



Cell Specification Document

Cell Model Number: SA112

Amprius Technologies, Inc.
1180 Page Ave.
Fremont, CA 94538

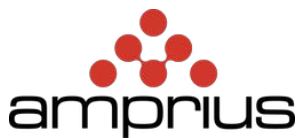


TABLE OF CONTENTS

Contents

1 General	3
2 Cell Details	3
2.1. Description	3
2.2. Dimensions and Label	3
3 Cell Specification	4
4 Technical Requirements	5
4.1. Cell Testing Conditions	5
4.2 Cell Appearance	5
4.3 Performance Characteristics	5
4.4 Safety and Mechanical Characteristics	6
5 Precautions for use	7
6 Warranty	7
7 Recommended Storage Conditions	7
8 Special Consideration	7
9 Environmental	7
10 Customer Responsibilities	7
11 Note	8
12 Contact Information	8

1 General

This specification defines the requirements and characteristics of a lithium-ion rechargeable cell, SA112 3.46V 6.5Ah 21700 (INR21700-6500mAh), designed by and manufactured for Amprius Technologies.

2 Cell Details

2.1. Description

Model: SA112

Description: INR21700 Cylindrical Rechargeable Li-Ion Cell

Capacity: 6500mAh

Color: Green

2.2. Dimensions and Label



Special Note: The cell contains a CID (Current Interruption Device)

3 Cell Specification

Items		Specification and Remarks	
1	Nominal Capacity	6500mAh	Standard Charge as defined in 3.9 0.2C (1300mA) discharge to 2.5V
2	Minimum Capacity	6350mAh	
3	Nominal Energy	22.5 Wh	
4	Nominal Voltage	3.46V	
5	Charging Voltage	4.20V	
6	Over Voltage Threshold	4.23V	For protection settings
7	End of Discharge Voltage	2.50V	
8	Under Voltage Threshold	2.20V	
9	Standard Charge Method	0.5C (3250mA) CC/CV charge to 4.20V, 0.02C (130mA) Charge termination	
10	Standard Discharge Method	1.0C (6500mA) continuous down to 2.50V	
11	ACIR	≤ 18mΩ	Fresh Cell, 1kHz @ 30% SOC
12	Cell Weight	72g ± 2g	Including sleeve
13	Typical Charge Current	0.5C (3250mA)	
14	Maximum Charge Current	0.7C (4550mA)	
15	Max Charge Current vs Temp	Max Charge	Cell Surface Temperature
		No Charge	Less than 0°C
		0.1C (600mA)	0°C ≤ T < 5°C
		0.5C (3250mA)	5°C ≤ T < 15°C
		0.7C (4550mA)	15°C ≤ T < 60°C
		No Charge	Greater than 60°C
16	Typical Discharge Current	1.0C (6500mA)	
17	Maximum Discharge Current	2.0C (13000mA)	
18	Ambient Operating Temperature	Charge Low	0°C
		Charge High	45°C
		Discharge Low	-20°C
		Discharge High	60°C
19	Max Cell Skin Temperature	Charge	60°C
		Discharge	70°C
20	Storage Temp vs. Duration	-20°C ≤ T ≤ 25°C	12 months
		-20°C ≤ T ≤ 45°C	3 months
		-20°C ≤ T ≤ 60°C	1 month
21	Shipping OCV	3.40 to 3.50V	Fresh cell @ 30% SoC max



4 Technical Requirements

4.1. Cell Testing Conditions

Unless otherwise specified, all tests stated according to the following conditions:

- Ambient Temperature: $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$
- Humidity: $60\% \pm 25\% \text{ RH}$
- Atmospheric Pressure: 86KPa to 106KPa
- Cells to be tested shall not be more than one month old from the date of shipment from the factory and shall not be cycled more than five times.

4.2 Cell Appearance

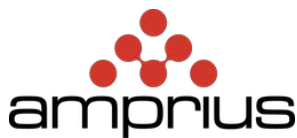
There shall be no visible defects, including but not limited to, rust, electrolyte leakage, damaged sleeve, or significant dents or scratches

4.3 Performance Characteristics

Item	Test Conditions	Criteria	
		Rate	Efficiency
1	Discharge Rate Capability After a standard charge per 3.9 above, the cell shall be discharged using the listed discharge rates down to 2.50V	0.2C (1300mA)	100%
		0.5C (3250mA)	>95%
		1C (6500mA)	>93%
		2C (13000mA)	>90%
2	Cycle Life Test Profile: • Charge at 0.5C (3250mA) CC/CV to 4.20V, 0.02C cut-off • Rest 10 minutes • Discharge at 1.15C (7500mA) down to 2.75V • Rest 30 minutes	The measured capacity on the 700 th cycle shall be greater than 80% of the capacity measured on the first cycle	
3	Temperature Performance • Cells shall be charged per 3.9 above and discharged at 0.2C (1300mA) down to 2.50V. • Charging temperature = $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ • Discharge Temperature as listed • Cells shall be held at low temperatures for 4 hours prior to discharge • Cells shall be held at high temperature for 2 hours prior to discharge • The measured discharge capacity at each temperature setting shall be compared to the measured discharge capacity at 25°C	Discharge Temperature	Efficiency
		-20°C	>70%
		-10°C	>75%
		0°C	>80%
		25°C	100%
		55°C	>95%
4	After a standard charge per 3.9 above, the cell shall be stored at $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 28 days. After 28 days, the cell shall be discharged at 1C down to 2.5V. This is the retained capacity . The cell shall then be charged per 3.9 above and discharged at 1C down to 2.50V. This is the recoverable capacity .	Retained Capacity $\geq 85\%$ of 3.2 above Recoverable Capacity $\geq 90\%$ of 3.2 above	
5	After a standard charge per 3.9 above, the cell shall be stored at $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 7 days. After 7 days, the cell shall be discharged at 1C down to 2.5V at $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$. This is the retained capacity . The cell shall then be charged per 3.9 above and discharged at 1C down to 2.50V. This is the recoverable capacity .	Retained Capacity $\geq 85\%$ of 3.2 above Recoverable Capacity $\geq 90\%$ of 3.2 above	

4.4 Safety and Mechanical Characteristics

	Item	Test Conditions	Criteria
1	Low Pressure	After a standard charge per 3.9 above, the cell shall be stored for 6 hours at an absolute pressure of 11.6kPa and a temperature of 25°C ± 2°C	No explosion, no fire
2	Temperature cycle	After a standard charge per 3.9 above, the cell shall be placed in a thermal chamber and subjected to the following cycles: 1. Increase the chamber temperature to 75°C ± 3°C within 30 minutes and hold at this temperature for 6 hours 2. Decrease the chamber temperature to -40°C ± 3°C within 30 minutes and hold at this temperature for 6 hours 3. Repeat 1 & 2 above for a further 9 cycles (10 cycles total) 4. After the 10 th cycle is completed, store the cell at 25°C ± 5°C for a minimum of 24 hours prior to examination	No leakage, no explosion, no fire
3	Drop	After a standard charge per 3.9 above, drop the cell four (4) times from a height of 1.0 meter onto a concrete floor or surface. One drop on each end of the cell and two drops on the side of the cell, for a total of four drops.	No leakage, no explosion, no fire
4	Vibration	After a standard charge per 3.9 above, fix the cell to a vibration table and subject the cell to vibration cycling with frequency being varied at the rate of 1Hz per minute between 10Hz and 55Hz, with the excursion of the vibration set to 1.6mm. The cell shall be vibrated for 30 minutes per axis.	No leakage, no explosion, no fire
5	Shock	After a standard charge per 3.9 above, the cell is to be secured to the testing machine by means of a rigid mount which supports all mounting surfaces of the cell. Each cell shall be subjected to a total of three shocks of equal magnitude. The shocks are to be applied in each of three mutually perpendicular directions unless the cell has only two axes of symmetry in which case only two directions shall be tested. Each shock is to be applied in a direction normal to the face of the cell. For each shock the cell is to be accelerated in such a manner that during the initial 3ms the minimum average acceleration is 75gn (where g is the local acceleration due to gravity). The peak acceleration shall be between 150gn ± 25gn.	No leakage, no explosion, no fire
6	Crush	After a standard charge per 3.9 above, the cell is to be placed between two flat plates. The plate is pressed at a rate of (5±1)mm/s, until the crushing force reaches 13.0kN ± 0.78kN.	No explosion, no fire
7	Thermal Exposure	After a standard charge per 3.9 above, the cells placed in a circulating air-convection oven. The oven temperature is raised at a rate of 5°C ± 2°C/min to a temperature of 130°C ± 2°C. The cell remains at this temperature for 30 minutes before the test is discontinued.	No explosion, no fire
8	External Short Circuit	After a standard charge per 3.9 above, the cell is to be short-circuited by connecting the positive and negative terminals of the cell with a resistance load of 80mΩ ± 20mΩ. Tests are to be conducted at 25°C ± 5°C. When the cell voltage drops to less than 0.1v and the temperature of the cell drops to within ±10°C of the ambient temperature the test will be completed.	No explosion, no fire The cell surface temperature shall not exceed 150°C during the test
9	Forced Discharge	After a standard discharge per 3.10 above, the cell is subjected to reverse charge at 1C (6500mA) for 90 minutes	No explosion, no fire
10	Over Charge	After a standard charge per 3.9 above, continue to charge the cell with a 3C charge current (19.5A) and 4.6V for 12 hours	No explosion, no fire
11	Saltwater Immersion	After a standard charge per 3.9 above, immerse the cell completely in 3.5wt%NaCl solution for 2h. The cell shall be observed for 1h afterwards.	No explosion, no fire



5 Precautions for use

- To ensure proper use of the cell, please read this entire specification carefully.
- Do not expose the cell to or dispose of the cell using fire.
- Do not short the cells.
- Avoid exposing the cell to excessive shock or vibration.
- Do not dismantle or otherwise open the cell.
- Do not immerse the cell in water.
- Do not mix the cell with cells from other manufacturers, of different chemistries, or different models.
- Keep out of reach of children.
- If swallowed, seek immediate medical attention.
- Do not use the cell if it is deformed, leaking, smoking, or feels unexpectedly hot to the touch.
- The cell must only be charged using an appropriate charger.
- Do not maintain the cell on charge when fully charged or not in use.
- Store the cell in a cool, dry, and well-ventilated location.
- Dispose of in accordance with all local regulations.

6 Warranty

To cell warranty is 12 months from the date of shipment. Amprius will refund or replace (at its discretion) the defective cell in the case of manufacturing issues. The warranty will be voided if the cell is abused or used outside of this specification.

7 Recommended Storage Conditions

The recommended storage temperature is below 25°C at a 30% to 50% state-of-charge. If stored for long periods of time, it is recommended to periodically monitor the cell voltage and boost charge the cell if the voltage drops below 3.0V

8 Special Consideration

Because cells utilize a chemical reaction, cell performance will deteriorate over time even if stored for a long period of time without being used. In addition, if the various usage conditions such as charge, discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the cell may be shortened or the device in which the cell is used may be damaged by electrolyte leakage.

9 Environmental

This product complies with corporation class I controlled substance standard, such as ROHS2.0, REACH and EU cell directives.

10 Customer Responsibilities

Customers are responsible to confirm and assure the matching and reliability of cells for the actual application. Customers must strictly operate according to this specification. Please fully evaluate the possible shortening of service life at higher than ambient temperature before use. Amprius will be exempt from liability if the cell is improperly used or abused in such a way as to cause fire, explosion, or damage to people or property.



PRODUCT SPECIFICATION

Do: PD-112

No.: AMP/PS-RD-063

Rev.: A/00 Date: 2025-08-20

Page: _8_ of _8_

11 Note

Any other items which are not covered in this specification shall be agreed by both parties.

12 Contact Information

If you have any questions regarding the cell, please contact:

Amprius Technologies, Inc.

1180 Page Ave. Fremont, CA 94538

United States