

Product Specification

Product Name: Lithium-ion battery

Model: IFR26650-3000mAh-3.2V

Make By: _____

Checked By: _____

Approved By: _____

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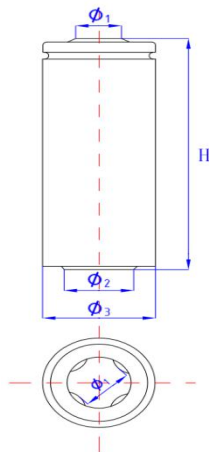
1. Application Scope

This product specification describes product performance indicators of Lithium-ion battery produced by Shenzhen Ucel Energy Limited.

2. Model

IFR26650-3000mAh-3.2V

3. Appearance and Dimension

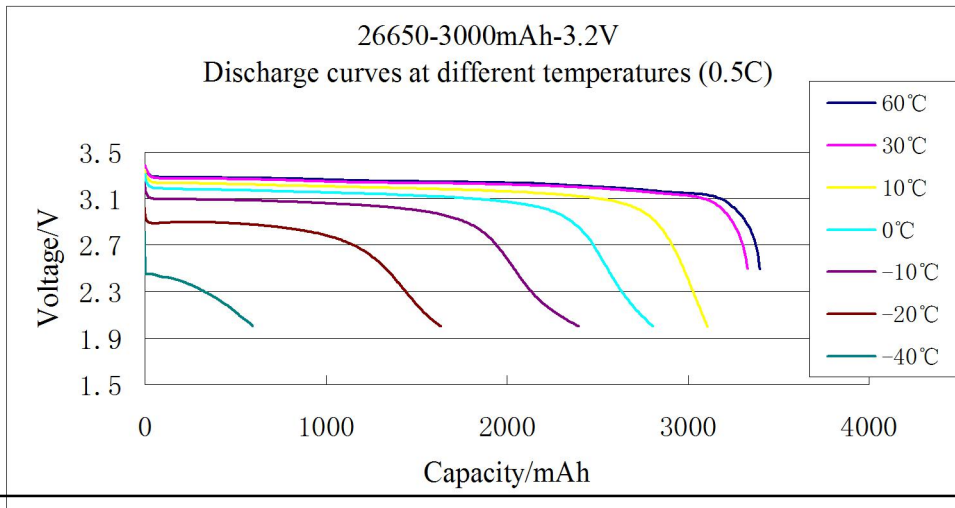
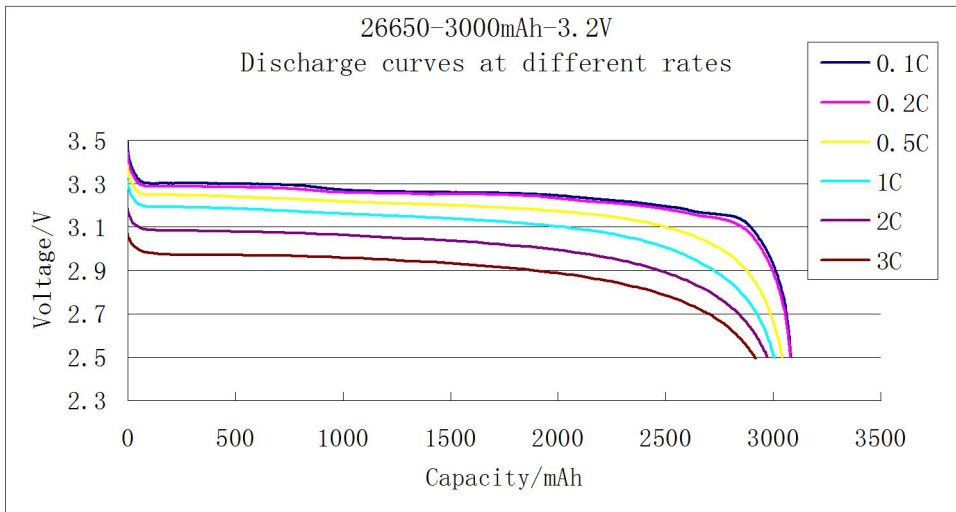
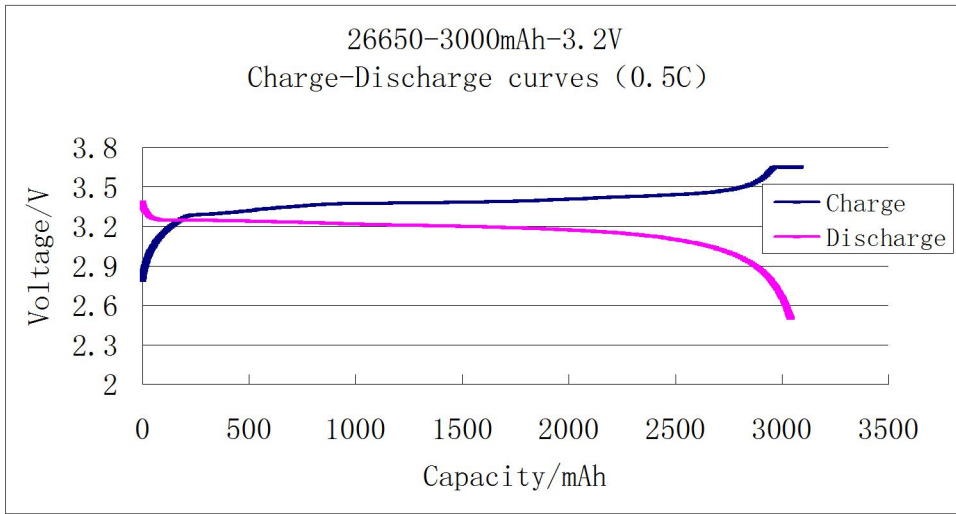


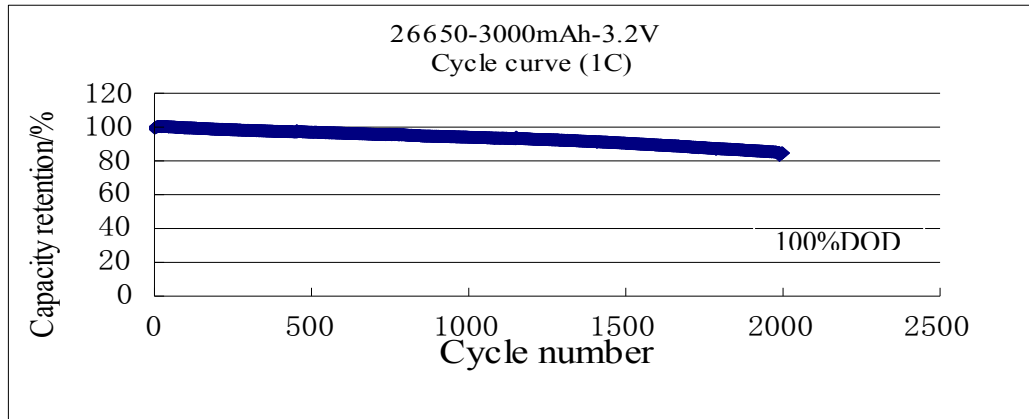
Item	H	Φ1	Φ2	Φ3
Dimension(mm)	65.6±0.3	12.2±0.2	18±0.2	26.15±0.1

4. Major Technical Parameters

No.	Item	Standard	Note
1	Standard Capacity	3000mAh	0.5C,(current value of 3000mA at1C)
2	Capacity Range	2900~3100mAh	0.5C
3	Standard Voltage	3.2 V	
4	Alternating Internal Resistance	≤30mΩ	
5	Charge Conditions	Cut-off Voltage	constant current charge to 3.65V at 0.5C, constant voltage charge to stop until 0.01C mA
		Cut-off Current	
6	DischargeCut-off Voltage	2.5V	
7	Cycle Characteristic	2000times(100%DOD)	the residual capacity is no less than 80% of rated capacity at 1C rate.
		4000 times (80%DOD)	
		7000 times (50%DOD)	
8	Max. charging current	3.0A	
9	Max. Continuous Discharge Current	9.0A	
10	Pulse Discharge Current	15A, 5s	
11	Working Temperature	Charge:0°C~55°C Discharge:-20°C~60°C	
12	Storage Temperature	-20°C ~ 45°C	Short-term storage (< 3 months)
13	Battery Weight	85g (Approx.)	

5. Characteristics Curves





6. Safety Characteristics

NO.	Item	Test Method	Standard
1	Overcharge	After normal charge, test the batteries' initial state and capacity. Charge to 10.0V at 3C, then charge at CV mode to 0.01C. Observe battery's variation of appearance.	No explosion, No fire.
2	Over Discharge	After normal charge, test the batteries' initial state. When the batteries are normal, Discharge to 0V at 0.5C. Observe battery's variation of appearance.	No explosion, No fire.
3	External Short-circuit	After normal charge, test the batteries initial state, Keep the battery into explosion protection cover, short-circuit the positive and negative terminals directly (general resistance shall be less than or equal to 50mΩ). Stop the test when the temperature falls to 10°C lower than the peak value. Observe the variation of the batteries' appearance and temperature.	No explosion, No fire.
4	Thermal Abuse	Test the batteries' initial state and capacity. Standard charge. Put battery into oven, increase the temperature to 130±2°C at rate of (5±2°C) /min, and keep it for 30min. Observe variation of batteries' appearance.	No explosion, No fire.
5	Drop	Test the initial capacity. Standard charge. Then let it fall from a height of 1m (the lowest height) to a smooth cement floor, twice.	No explosion, No fire.
6	Impact Test	A diameter of 15.8 mm steel rod is placed in the middle of the fully charged battery, then the weight of 10Kg hammer from 1.0 meter freely falls to the battery upper.	No explosion, No fire.

7	Extrusion Test	Place the battery in between the pressing surface of extrusion apparatus, parallel the axes of cylindrical battery to the pressing surface, and gradually increase pressure up to 13KN, keeping the pressure for 1min.	No explosion, No fire.
8	Prick test	Use Φ 3 mm to 5 mm high temperature resistant steel needle, to 10 mm/s ~ 40 mm/s of speed, from the perpendicular to the direction of the battery plate(Steel needle stops in the battery).	No explosion, No fire.

7. Environmental Adaptability

NO	Item	Test Method	Standard
1	Temperature Cycle	Store the battery for 48 hours at $75\pm 2^{\circ}\text{C}$ after standard charge, then store the battery at -20°C for 6 hours, and at room temperature for 24 hours. Observe the batteries' appearance.	No leakage, No smoke, No fire, No explosion.
2	Static Humidity	Put the battery at $40^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and 95%RH chamber for 48h, then get it out and store it for 2h at room temperature. Observe the appearance and discharge at 0.5C to 2.5V, then test the final capacity.	Discharge capacity after storage is more than 90% of rated capacity. No obvious outside damage, No corrosion, No smoke, No explosion
3	Vibration	Standard charge. Equip it to the vibration platform, prepare the test equipment according to following vibration frequency and relevant swing, doing frequency sweeping from X, Y, Z three directions, each from 10Hz to 55Hz for 30 minutes of recycling, rating of which is 1oct/min: A)vibration frequency:10Hz~30Hz Displacement breadth (single swing): 0.38mm B)vibration frequency:30Hz~55Hz Displacement breadth (single swing): 0.19mm. Observe the final state after scanning.	Residual Capacity \geq 90% Rated Capacity Voltage Decrease Rate \leq 0.5% No obvious outside damage, No leakage, No smoke, No explosion.
4	Normal Storage	Test the batteries' initial state and capacity; store the battery for 30 days after standard charge, test the final state; Discharge at 0.5C to 2.5V, then test batteries' residual capacity. Then after normal charge, discharge at 0.5C to 2.5V, then test the batteries' recovery capacity, Three cycles are permitted for this test, If one of the three cycles can reach the standard, it represents the battery has reached the standard.	Residual Capacity \geq 90% Initial Capacity Recuperative Capacity \geq 95% Initial Capacity

8. Standard Test Environment

Unless especially specified, all tests stated in this Product Specification are conducted at below condition:

Temperature: $25\pm 2^{\circ}\text{C}$

Humidity: $(65\pm 20)\% \text{RH}$

9. Storage and Others**9.1 Long Time Storage**

If the battery is stored for a long time (more than three months),the battery should be stored in dry and cool place. The battery should be charged and discharged every three months. The batteries' storage voltage should be 3.3~3.4V and the battery should be stored in a condition as NO.8.

9.2 Others

Any matters that this specification does not cover should be consulted between the customer and Ucel Energy .