

120155250P Specification (LF-02)

Version 1.0

Jul 15, 2022

Amita Technologies Inc.

Highly Restricted – For Amita’s Customer Use Only

Revision History

Revision Number	Release Date	Issued by	Comments
Draft A	Aug 25, 2021	Product Development	First Draft
Version 1.0	Jul 15, 2022	R&D Development	3.12 Energy Density (Gravimetric): approx. 169.3 Wh/kg 3.13 Cell Weight: approx. 860 g 7.5 C-rate discharge Capacity : 1C 、 1.5C 、 2C 7.5 Cycle Life 8. SHIPMENT STATUS

TABLE OF CONTENTS

1. SCOPE	5
2. GENERAL SPECIFICATION	5
2.1 BATTERY TYPE: LITHIUM POLYMER RECHARGEABLE CELL	5
2.2 SHAPE: PRISMATIC	5
2.3 MODEL NO: 120155250P (LF-02)	5
3. RATINGS	5
3.1 STANDARD CHARGE/DISCHARGE CAPACITY	5
3.2 NOMINAL VOLTAGE: 3.20 V (FROM 3.65V TO 2.5V)	5
3.3 CHARGE VOLTAGE: 3.65 V \pm 0.05V	5
3.4 CHARGING METHOD: CC – CV (CONSTANT VOLTAGE WITH LIMITED CURRENT OR TIME)...	5
3.5 CHARGE CURRENT	5
3.6 DISCHARGE CUT-OFF VOLTAGE: 2.5V \pm 0.10V	5
3.7 DISCHARGING METHOD: CC (CONSTANT CURRENT)	5
3.8 DISCHARGE CURRENT.....	5
3.9 INITIAL INTERNAL RESISTANCE: < 1.0 m Ω , 25 $^{\circ}$ C	5
3.10 ENERGY (WH): 145.6 WH.....	5
3.11 ENERGY DENSITY (VOLUMETRIC): APPROX. 314 WH/L	5
3.12 ENERGY DENSITY (GRAVIMETRIC): APPROX. 169.3 WH/KG	5
3.13 CELL WEIGHT: APPROX. 860 G	5
3.14 OPERATING TEMPERATURE AND HUMIDITY RANGE	6
3.15 STORAGE TEMPERATURE AND HUMIDITY RANGE.....	6
4. APPEARANCE	6
5. INITIAL CELL DIMENSIONS (UNIT: MM)	7
6. STANDARD TEST CONDITIONS	8
6.1 ENVIRONMENTAL CONDITIONS	8
6.2 MEASUREMENT ACCURACY.....	8
7. CHARACTERISTICS	8
7.1 STANDARD CHARGE	8
7.2 INITIAL INTERNAL RESISTANCE	8
7.3 INITIAL CAPACITY: 0.2C	8
7.4 C-RATE DISCHARGE CAPACITY : 1C 、 1.5C 、 2C	9
7.5 CYCLE LIFE:	9

8. SHIPMENT STATUS..... 9

9. OTHERS..... 9

LOT NUMBER DEFINITION..... 9

1. SCOPE

This specification has been designed specifically to meet customer's requirements. It describes the physical, functional, and electrical characteristics of the 120155250P Lithium Polymer Batteries.

2. GENERAL SPECIFICATION

2.1 Battery Type: Lithium Polymer rechargeable cell

2.2 Shape: Prismatic

2.3 Model No: 120155250P (LF-02)

3. RATINGS

3.1 Standard Charge/Discharge Capacity

Typical Capacity : 45.5Ah

Minimum Capacity: 44.0Ah

3.2 Nominal Voltage: 3.20 V (from 3.65V to 2.5V)

3.3 Charge Voltage: 3.65 V \pm 0.05V

3.4 Charging Method: CC – CV (constant voltage with limited current or time)

3.5 Charge Current

Standard charge: 8.8A (0.2C) at 25°C

Max. Continuous Charge : 132A (3C)

3.6 Discharge Cut-off Voltage: 2.5V \pm 0.10V

3.7 Discharging Method: CC (constant current)

3.8 Discharge Current

Standard Discharge: 8.8A (0.2C) at 25°C

Max. Continuous Discharge: 132A (3C)

3.9 Initial Internal Resistance: < 1.0 m Ω , 25°C

3.10 Energy (Wh): 145.6 Wh

3.11 Energy Density (Volumetric): approx. 314 Wh/l

3.12 Energy Density (Gravimetric): approx. 169.3 Wh/kg

3.13 Cell Weight: approx. 860 g

3.14 Operating Temperature and Humidity Range

Standard Charge	10~45°C, RH45~85%
Max. Charge	10~40°C, RH45~85%
Standard Discharge	-20~45°C, RH45~85%
Max. Discharge	10~40°C, RH45~85%

3.15 Storage Temperature and Humidity Range

Storage at about 30%~50% SOC

Within 2 Years	-20~35°C, RH45~85%
Within 1 Year	-20~40°C, RH 45~85%

4. APPEARANCE

Scratch, damage and leakage would impact the performance of the battery. All surfaces must be clean, without discoloration and corrosion.

5. INITIAL CELL DIMENSIONS (UNIT: MM)

Initial Thickness (30%SOC) : 12.1 ± 0.4 mm

Width: 155.5 ± 2 mm

Length: 250 ± 1 mm

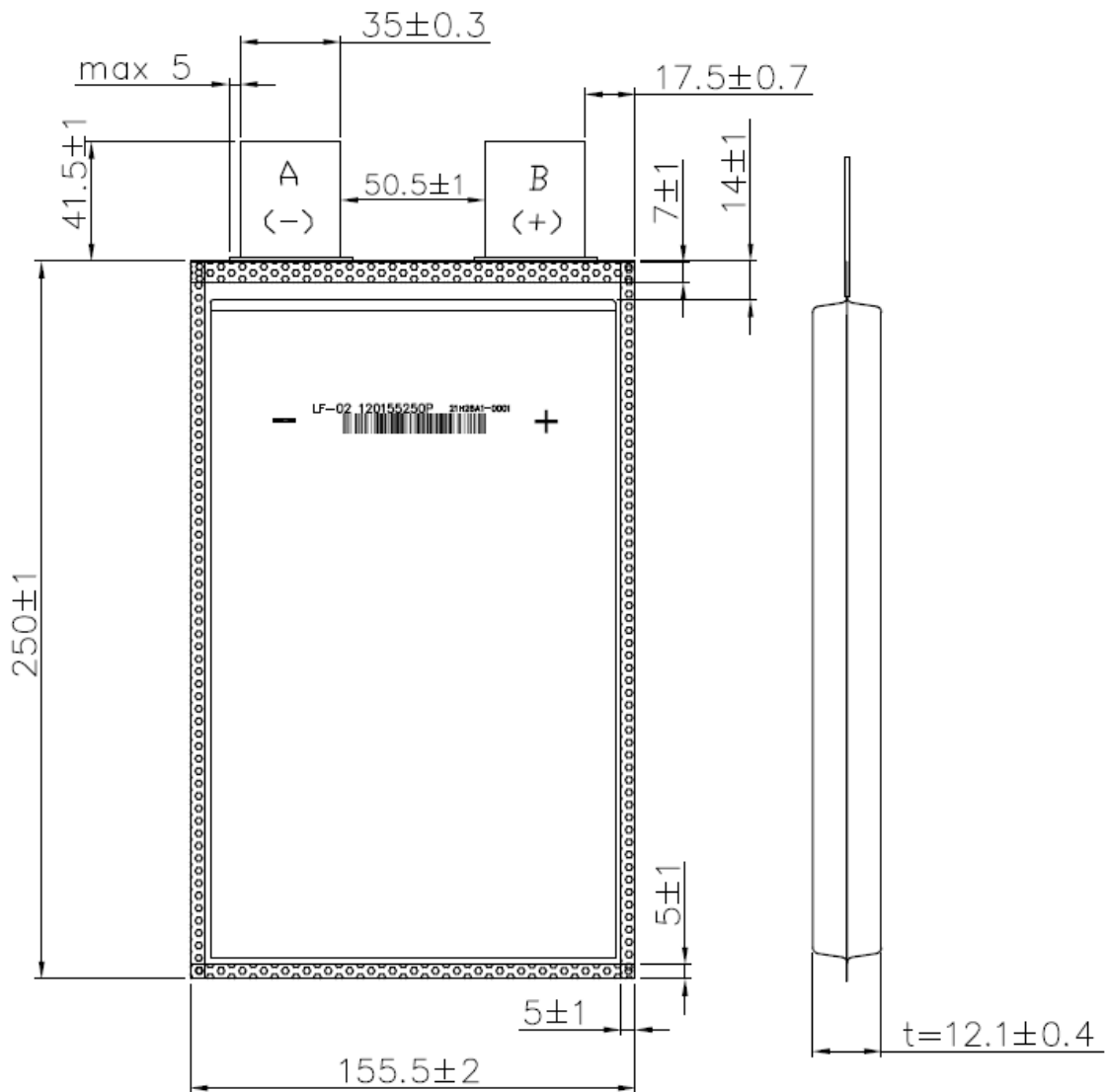
Gap between tabs: 50.5 ± 1 mm

Width of tab: 35 ± 0.3 mm

Width of film: 5mm (max)

Tab (A): - (Cu-Ni $t = 0.3 \pm 0.05$ mm , Ni = $1.5 \pm 0.5 \mu$ m)

Tab (B): + (Al $t = 0.4 \pm 0.05$ mm)



6. STANDARD TEST CONDITIONS

6.1 Environmental Conditions

6.1.1 Testing cells should be used for testing purpose only. All test items must be implemented within 2 weeks after shipment from factory.

6.1.2 Testing cells should not be recycled.

6.1.3 Unless otherwise specified, all test items must be implemented at $25\pm 5^{\circ}\text{C}$ and $65\pm 20\%\text{RH}$.

6.2 Measurement Accuracy

6.2.1 Voltmeter: The absolute accuracy of the detecting is $\pm 5\text{mV}$ or higher, with internal resistance of $1\text{k}\Omega/\text{V}$ or higher.

6.2.2 Ammeter: The absolute accuracy of the detecting is $\pm 5\text{mA}$ or higher, with total resistance (including ammeter and external lead wire) of $10\text{m}\Omega$ or lower.

6.2.3 Calipers: The absolute accuracy of the detecting is $\pm 0.02\text{mm}$ or higher.

6.2.4 Internal Resistance Tester: The absolute accuracy of the detecting is a frequency of 1kHz (Sine Wave). The device records the resistance by 4-terminal sensing method.

6.2.5 Balance: The absolute accuracy of the detecting is $\pm 0.02\text{g}$ or higher.

6.2.6 Capacity Tester: The absolute accuracy of the voltage detecting is $\pm 5\text{mV}$, while current is $\pm 5\text{mA}$ or higher.

7. CHARACTERISTICS

7.1 Standard Charge

It means charging the battery with 8.8A (0.2C) constant current and 3.65V constant voltage for 5~6 hours and cut-off -charge current is 2.2A .

7.2 Initial Internal Resistance

Should be less than $<1.0\text{m}\Omega$ after standard charge at 25°C

7.3 Initial Capacity: 0.2C

The initial capacity is the initial discharge capacity of the cell, which is measured by discharge current 8.8A (0.2C) with 2.5V cut-off within 5 hours after the standard charge

The initial capacity $\geq 44\text{Ah}$, which can be discharged ≥ 300 minutes.

7.4 C-rate discharge Capacity : 1C 、 1.5C 、 2C

0.2C: Standard charging (Refer to 7.1)

1.5C: Standard charging, and then discharging the cell by standard quick discharge method (1.5C_66A_ CC method) discharge to 2.5V capacity ≥ 43.1 Ah ;

2.0C: Standard charging, and then discharging the cell by standard quick discharge method (2.0C_88A_ CC method) discharge to 2.5V capacity ≥ 42.7 Ah ;

7.5 Cycle Life:

A cycle is an interval between the charging (charging current 44A) with 3.65V for ~1 hours , and the discharging (44A constant current discharge) with 2.50V cut-off.

Capacity after 3000cycles at 25°C (measured under the same conditions stated in standard charge/discharge): 80% of the initial capacity.

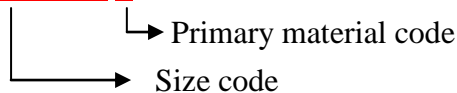
8. SHIPMENT STATUS

Standard : Open circuit voltage ~ 3.26 V, ~20 % SOC before shipment

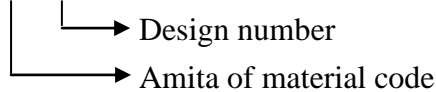
9. OTHERS

Lot Number Definition

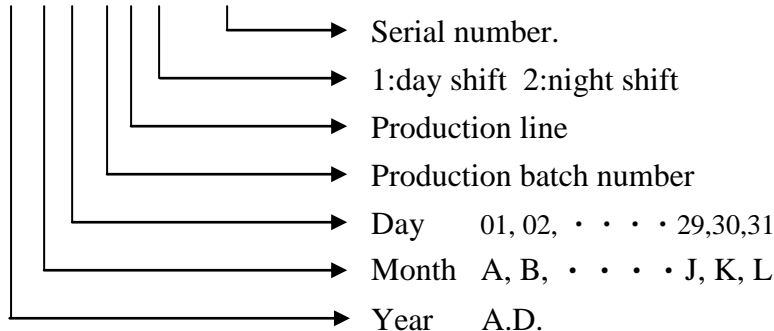
120155250 P



LF - 02



22 G15 1 A 1 - 1234



END OF DOCUMENT