



BATTERY-BOX LV5.0+



KEY FEATURES



Safety

LFP cells developed in-house
Proven in millions of EVs



Reliability

LFP expertise since 2002
1M+ systems in 100+ countries



High performance

Max. 1C-rate charge & discharge
100%DOD



Flexibility

Maximum capacity of 163.84kWh
Compatible with BYD and major
brand inverters



Ultra Experience

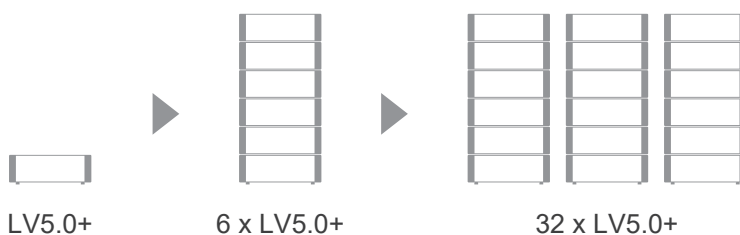
Easy Installation with Plug-Play power cable
One-click auto-configuration
with compatible inverters



Intelligent Management

24/7 online monitoring and analysis
Remote diagnosis and OTA updates
Real-time data & energy flow on BYD Energy APP

BATTERY-BOX LV5.0+



Maximum capacity of
163.84 kWh

TECHNICAL PARAMETERS LV5.0+



PERFORMANCE

LV5.0+

Usable Energy ^[1]	5.12 kWh
Max. Charge and Discharge Current ^{[2] [3]}	100 A
Peak Charge and Discharge Current ^[3]	200 A, 10 s
Dimensions(H/W/D)	195 x 625 x 285 mm
Weight	45 kg
Nominal Voltage	51.2 V
Operating Voltage	40 - 58.4 V
Charge Cut-Off Voltage	58.4 V
Discharge Cut-Off Voltage	40 V
Scalability	Max. 32 in Parallel (163.84 kWh)
Installation Mode	Floor installation
Communication	CAN / RS485
Round-trip Efficiency	≥ 95%
Applications	On Grid / On Grid + Backup / Off Grid
Operating Temperature ^[4]	Charge 0~55°C & Discharge -20~55°C
IP Class	IP20
Storage Humidity	5%~95%
Altitude	< 4000 m
Warranty	10 years
Certification	CE / IEC62619 / UN38.3
Accessories (Optional)	BYD Smart WIFI/LAN module
Compatible Inverter	

[1] DC Usable Energy, Test conditions: 100% DOD, 0.2C charge & discharge at + 25°C. System Usable Energy may vary with different inverter brands.

[2] Charge & discharge current at +25°C.

[3] The current varies with different compatible inverters.

[4] Charge derating will occur between 0°C and +5°.



Energy Storage

Battery LV5.0+ cell C47FCSA Introduction

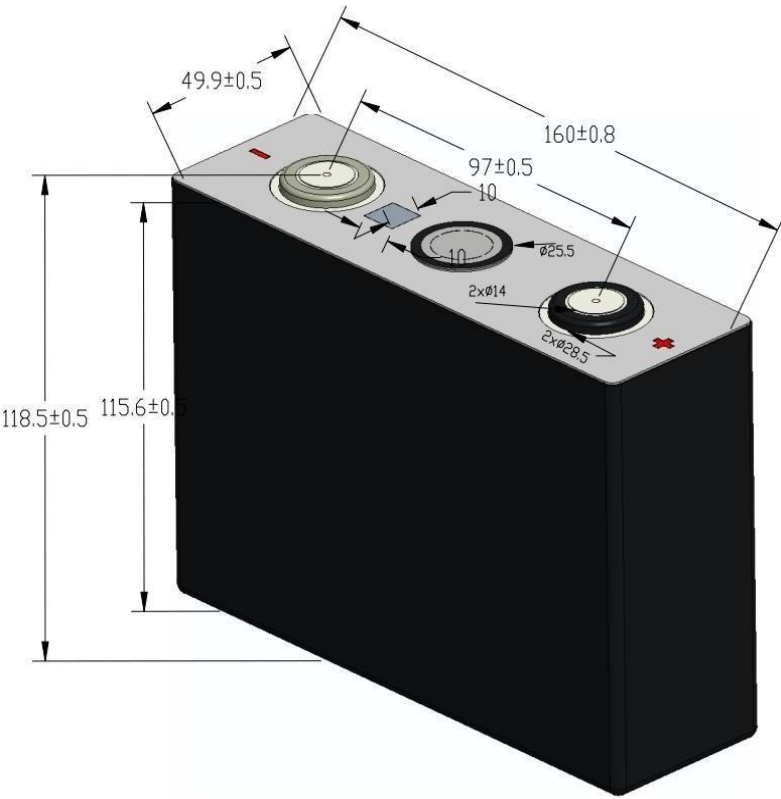
Aug.2025



CONTENTS

- 01 Basic Information
- 02 Cycle
- 03 Electrical Performance
- 04 Safety test
- 05 Certification
- 06 Security design

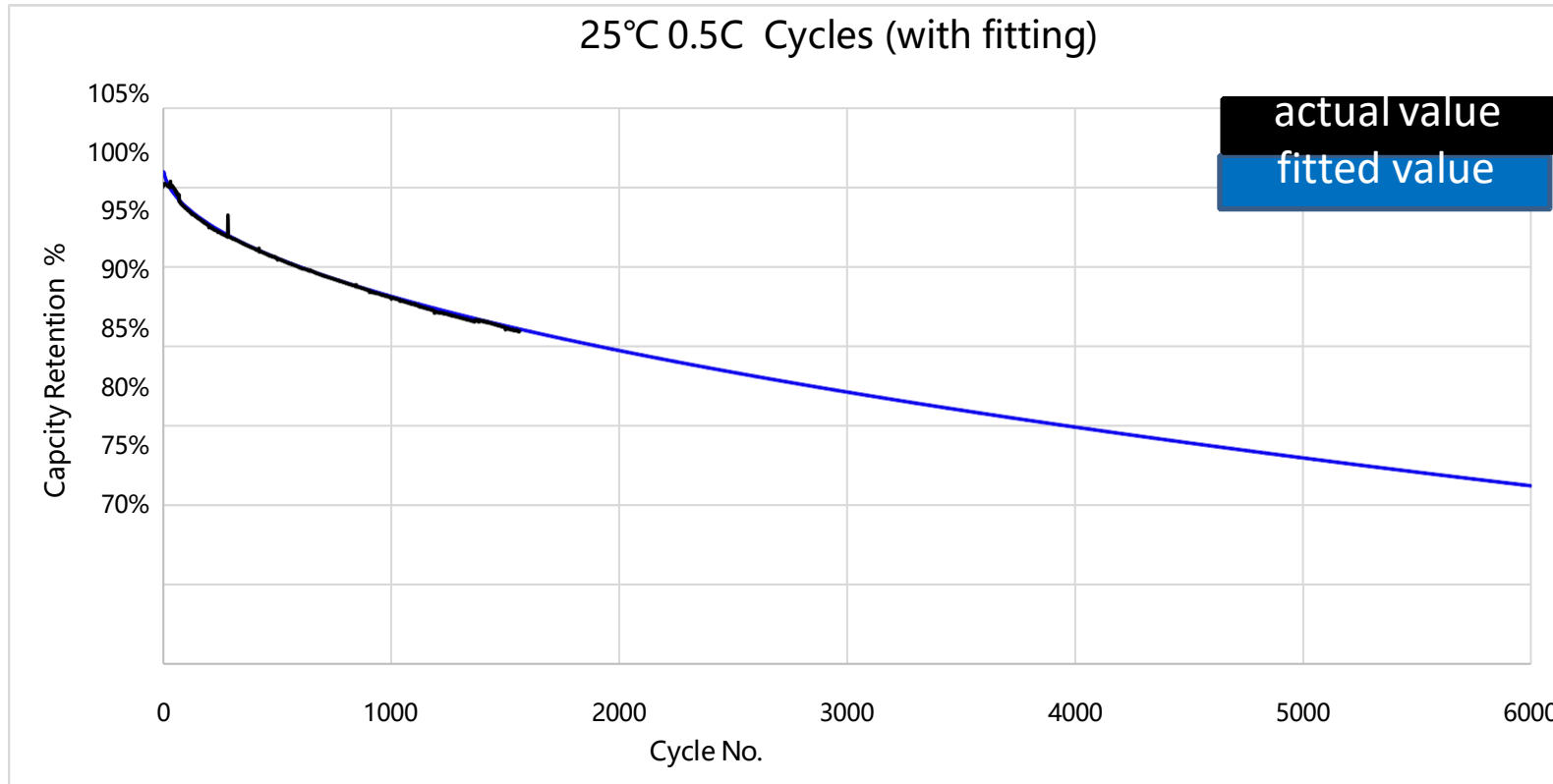
1. Basic Information



parameters	norm	conditional
chemical system	lithium iron phosphate	
sizes	160*49.9*118.5（mm）	altitude difference≤0.1mm
weights	1990±50g	
capacity	≥102Ah	0.2C@25℃, 2.7~3.56V/0.05C 102~108Ah
nominal voltage	3.2 V	
Operating Voltage Range	2.0~3.65V	20℃≤T≤0℃
	2.5~3.65V	0℃<T≤65℃
Operating temperature range (charging)	charge: 0~65℃ discharge: -20~65℃	
Maximum continuous charging current	0℃≤T<10℃, 0.1C; 10℃≤T<15℃, 0.2C; 15℃≤T<20℃, 0.3C; 20℃≤T<25℃, 0.6C; 25℃≤T<65℃, 1.0C;	
Maximum Continuous Discharge Current	1C, -20℃≤T<0℃ 2.5C, 0℃≤T<65℃	
Maximum pulse discharge current	400A/30s	
self-discharge	≤3%, 28 days; ≤5%, 90 days	25±2℃, 25%~50%SOC
Delivery State Voltage	3.25~3.29V	25±3%SOC
internal resistance	ACIR 0.15~0.35mΩ DCIR 0.8~1.8mΩ	25±3%SOC
cycle	25℃, 100%DOD, 6000 cycle @70%SOH 45℃, 100%DOD, 4000 cycle @70%SOH	0.5C/0.5C

2. Cycles (25~55°C)

➤ 25°C cycle



Recycling system:

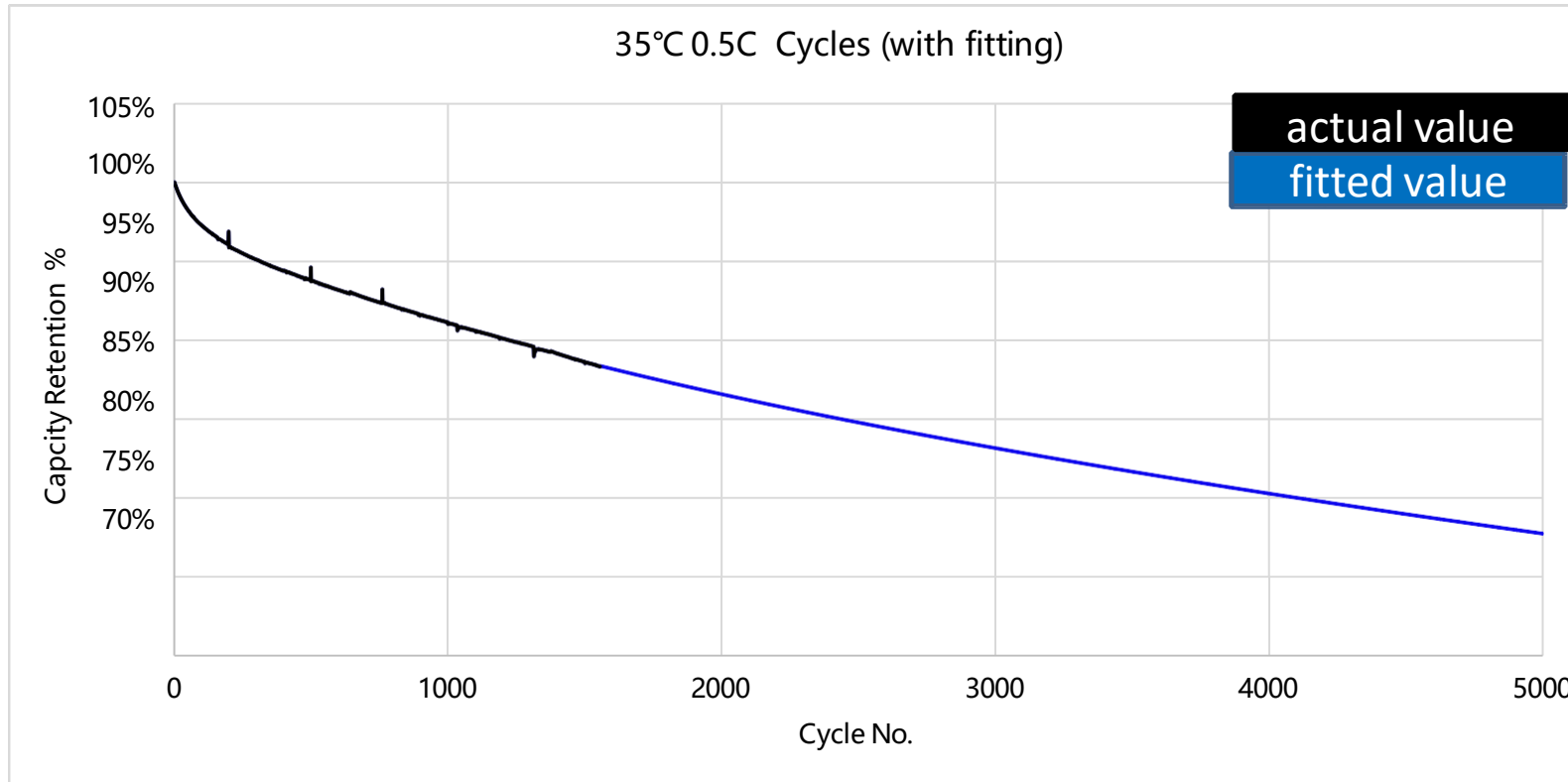
charge: 0.5C CCCV to 3.65V/0.05C;

discharge: 0.5C CC to 2.5V.

➤ **25°C Cycle Specification: 0.5C/0.5C, 100%DOD, 4000cls@80%SOH; 6000cls@70%SOH**

2. cycle (25~55°C)

➤ 35°C cycle



Recycling system:

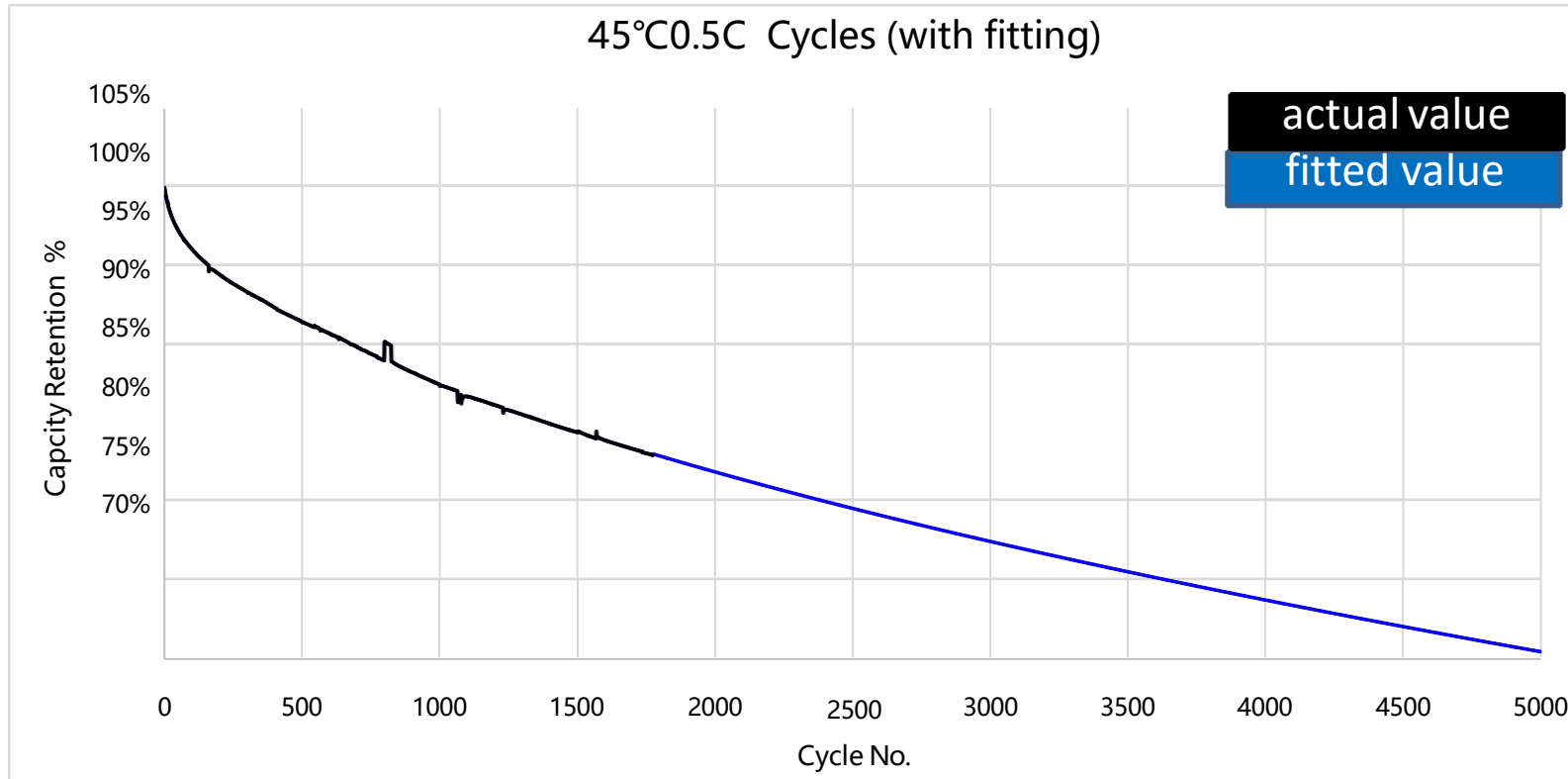
charge: 0.5C CCCV to 3.65V/0.05C;

discharge: 0.5C CC to 2.5V.

➤ **35°C Cycle Specification: 0.5C/0.5C, 100%DOD, 3500cls@80%SOH; 5000cls@70%SOH**

2. cycle (25~55°C)

➤ 45°C cycle



Recycling system:

charge: 0.5C CCCV to 3.65V/0.05C;

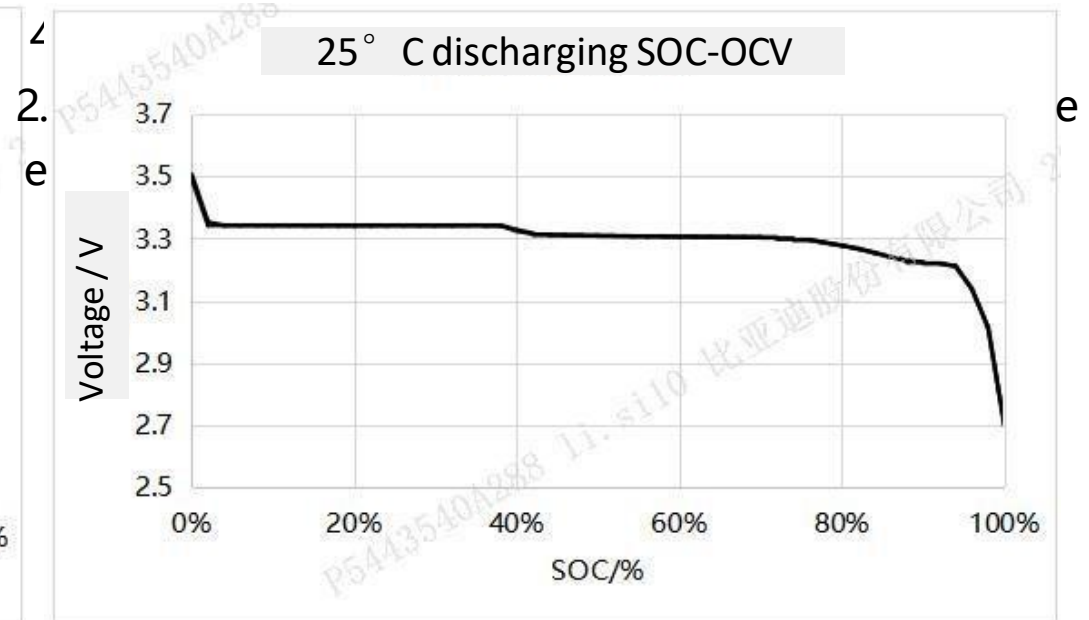
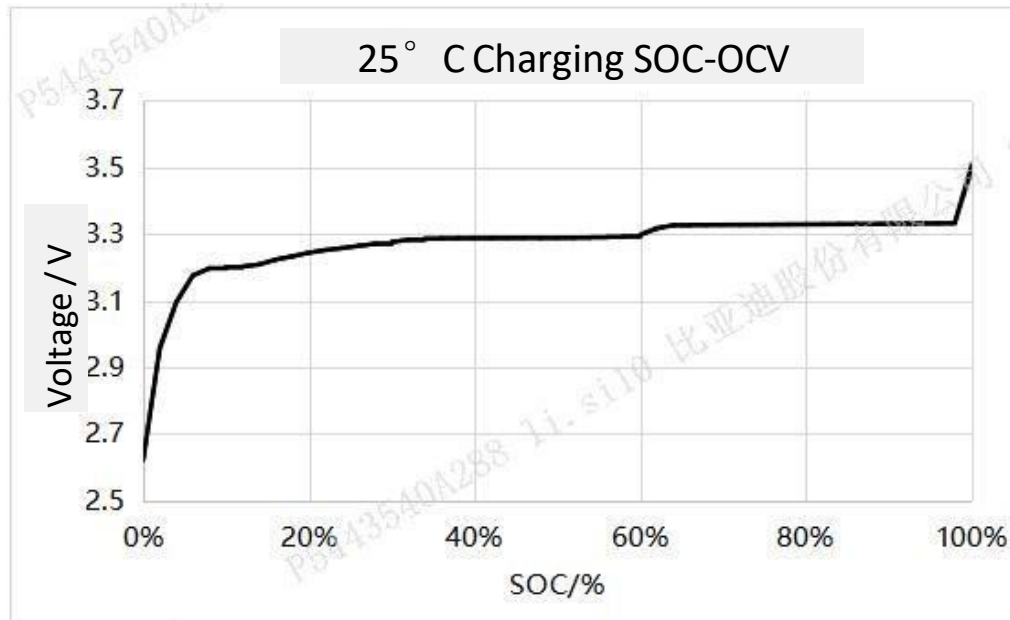
discharge: 0.5C CC to 2.5V.

➤ **45°C Cycle Specification: 0.5C/0.5C, 100%DOD, 2000cls@80%SOH; 4000cls@70%SOH**

3. Electrical performance

➤ SOC-OCV

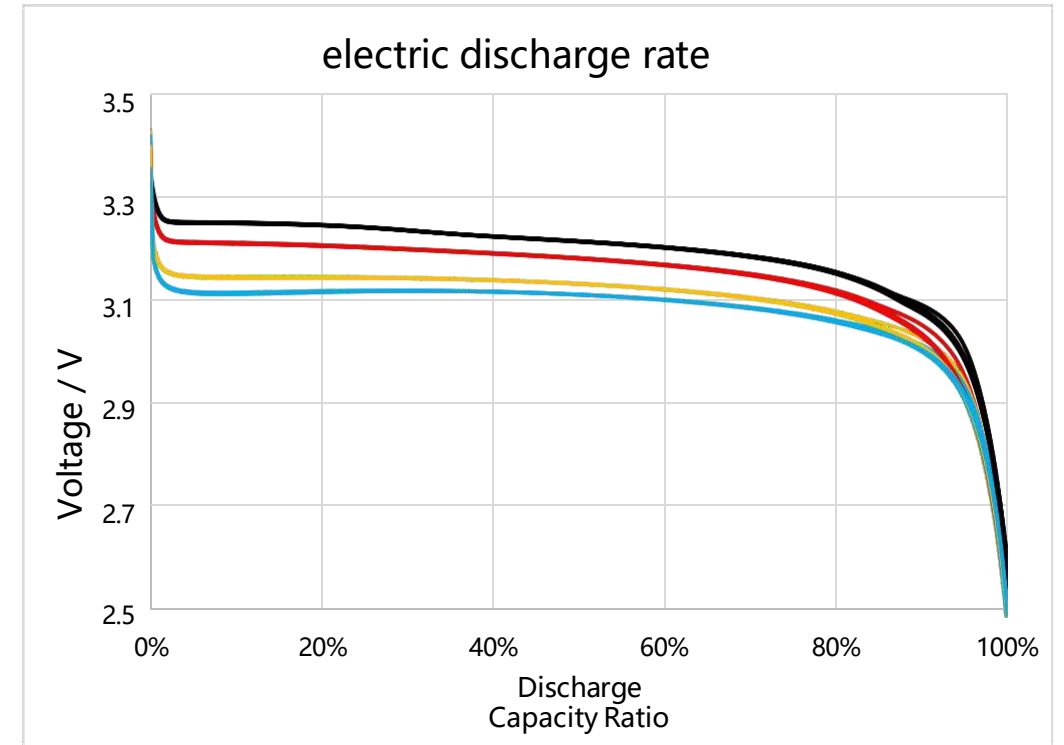
- Test Methods:
- (1) At room temperature, 0.04C discharge to 2.5V, set aside for 30min, 0.04C charge to 3.65V, set aside for 30min, 0.04C discharge to 2.5V, set aside for 30min, record the discharge capacity C_0 ;
- (2) 0.04 C_0 fixed capacity charging 2% C_0 , set aside for 2h;
- (3) Cycle step 2 for 49 times, then charge to 3.65V with 0.04 C_0 and set aside for 2h; record the SOC and the corresponding open-circuit voltage after each set aside for 2h;



3. Electrical performance

- Multiple Rate Discharge
- Test Method:
- Charging: 0.2C CCCV to 3.65V 0.05C cutoff, set aside for 30min;
- Discharge: 0.5C/1C/2C/2.5C constant current discharge to discharge cutoff voltage 2.5V;
- Specifications: 0.5C $\geq$ 100%; 1C=100%; 2C $\geq$ 98%; 2.5C $\geq$ 95%

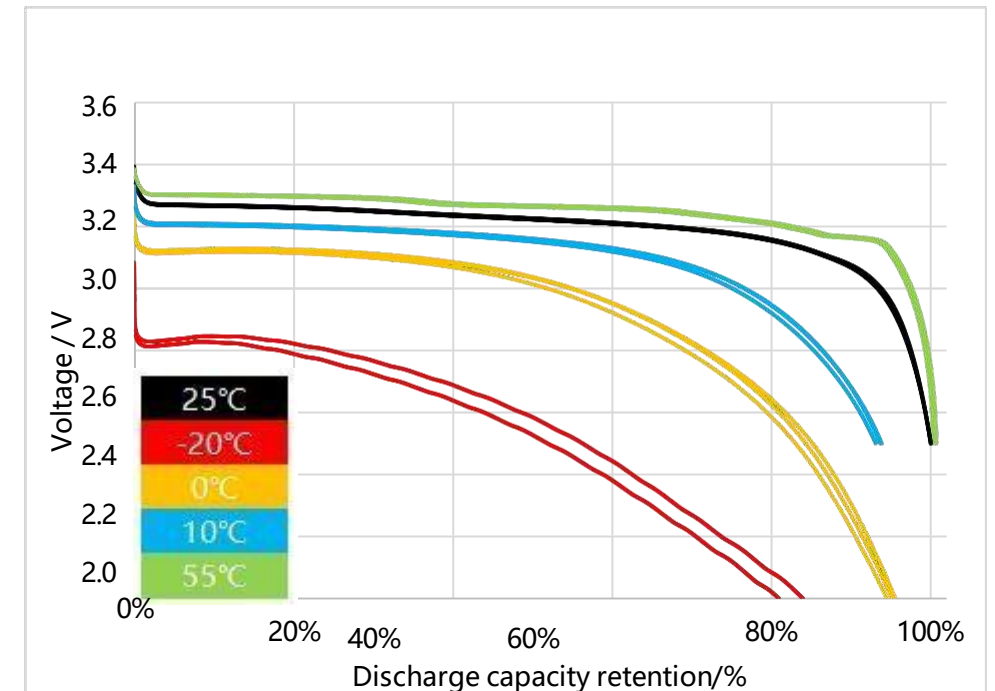
Discharge multiplier	capacity retention rate/%			
	1#	2#	3#	mean
0.5C	100.41%	100.62%	100.45%	100.49%
1C	100.00%	100.00%	100.00%	100.00%
2C	99.94%	99.82%	99.96%	99.91%
2.5C	99.92%	99.84%	99.93%	99.90%



3. Electrical performance

- Different temperature discharge
- Test methods:
 - 1) Cut off at 0.2C CCCV to 3.56V 0.05C and shelf for 30min;
 - 2) The core was shelved at -20/0/10/25/55°C for 4 hours, then discharged at 0.5C/0.5C/0.5C/0.5C/0.5C/0.5C at each temperature at constant current to the discharge cutoff voltage of 2.0V/2.0V/2.5V/2.5V/2.5V/2.5V; Specification: -20°C ≥ 60%, 0°C ≥ 80%, 10°C ≥ 90%, 25°C = 100%, 55°C ≥ 99%

Serial No.	Discharge Capacity Ratio (%)				
	25°C	-20°C	0°C	10°C	55°C
1	100.0%	84.0%	95.2%	93.7%	100.3%
2	100.0%	86.0%	95.6%	93.8%	100.7%
3	100.0%	80.9%	94.5%	93.1%	100.6%
mean	100.00%	83.65%	95.07%	93.53%	100.55%



4. Security testing

➤ Critical Safety Tests: Toughening Tests

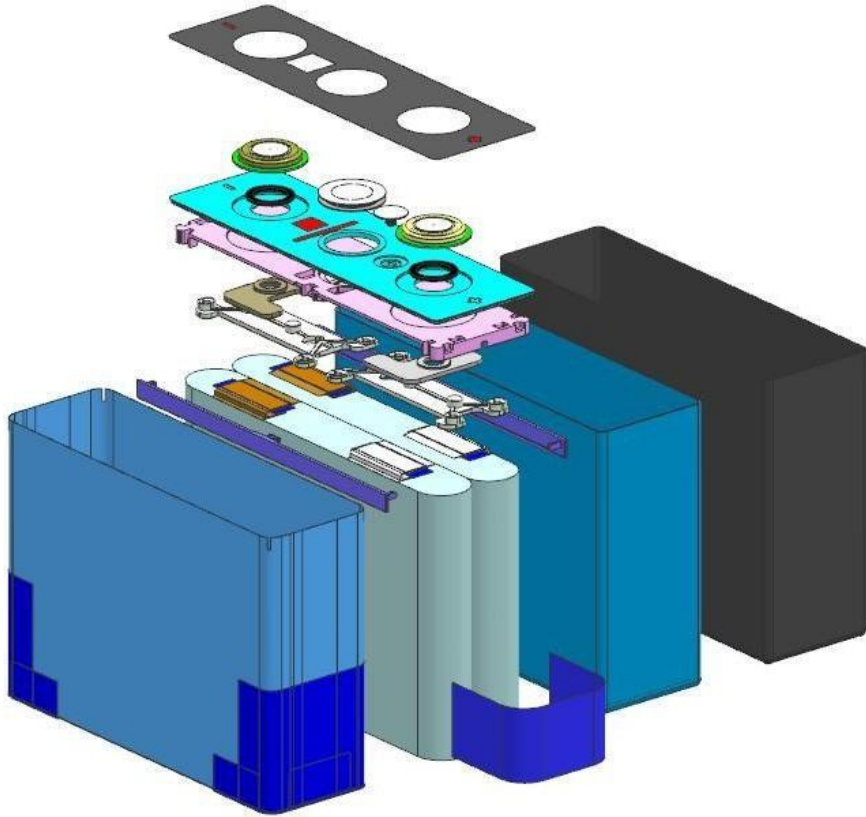
Test Items	Criteria for determination	Conclusion
Needle Punch Test	No fire, no explosion	Pass
Thermal runaway test	No fire, no explosion	Pass
Overcharge test	No fire, no explosion	Pass
High temperature short circuit (without fixture)	No fire, no explosion	Pass
Squeeze test (without fixture)	No fire, no explosion	Pass
Heavy impact test (without fixture)	No fire, no explosion	Pass
Drop test (without fixture)	No fire, no explosion, no liquid leakage	Pass
High and low temperature shock (without fixture)	No fire, no explosion, no liquid leakage	Pass
mechanical shock	No fire, no explosion, no liquid leakage, no gas leakage	Pass
vibration testing	No fire, no explosion, no liquid leakage, no gas leakage	Pass

5. Certification

- The products meet the requirements of EU ROHS, Battery Directive, REACH regulations, and have passed UL1642, IEC62619, IEC62133, UN38.3 certification.

Serial No.	Certified Programs	state of affairs
1	UL1642	pass
2	IEC62619	pass
3	IEC62133	pass
4	UN38.3	pass
5	Battery Command	pass
6	EU ROHS (10 items)	pass
7	UL9540	Ability to pass
8	UL1973	Ability to pass
9	IEC62620	Ability to pass

➤ **Safety-critical design:**



- **Insulation:** Except for pole post, 2D code, explosion-proof valve, positive and negative pole marking area, all other areas of the core need to be insulated;
- **Dielectric strength:** 3000VAC, <0.5mA
- Explosion-proof valve: $0.3\text{MPa} \leq P <$ shell cover laser welding tensile strength (freshly finished core state)
- -Explosion-proof valve opening pressure fluctuation value;
- **Core insulation protection:** insulation protection layer should cover the entire core
- **Polar lug insulation protection:** Polar lug root sticker, inner spacer & side spacer, insulating film multiple protection, to ensure insulation with aluminum shell, polar lugs and aluminum shell lap joints are not short-circuited;
- Welding seal, adapter piece, top cover welding protection: covering the whole welding seal;
- **CB value design:** effective capacity per unit area of negative electrode/effective capacity per unit area of positive electrode ≥ 1.1 , lithium analyzer protection.
- **Diaphragm protection:** 7PE+3CCL to ensure insulation and reduce internal resistance.
- Difference in width between positive and negative diaphragm: diaphragm exceeds negative $2\pm 4\text{mm}$, negative exceeds positive 1.5mm to prevent short circuit.

2020 to present, process stability, no safety issues customer complaints