BATTERY

APPROVAL SHEET

DATE :

TO :

ATTN :

FROM :

CUSTOMER MODEL NO. :

Ciblenergie MODEL NO. : **LPYS753543-1150mAh**

SPECIFICATION NO. : **LPYS753543 (SCE-T1-L75354301)**

DRAWING NO. :

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REMARKS :

Approved by:

Please sign and return one copy to us

Content

1. Scope

This product specification has been prepared to specify the rechargeable Lithium-ion Polymer (LIP) battery to be supplied to the customer

2. Description and Model

2.1 Description: Lithium Ion Polymer (LIP) battery
2.2 Model: SCE-753543-1150mAh

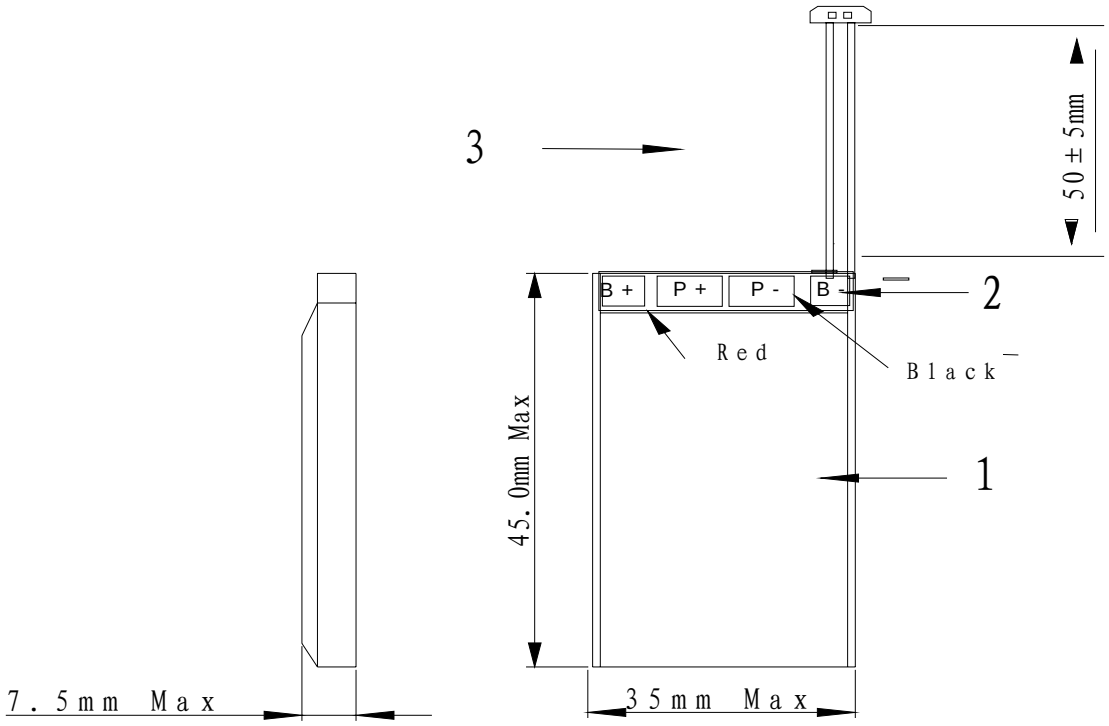
3. Nominal Specifications

a) Item	Specification	Remark
3.1 Nominal Capacity	1150mAh	0.2C discharge
3.2 Minimum. Capacity	1100mAh	0.2C discharge
3.3 Nominal Voltage	3.7V	
3.4 Charging Method	CC-CV	
3.5 Charging Voltage	4.20±0.03 V	
3.6 Charge Current	Standard charge : 0.5C (575mA) Rapid charge : 1.0C (1150mA)	0~45℃
3.7 Charging Time	Standard charge : 3.0 hours (Ref.) Rapid charge : 2.0 hours (Ref.)	
3.8 Max. charge current	1.0C (1150mA)	
3.9 Max. Discharge Current	2.0C (2300mA)	0~40℃
3.10Cutoff Voltage	2.75V	
3.11 Resistance	≤100mΩ	1kHz AC Method
3.12Weight	Approx.28g	With PCM
3.13Dimensions(T.W.H.)	**T**hickness: 7.5 mm Max **W**idth : 35.0mm Max **L**ength: 45.0mm Max	With PCM
3.14Operating Temperature	Charge : 0 ~ 45℃ Discharge: -20 ~ 60℃	
3.15Storage Temperature	1 year : -20~20℃ 3 months : -20~45℃ 1 month : -20~60℃	

Note:

1. Discharging time is estimated by the discharge at 0.2C to 2.75V end voltage after fully charged according to specification at 25℃.
2. Standard Charging method 0.5C CC (constant current) charge to 4.2V, then CV(constant voltage 4.2V) charge till charge current decline to ≤ 0.05C（58mA）.

4. Outline Dimensions and PCM specification



Parts List:

No.	Part Name	Description	Q'ty
1	Cell	SCE-753543-1150mAh	1
3	PCM	Refer to PCM specification	1
3	Wire Plug	51021-2P UL1007 24#	1

PCM Specification

No.	Items	Specifications
1	Over current detection current	2.6～6.6A
2	Over-charging protection	4.25±0.03V
3	Over-discharging protection	2.5±0.063V
4	Over discharge detection delay time	8～18ms
5	Operation Static Current	Max 8uA
6	Initial Impedance	≤60mΩ

5. Appearance

There shall be no such defects as scratch, rust, discoloration, leakage which may adversely affect commercial value of the cell.

6. Standard Test Conditions

6.1 Environmental Conditions

Unless otherwise specified, all tests stated in this specification are conducted at temperature 25±5℃ and humidity 60±15%.

6.2 Measuring Equipment

(1) Ammeter and Voltmeter

The ammeter and voltmeter should have an accuracy of the grade 0.5 or higher.

(2) Slide caliper

The slide caliper should have 0.01 mm scale.

(3) Impedance meter

The impedance meter with AC 1kHz should be used.

7. Characteristics

7.1 Standard Charge

The charger supply 575mA constant current until battery voltage reaches 4.2V, then be charged at constant voltage of 4.2V while tapering the charge current at 25℃. Charging time is 3.0 hours in all.

7.2 Standard Discharge Capacity

The standard discharge capacity is the initial discharge capacity of the cell, which is measured with discharge current of 230mA with 2.75V cut-off at 25℃ within 1 hour after the standard charge.

Standard Discharge Capacity ≥ 1150mAh

7.3 Initial internal impedance

Initial internal impedance measured at AC 1kHz after rated charge.

Initial internal impedance ≤100mΩ.

7.4 Cycle Life

Each cycle is an interval between the charge at CC-CV (575mA-4.2V) for 3h and the discharge (discharge current 575mA) with 2.75V cut-off.

Capacity after 299cycles and plus 1 day, measured under the same condition in 7.2.

Capacity ≥ 920mAh (80% of the capacity at 25℃)

7.5 Storage Characteristics

Capacity after storage for 28 days at 25℃ from the standard charge, measured with discharge current 230mA with 2.75V cut-off at 25℃.

Capacity retention(after the storage) ≥ 978mAh (85% of the capacity at 25℃)

7.6 Status of the cell as of ex-factory

The cell should be shipped in 50% charged state. In this case, OCV is not less than3.85V.

8. Mechanical Characteristics

8.1 Drop Test

Test method: Cell (as of shipment or full charged) drop onto the oak-board (thickness: 18-20mm) from 1.0m height at a random direction 6 times.

Criteria: No fire, and no explosion.

8.2 Vibration Test

Test method: Cell (as of shipment) is vibrated along 2 mutually perpendicular axes with total excursion of 1.8mm and with frequency cycling between 10Hz and 55Hz by 1Hz/min.

Criteria: No fire, and no explosion.

9. Safety

9.1 Overcharge Test

Test method: To charge the standard charged cell with 1150mA constant current until cell voltage reaches 4.6V, then be charged at constant voltage of 4.6V while tapering the charge current at 25℃ for 2.5hrs.

Criteria: No fire, and no explosion.

9.2 External Short-circuit Test

Test method: To short-circuit the standard charged cell by connecting positive and negative terminal by less than 50mΩ wire.

Criteria: No fire, and no explosion.

9.3 Heating Test

Test method: After fully charged , heat up the standard charged cell at heating rate 5℃ per minute up to 150℃ and keep the cell in oven for 30 minutes.

Criteria: No fire, and no explosion.

10. Warranty

Ciblenergie Electronic Technology Co.,Ltd will be responsible for replacing the cell against defects or poor workmanship for 12months from the date of shipping. Any other problem caused by malfunction of the equipment or mix-use of the cell is not under this warranty.

The warranty set forth in proper using and handling conditions described above and excludes in the case of a defect which is not related to manufacturing of the cell.

11. Others

11.1 Storage for a long time

If the cell is kept for a long time(3months or more), It is strongly recommended that the cell is preserved at temperature range(0-25℃),low humidity, no corrosive gas atmosphere.

11.2 Other

Any matters that this specification does not cover should be conferred between the customer and Ciblenergie.

Appendix

Proper Use and Handling of Lithium Ion Polymer (LIP) battery

1. General

This document has been prepared to describe the appropriate cautions and prohibitions, which the customer should take or employ when the customer uses and handles the Lithium Ion Polymer(LIP) battery to be manufactured and supplied by Ciblenergie Technology Co.,Ltd., in order to obtain optimum performance and safety.

2. Charging

2.1 Charging current

Charging current should be less than maximum charge current specified in the product specification.

2.2 Charging voltage

Charging voltage must be up to voltage specified in the product specification.

2.3 Charging time

Do not continue to charge battery over specified time. If the battery is not finished charging over regulated time , let it stop charging. There is possibility that the battery might generate heat , smoke, rupture or flame.

2.4 Charging temperature

The cell should be charged within a range of specified temperatures in the product specification.

2.5 Reverse charging

The cell should be connected, confirming that its poles are correctly aligned. Inverse charging should be strictly prohibited. If the cell is connected improperly, it may generate heat , smoke, rupture or flame.

3. Discharging

3.1 Discharging

3.1.1 The cell should be discharged at less than maximum discharge current specified in the product specification.

3.2 Discharging temperature

3.2.1 The cell should be discharged within a range of temperatures specified in the product specification.

3.2.2 Otherwise, it may cause loss of characteristics.

3.3 Over-discharging

3.3.1 Do not over-discharge a battery below 2.0V/cell.

3.3.2 Over-discharging may cause loss of performance, characteristics, of battery function.

3.3.3 Over-discharging may occur by self-discharge if the battery is left for a very long time without any use.

3.3.4 The charger should equip with a device to detect cell voltage and to determine recharging procedures.

4. Storage

4.1 Storage conditions

4.1.1 The cell should be stored within a range of temperatures specified in the product specification.

4.1.2 Otherwise, it may cause loss of characteristics, leakage and/or rust.

4.2 Long-term storage

4.2.1 The cell should be used within a short period after charging because long-term storage may cause loss of capacity by self-discharging.

4.2.2 If long-term storage is necessary, it is strongly recommended that the cell is preserved at temperature range(0-25℃),low humidity, no corrosive gas atmosphere.

5. Cycle life

5.1 Cycle life performance

5.1.1 The cell can be charged/discharged repeatedly up to times specified in the produce specification with a certain level of capacity also specified in the product specification.

5.1.2 Cycle life may be determined by conditions of charging, discharging, operating temperature and/or storage.

6. Design of System

6.1 Connection between the cell and the battery

6.1.1 The cell should not be soldered directly with leads. Namely, the cell should be welded with leads on its terminal and then be soldered with wire or leads to soldered lead.

6.1.2 Otherwise, it may cause damage of component, such as separator and insulator, by heat generation.

6.2 Positioning the battery in the System

6.2.1 The battery should be positioned as possible as far from heat sources and high temperature components.

6.2.2 Otherwise, it may cause loss of characteristics.

6.3 Mechanical shock protection of the battery

6.3.1 The battery should equip with appropriate shock absorbers in order to minimize shock.

6.3.2 Otherwise, it may cause shape distortion, leakage, heat generation and/or rupture.

6.4 Protection circuit

Have protection circuit function to insure safety of battery in case of misuse.

6.4.1 Overcharge protection should work at the voltage 4.24-4.35/cell by charge . Then charge current shall be shut down.

6.4.2 Over discharge protection should work at the voltage 2.2-2.4/cell . Then discharge current shall be shut down.

6.4.3 Over discharge current protection should work when discharge current exceed about 3A. Then over discharge current shall be shut down.

6.5 Connection between the battery and charger/system

6.5.1 The battery should be designed to be connected only to the specified charger and system.

6.5.2 A reverse connection of the battery, even in the specified system, should be avoided by employing special battery design such as a special terminals.

7. Battery Pack Assembly

7.1 Prohibition of usage of damaged cell

7.1.1 The cell should be inspected visually before battery assembly.

7.1.2 The cell should not be used if sleeve-damage, can-distorsion and/or electrolyte-smell is detected.

7.2 Terminals handling

7.2.1 Excessive force on the positive terminal should be avoided when external lead is

welled.

7.3 Transportation

7.3.1 If the cell is necessary to transported to order place, such as the battery manufacturer, careful precautions should be taken to avoid damage of cell.

8. Others

8.1 Disassembly

8.1.1 The cell should not be dismantled from the battery pack.

8.1.2 Internal short-circuit caused by disassembly may lead to heat generation and/or venting.

8.2 Short-circuiting

8.2.1 Short-circuit results in very high current which leads to heat generation.

8.2.2 An appropriate circuitry should be employed to protect accidental short-circuiting.

8.3 Incineration

8.3.1 Incinerating and disposing of the cell in fire are strictly prohibited, because it may cause rupture.

8.4 Immersion

8.4.1 Soaking the cell in water is strictly prohibited, because it may cause melt of components to damaged to functions.

8.5 Mixing use

8.5.1 Different types of cell, or same types but different manufacturer's cell may lead to cell rupture or damage to system due to the different characteristics of cell.

8.6 Battery exchange

8.6.1 Although the cell contains no environmentally hazardous component, such as lead or cadmium, the battery should be disposed according to the local regulations when it is disposed.

8.6.2 The cell should be disposed with a discharged state to avoid heat generation by an inadvertent short-circuit.

8.7 Caution: The Battery used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, heat above 80℃ or incinerate. Replace battery with Ciblenergie Electronic Technology Co.,Ltd only. Use of another battery may present a risk of fire or explosion. Dispose of used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.