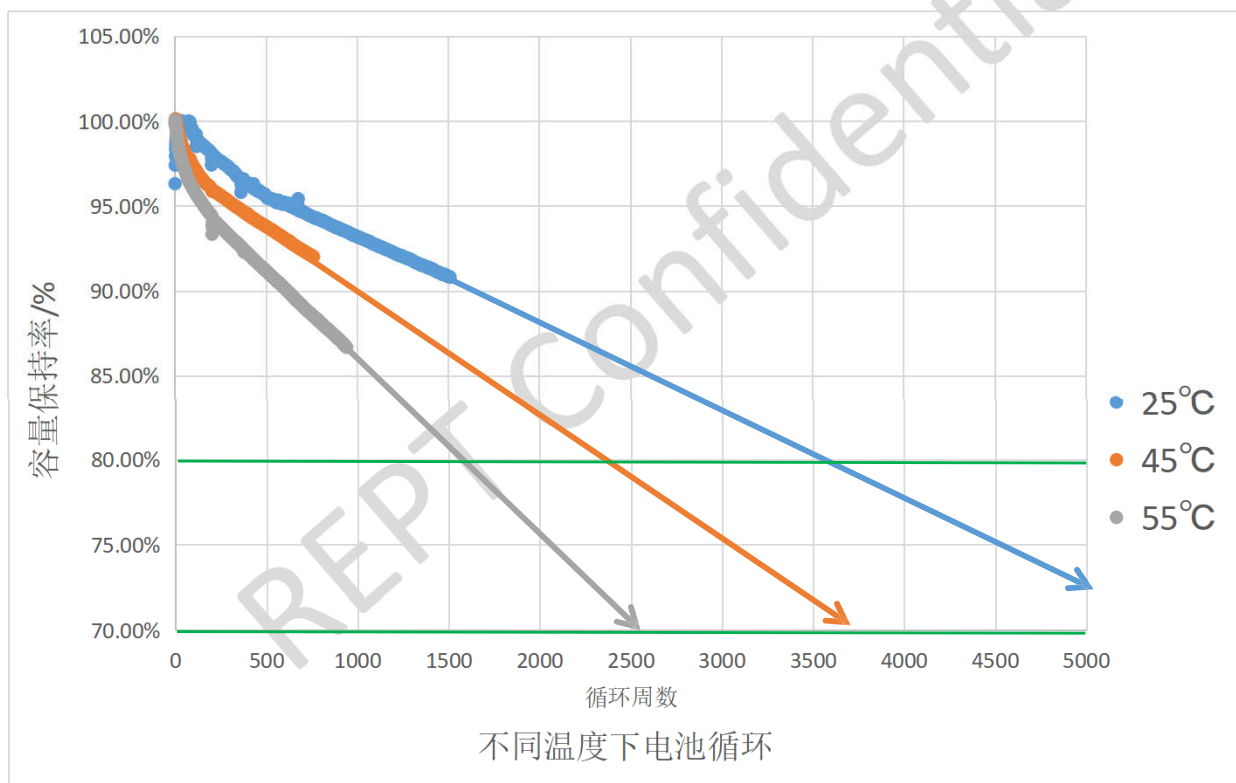


Temperature (°C)	Discharge capacity(Ah)
55	54.15
45	54.06
35	53.70
25	52.84
10	47.67
0	43.35
-10	50.29
-20	48.13

Cycling performance @different temperature

Test Condition

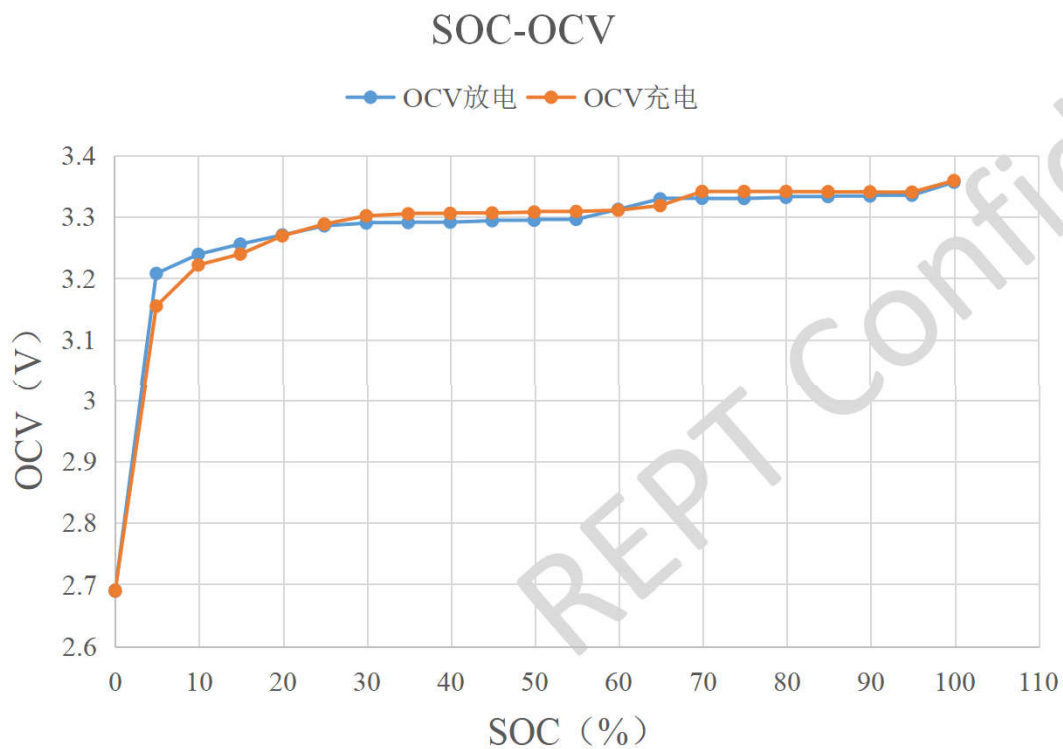
- (1) 25°C Cycle; Rest 30min; 1C CC to 3.65V & CV 0.05C; Rest 30min; 1C DC to 2.5V; (100%DOD)
- (2) 45°C Cycle; Rest 30min; 1C CC to 3.65V & CV 0.05C; Rest 30min; 1C DC to 2.5V; (100%DOD)
- (3) 55°C Cycle; Rest 30min; 1C CC to 3.65V & CV 0.05C; Rest 30min; 1C DC to 2.5V; (100%DOD)



SOC-OCV

Test Condition

- Step1. Charging condition: 1C CC-CV to 3.65V, cutoff 0.05C @25°C, rest for 2h;
- Step2. Adjust the SOC of battery with 1C current, rest for 2h and obtain the OCV



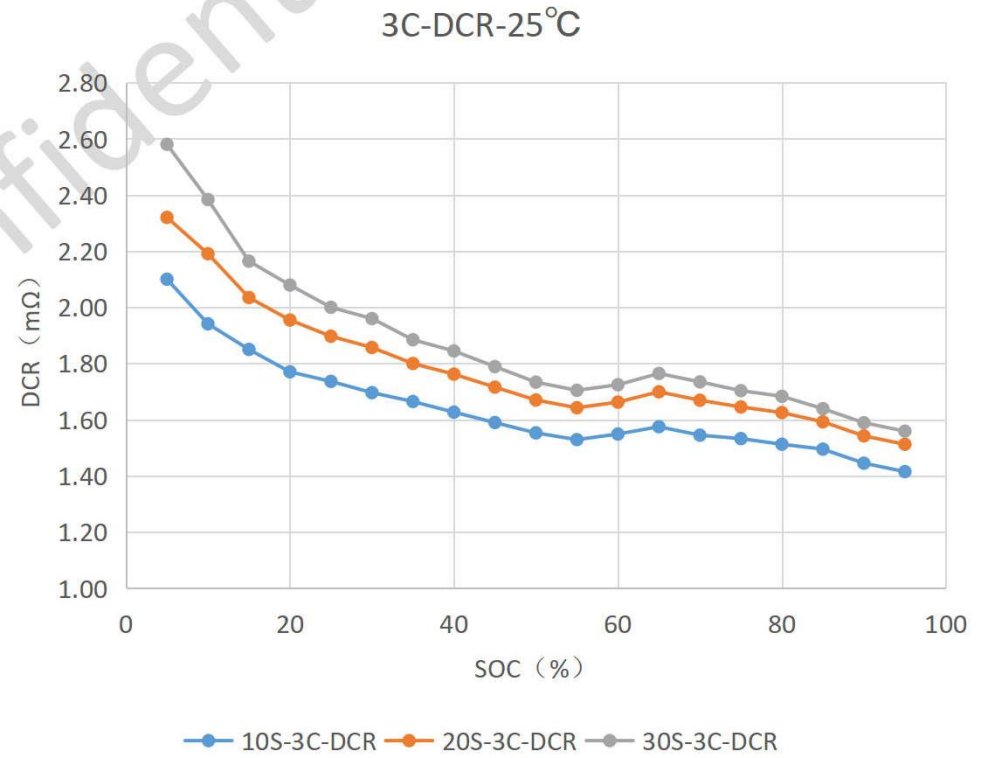
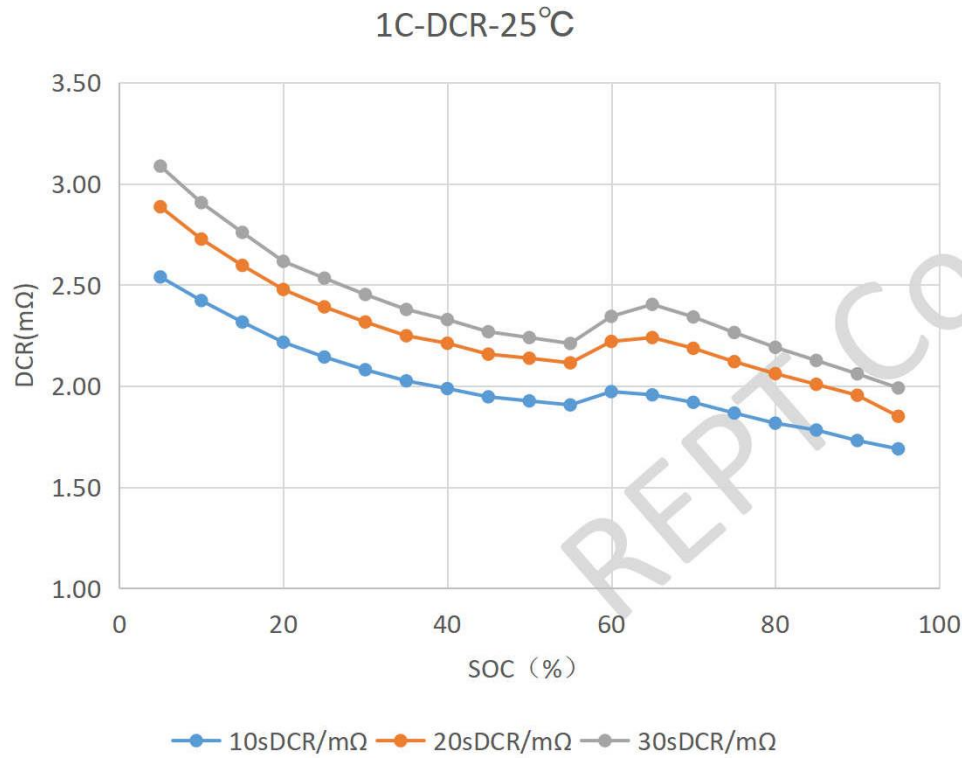
SOC (%)	OCV放电	OCV充电
100	3.3564	3.359
95	3.3352	3.3403
90	3.3339	3.3407
85	3.333	3.341
80	3.3317	3.3413
75	3.3299	3.3413
70	3.3302	3.3413
65	3.3293	3.3183
60	3.3122	3.3109
55	3.2958	3.3088
50	3.2944	3.3078
45	3.2937	3.3063
40	3.2914	3.3057
35	3.2907	3.305
30	3.2899	3.3017
25	3.2853	3.2882
20	3.2704	3.269
15	3.2556	3.2393
10	3.2389	3.2216
5	3.2078	3.1546
0	2.6903	2.6913

SOC-DCR



Test Condition

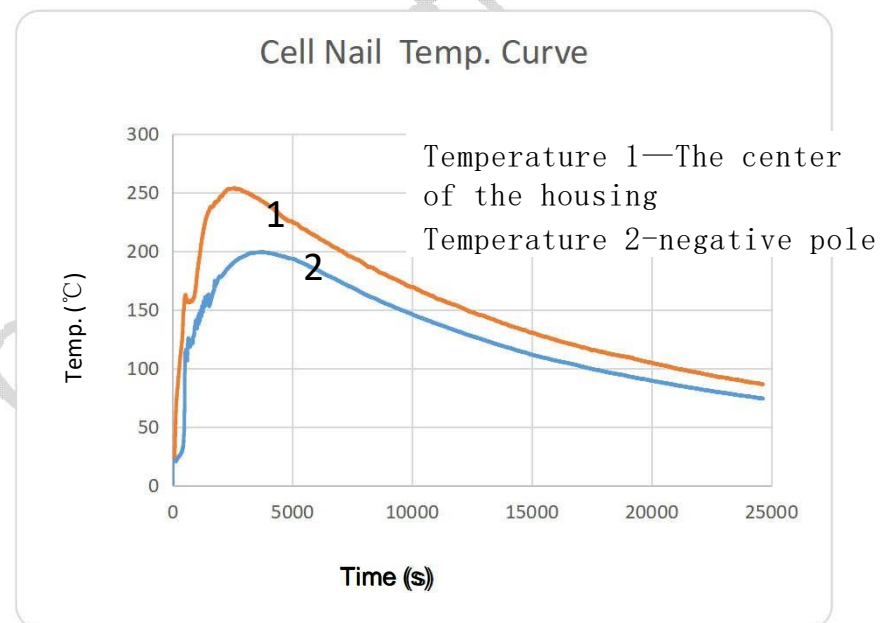
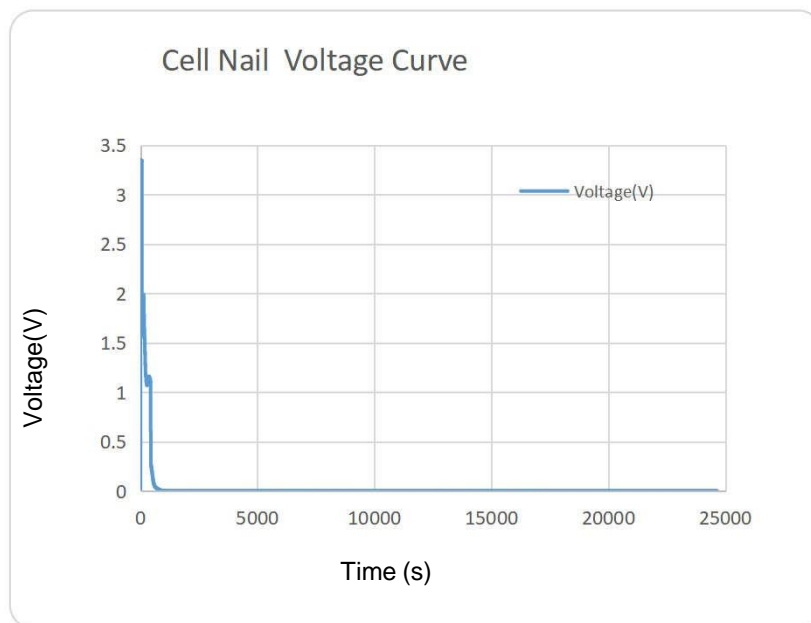
- Step1. Charging condition: 1C CC-CV to 3.65V, cutoff 0.05C @25°C
- Step2. 25°C Set to different SOC and Rest 30min; 1C or 3C DC 30s and Rest 30min;



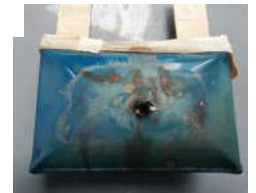
Safety testing-acupuncture

Test condition

- Step1. Charging condition: 1C CC-CV to 3.65V, cutoff 0.05C @25 °C
- Step2. The fully charged cell is punctured with a 5mm steel needle 25mm/s and observed for 1h



before



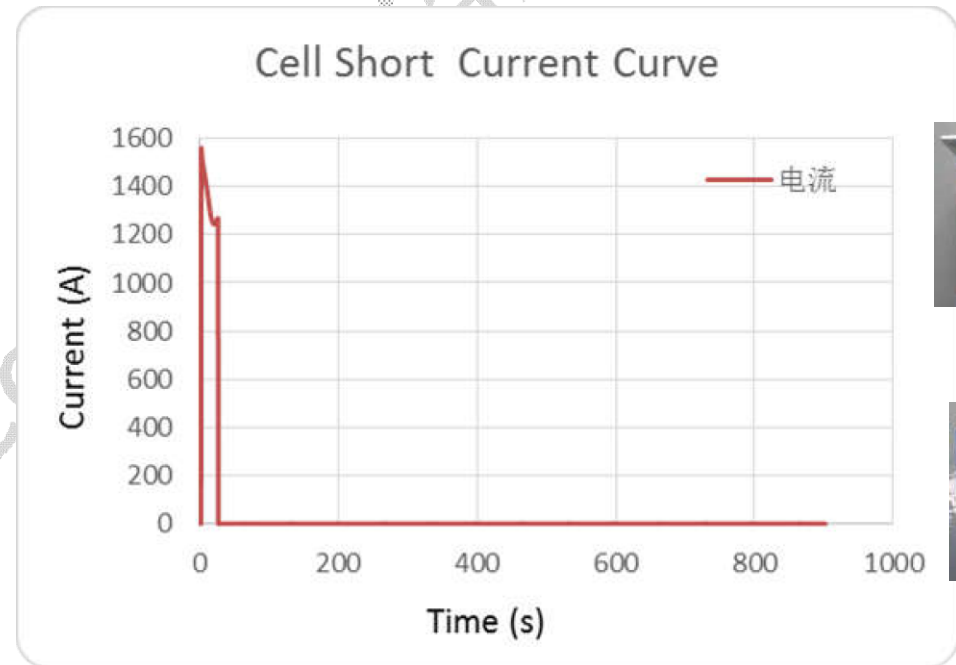
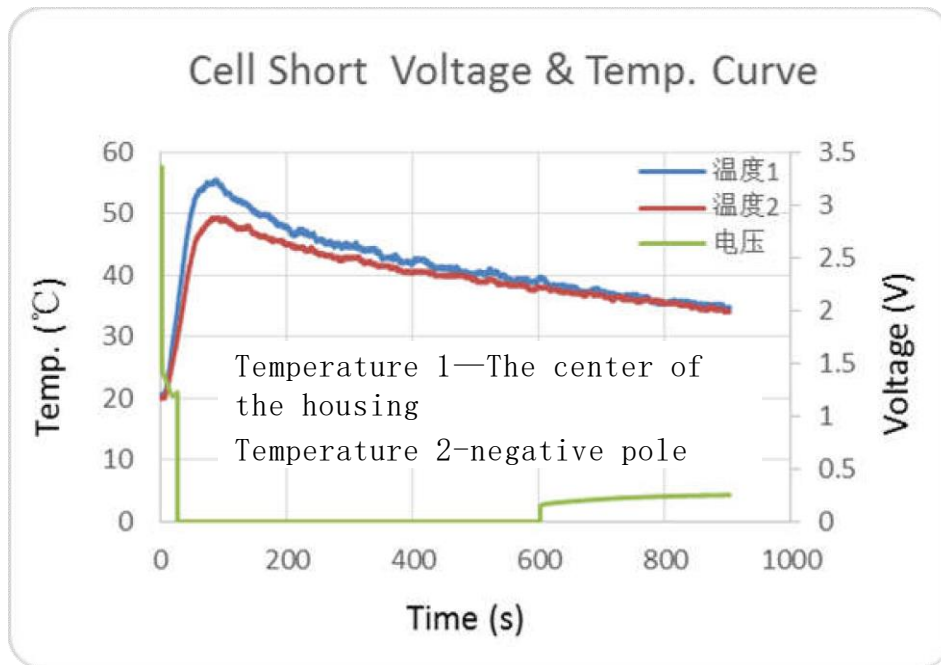
After

- ❑ The battery surface temperature is about 250 °C
- ❑ The battery has leaked, but it has not caught fire or exploded
- ❑ Module thermal runaway test- pass

Safety test-short circuit

Test condition (GB31485-2015)

- Step1. Charging condition: 1C CC-CV to 3.65V, cutoff 0.05C @25°C
- Step2. The fully charged cell is shorten circuit with 5mΩ resistance for 10min

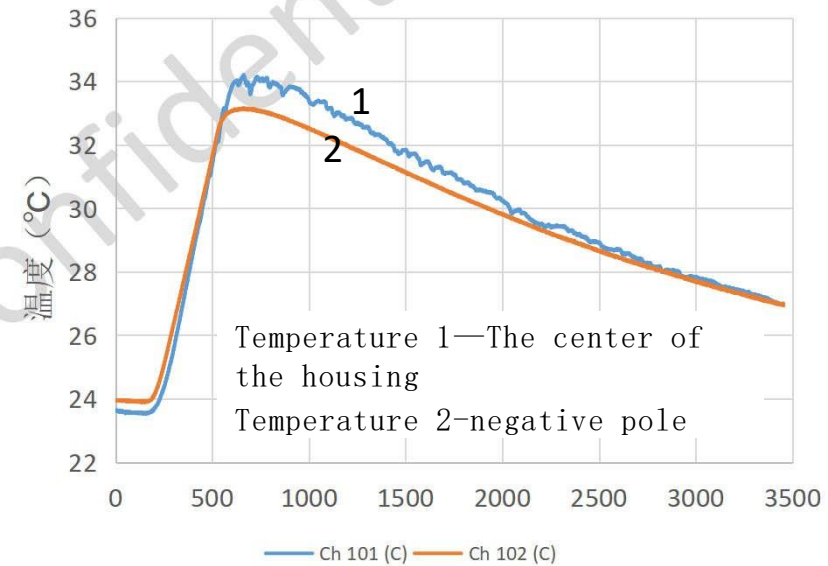
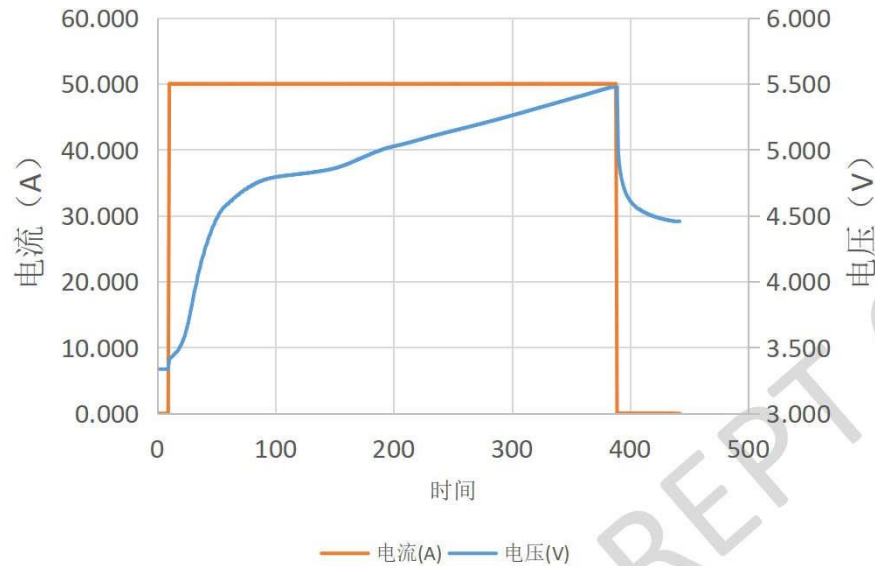


- The maximum temperature of the battery surface is 55.2 °C
- The battery did not catch fire, explode, or leak

Safety test-overcharge

Test condition (GB31485-2015)

- Step1. Charging condition: 1C CC-CV to 3.65V, cutoff 0.05C @25°C ;
- Step2. The fully charged cell is overcharged to 5.5V with 50A current.



before



After

- ❑ 1C overcharge to 5.5V
- ❑ The battery did not catch fire, explode, or leak

Safety testing-other testing

- ☐ Salt spray ✓
- ☐ fall ✓
- ☐ Over-discharge ✓
- ☐ extrusion ✓

GB31485-2015



Monomer extrusion test



5S module extrusion test

REPT

Certificates



中国认可
国际互认
检测
TESTING
CNAS L0095

Page 1 of 13 Pages
No.: RZUN2018-4240

检测报告 TEST REPORT

UN38.3

NAME OF SAMPLE: 方形锂离子电芯
产品名称: 方形锂离子电芯
CLIENT: 瑞浦能源有限公司
委托单位: 瑞浦能源有限公司
CLASSIFICATION OF TEST: Commission Test
检测类别: 委托测试



UN 38.3

BIS

CERTIFICATE
No. ZJ 104405 0001 Rev. 00

Holder of Certificate: **RuiPu Energy Co., Ltd.**
No.205, Binhai 6th Road, Konggang New District, Longwan District, Wenzhou, Zhejiang, China
325000, CHINA

Production Facility(ies): 104405

Certification Mark:

Product: **Rechargeable Prismatic Lithium-ion Cell**

Model(s): **CB3914895EA**

Parameters:
Nominal voltage: 3.2V d.c.
Rated capacity: 50Ah

Test report no.: 642819008001
Valid until: 2024-05-26

Date: 2019-09-27

Page 1 of 1
TUV SUD Product Service GmbH • Certification Body • Hollerland 69 • 80336 Munich • Germany

IEC62619-2017

CERTIFICATE OF COMPLIANCE

Certificate Number: 20190718-MH63477
Report Reference: MH63477-20190712
Issue Date: 2019-JULY-18

Issued to: **RuiPu Energy Co., Ltd.**
No. 205, Binhai 6th Road, Konggang New District, Longwan District, Wenzhou, Zhejiang, China
325000, CHINA

This certificate confirms that representative samples of **COMPONENT - LITHIUM BATTERIES**
Secondary, lithium-ion cells CB3914895EA

Have been investigated by UL in accordance with the component mark as in the Standard(s) indicated on this Certificate. Recognized components are incomplete in certain structural features or restricted in production capabilities and are intended for installation in equipment submitted for investigation to UL LLC.

Standard(s) for Additional Information:
UL 1642, Lithium Batteries.
See the UL Online Certifications Directory at <https://ulprospector.com> for additional information.

This Certificate of Compliance does not provide authorization to apply the UL Recognized Component Mark, only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.

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UL1642

登録書
CERTIFICATE OF REGISTRATION

JET 認証部品登録業務に基づく審査の結果、申し込みのあった部品等は、登録の要件に適合していることを確認しましたので、次のとおり登録します
We register the applied component based on our confirmation of its conformity to the requirements for registration as the result of our assessment according to the regulations for components registration of JET certification as follows:

登録日: September 4, 2019
The date of registration: 1764-C9903-294
登録番号: 1764-C9903-294
Registration number: 1764-C9903-294

登録取得者の名称及び住所
The name and address of the registration recipient: RUIPU ENERGY CO., LTD.
NO.205, BINHAI 6TH ROAD, KONGGANG NEW DISTRICT, LONGWAN DISTRICT, WENZHOU, ZHEJIANG, CHINA

登録部品名:
The registered component: Single cell

登録部品の形番:
Model number of the registered component: See appendix sheets

定格等:
Rating, etc.: See appendix sheets

登録方式:
Method of registration: Type II Component Manufacturer
Factory Identification No.: 1764-0994

製造工場名称及び住所
The manufacturing factory name and address: RUIPU ENERGY CO., LTD.
NO.205, BINHAI 6TH ROAD, KONGGANG NEW DISTRICT, LONGWAN DISTRICT, WENZHOU, ZHEJIANG, CHINA

登録の範囲:
The scope of the registration: See appendix sheets

適用試験基準:
The test standards applied: JIS C 8715-2:2019

一般財団法人 電気安全環境研究所
Japan Electrical Safety & Environment Technology Laboratories
5-14-12 Yoyogi, Shibuya-ku, Tokyo, 151-8565 JAPAN
理事長 黒田 康夫
President YASUHIISA KOMODA

JIS C 8715-2: 2019



电动汽车用锂离子电芯

REPT Confidential

名称: 动力锂离子电池
产品型号: CB3914895EA
受检单位: 瑞浦能源有限公司
检验类别: 强制性检验



GB31484-2015
GB31485-2015
GB31486-2015



Thank you