



Product Specification

Model No.: CL2295120F1

Doc. No.:
Rev: D1.0
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1. Preface

The product specification covers the general performance, test method and quality requirements for the rechargeable lithium ion battery, CL2295120F1, manufactured and supplied by **LiFeBATT, Inc. USA**

2. Description

2.1	Description	Rechargeable Lithium-ion Battery
2.2	Dimension	22 mm (T) × 95 mm (W) × 120 mm (H)
2.3	Weight	Approx. 495±10 g

3. Specifications

3.1	Nominal Capacity	20,000mAh
3.2	Minimum Capacity	19000mAh
3.3	Charging Voltage	3.65 V
3.4	Typical Voltage	3.20 V
3.5	Cut-off Discharge Voltage	2.30 V
3.6	Charging Method	CC/CV (Constant Current/Constant Voltage)
3.7	Maximum Discharge Current (continuous)	160A
	Maximum Discharge Current (18s pulse)	300 A
3.8	Maximum Charge Current	40A
3.9	Cycle Life	1500 cycles \geq 15200mAh
3.10	Operation Temperature	
	Charge Temperature Range	-10~50°C
	Discharge Temperature Range	-20~60°C
3.11	Short Period (1 month)	0~45°C
	Long Period (6 month)	0~35°C
3.12	Energy Density	
	Gravimetric	> 129 Wh/Kg
	Volumetric	> 255Wh/L
3.13	Power Density (80% SOC, 18s peak)	
	Gravimetric	> 1100 W/Kg
	Volumetric	> 2200 W/L
3.14	Initial Internal Impedance	<6 mΩ

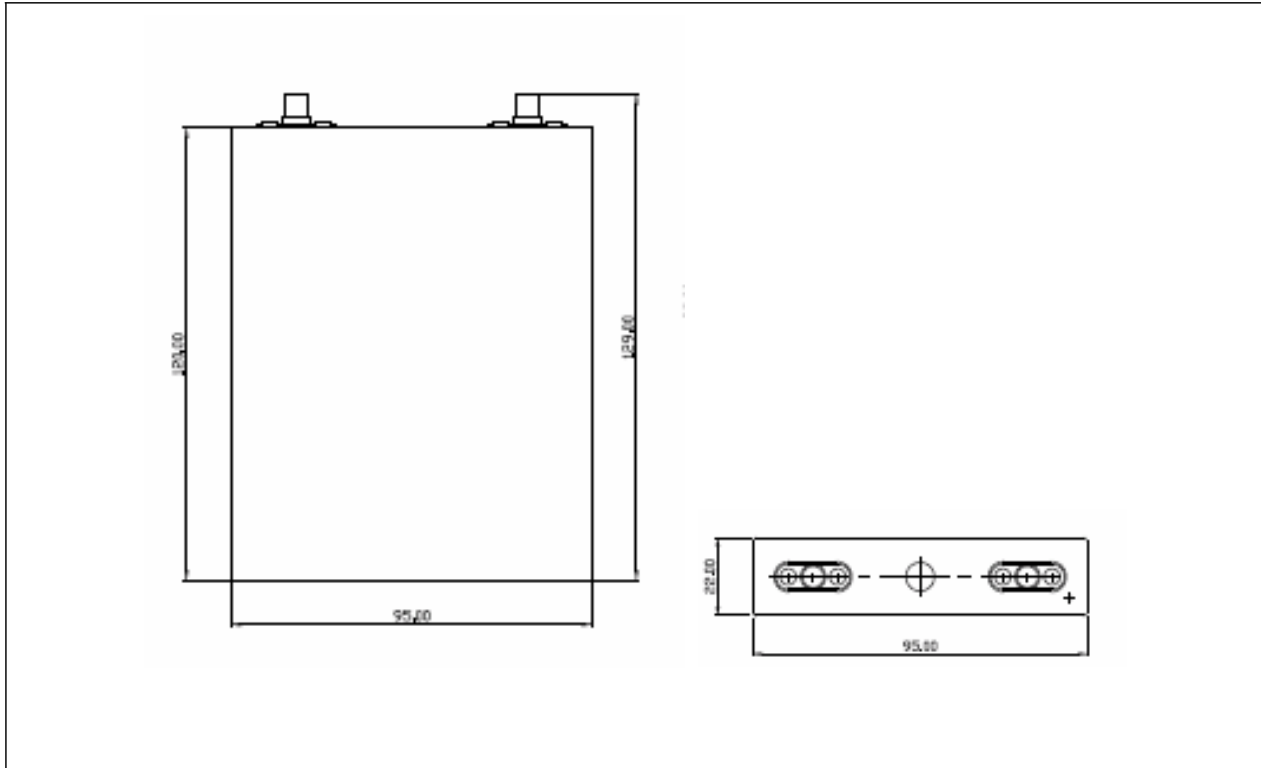
4. Outline Dimension



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5. Appearance

Appearance shall be free from any remarkable scratches, flaws, rust, discoloration or electrolyte leakage

6. Standard Test Conditions

6.1 Environmental Conditions

Unless otherwise specified, all tests stated in this Product Specification are conducted within the temperature range of $23\pm 3^{\circ}\text{C}$ and the humidity range of $50\pm 20\% \text{RH}$.

6.2 Test Equipment

6.2.1 Charger and voltmeter

The charger and voltmeter should have an accuracy of $\pm 0.01\text{A}$ and $\pm 0.01\text{V}$.

6.2.2 Slide Caliper

The slide caliper should have a scale of 0.05mm

6.2.3 Impedance meter

The impedance meter should be operated at 1kHz.

7. Reliability Test Procedure and Criteria



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Item		Test Procedure	Criteria
7.1	Appearance	Visual	No Defect and Leakage
7.2	Dimension	Caliper	As item 4
7.3	Weight	Scale	As item 2.3
7.4	Fully Charged	CC/CV (Constant Current / Constant Voltage)	Constant Current 4 A Constant Voltage: 3.65 V
7.5	Open Circuit Voltage (as shipment)	Voltmeter	3250 ~3450 mV
7.6	Internal Impedance	Impedance meter at 1kHz AC	<6 mΩ
7.7	Discharge Capacity	After fully charged, discharge at 0.2C current until the voltage reaches 2.3V.	>19000 mAh
7.8	Cycle Life	Charge: CC/CV, CC at 0.2C, CV at 3.65 V, Cut-off Current: 0.05C. Discharge: 0.2C to 2.3V.	The 1000 th Discharge capacity ≥15200 mAh

8. Safety Test Procedure and Criteria

Item		Test Method	Criteria
8.1	Short Circuit	At room temperature, connecting the positive and negative terminals of the cell with a maximum resistance load of 0.1 ohm until it is completely discharged and the cell's temperature has returned to near ambient temp.	No fire or explosion. The temperature of the exterior cell shall below 150°C
8.2	Abnormal Charge	The cell is to be subjected to a 0.2C charging current and charged to 5.0V (CC/CV) for 7 hours at RT	No fire or explosion
8.3	Crush	Place the cell between 2 iron plates in parallel. Apply a force of 13 kN on the plate by a 32mm diameter piston. Both the wide and narrow sides are subjected to the crush. Separate samples are to be used for each test.	No fire or explosion