

Polymer Lithium-ion Battery

Product Specification

Model: PL-7250115-2C

Batteryspace.com

1、 Scope

This product specification describes this polymer lithium-ion battery. Please use the test methods that recommend in this specification. If you have any opinions or advices about the test items and methods, please contact us. Please read the cautions recommended in the specifications first, take the credibility measure of the cell's using.

If the cells should be using at the environment that not preferred in this document, please connect us first and get our authorization. For the reason of stable performance and better safety, battery pack with more than 2 cells connected in serial way should be charged with a balance charger.

It is claimed that we should have no any responsibility with the contingency and loss due to the cells' wrong usage (not preferred in the product specification).

2、 Product Type, Model and Dimension

2.1 Type: Polymer lithium-ion battery

2.2 Model: PL-7250115-2C

2.3 Cell Dimension (Max, Thickness×Width×Length, mm): 6.8±0.2 x 50.0±0.5 x 116.0±0.5

3、 Specification

Item	Specifications	
Nominal Capacity	5000mAh 0.5CmA,4.2V~3.0V@23°C±2°C	
Nominal Voltage	3.70V	
Charge Condition	Max. Current: 5000mA Voltage: 4.2V±0.03V	
Discharge Condition	Continuous Current: 2500Ma (0.5C) Peak Current: 10000 mA (2C) Cut-off Voltage: 3.0V	
Impedance	≤10mΩ	
Cycle Life	>300 cycles	
Weight	Approx:88±5g	
Dimension	Thickness	6.8±0.2mm
	Width	50.0±0.5mm
	Length	116±0.5mm
	Distance between 2 tabs	20±2mm
	Tab Width	7±0.1mm

4、 Battery Cell Performance Criteria

Before proceed the following tests, the cells should be discharged at 0.5C to 3.0V cut off. Unless otherwise stated, tests should be done within one month of delivery under the following conditions:

Ambient temperature: 20°C±5°C

Relative Humidity: 65±20%RH

Standard Charge/Discharge Conditions:

Charge: The battery will be charged to 4.2V with 0.5C from constant current to constant voltage, when the current is 0.02C, stop to charge

Discharge: 0.5C to 3.0V/cell

Test	Unit	Specification	Condition	Remarks
Capacity	mAh	≥ 5000	Standard Charge / Discharge	Up to 3 cycles are allowed
Open Circuit Voltage (OCV)	V	≥ 4.15	Within 1 hr after standard charge	Unit cell
Internal Impedance (RI)	mΩ	≤ 10	Upon fully charge at 1kHz	
Rate Discharge (1C)	min	≥ 54	Standard Charge/rest 5min Discharge at 1C to 3.0V	Up to 3 cycles are allowed
Low Temperature Discharge	min	≥ 210	Standard Charge; Storage: 2hrs at -20±2°C; 0.2C discharge at 0±2°C	3.0V/cell Cut-off
Charge Reserve	mAh	≥ 90% First Capacity	Standard charge, Storage at 20 °C for 30days; Standard discharge (0.5C)	3.0V/cell Cut-off
Cycle Life Test	Cycle	≥ 300	Charge: 0.5C to 4.2V , Discharge: 0.5C to 3.0V, 80% or more of 1st cycle capacity at 0.5C discharge of operation	
External Short Circuit	N/A	No Fire and No Explosion	After standard charge, the cell is to be short-circuit by connecting the positive and negative terminals of the cell with a circuit load having a resistance load of 80 ±20 mΩ at 20°C ±5°C until the cell temperature returns to ambient temperature.	
Free Falling (drop)	N/A	No Fire and No Explosion	Standard Charge, and then leave for 2hrs, check battery before / after drop Height: 50 cm Thickness of wooden board: 30mm Direction is not specified Test for 3 times	

5. Storage and Others

5.1 Ambient temperature: 20°C±5°C
Relative Humidity: 65±20%RH

5.2 Please charge the battery once every 3 months according to the following method: Charge at 0.2C to 4.2V, rest 5 min, and then discharge with 0.2C to 3.0V/cell, rest 5 min, then charge at 0.2C to 3.9V

6. Handling Precautions and Guideline

The customer is requested to contact AA Portable Power Corp in advance, if and when the customer needs other applications or operating conditions than those described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

AA Portable Power Corp will take no responsibility for any accident when the cell is used under other conditions than those described in this Document.

AA Portable Power Corp will inform, in a written form, the customer of improvement(s) regarding proper use and handling of the cell, if it is deemed necessary.

6.1 Charging

6.1.1 Charging current

Charging current should be less than maximum charge current specified in the Product Specification. Charging

with higher current than recommended value may cause damage to cell electrical, mechanical and safety performance and could lead to heat generation or leakage.

6.1.2 Charging voltage:

Charging shall be done by voltage less than that specified in the Product Specification (4.2V/cell). Charging beyond 4.25V, which is the absolute maximum voltage, must be strictly prohibited. The charger shall be designed to comply with this condition. It is very dangerous that charging with higher voltage than maximum voltage may cause damage to the cell electrical, mechanical safety performance and could lead to heat generation or leakage.

6.1.3 Charging temperature:

The cell shall be charged within 0°C~45°C range in the Product Specification.

6.1.4 Prohibition of reverse charging:

Reverse charging is prohibited. The cell shall be connected correctly. The polarity has to be confirmed before wiring. In case of the cell is connected improperly, the cell cannot be charged. Simultaneously, the reverse charging may cause damaging to the cell which may lead to degradation of cell performance and damage the cell safety, and could cause heat generation or leakage.

6.2 Discharge

6.2.1 Discharging current

The cell shall be discharged at less than the maximum discharge current specified in the Product Specification. High discharging current may reduce the discharging capacity significantly or cause over-heat.

6.2.2 Discharging temperature

The cell shall be discharged within -20°C~60°C range specified in the Product Specification.

6.2.3 Over-discharging:

It should be noted that the cell would be at over-discharged state by its self-discharge characteristics in case the cell is not used for long time. In order to prevent over-discharging, the cell shall be charged periodically to maintain between 3.6V and 3.9V.

Over-discharging may causes loss of cell performance, characteristics, or battery functions. The charger shall be equipped with a device to prevent further discharging exceeding a cut-off voltage specified in the Product Specification. Also the charger shall be equipped with a device to control the recharging procedures as follows:

The cell battery pack shall start with a low current (0.01C) for 15-30 minutes, i.e.-charging, before rapid charging starts. The rapid charging shall be started after the (individual) cell voltage has been reached above 3V within 15-30 minutes that can be determined with the use of an appropriate timer for pre-charging. In case the (individual) cell voltage does not rise to 3V within the pre-charging time, then the charger shall have functions to stop further charging and display the cell/pack is at abnormal state.

6.3 Storage

The cell shall be stored within -10°C~45°C range environmental condition, If the cell has to be stored for a long time (Over 3 months), the environmental condition should be; Temperature: 23±5°C. Humidity: 65±20%RH, The voltage for a long time storage shall be 3.6V~3.9V range.

6.4 Handling of Cells

Since the battery is packed in soft package, to ensure its better performance, it's very important to carefully handle the battery;

6.4.1 The soft aluminum packing foil is very easily damaged by sharp edge parts such as Ni-tabs, pins and needles

Don't strike battery with any sharp edge parts;

Trim your nail or wear glove before taking battery;

Clean worktable to make sure no any sharp particle;

6.4.2 Don't bend or fold sealing edge;

6.4.3 Don't open or deform folding edge;

6.4.4 Don't bend tab;

6.4.5 Don't Fall, hit, bend battery body;

6.4.6 Short terminals of battery is strictly prohibited, it may damage battery;

6.5 Designing Battery Pack

Battery pack should have sufficient strength and battery should be protected from mechanical shock;

No Sharp edge components should be inside the pack containing the battery;

6.6 Assembling Battery Pack

6.6.1 Tab connection:

Ultrasonic welding or spot welding is recommended to connect battery with PCM or other parts. If apply manual solder method to connect tab with PCM, below notice is very important to ensure:

- a) The solder iron should be temperature controlled and ESD safe.
- b) Soldering temperature should not exceed 350°C
- c) Soldering time should not be longer than 3s
- d) Soldering time should not exceed 5 times Keep battery tab cold down before next time soldering.
- e) Directly heat cell body is strictly prohibited, Battery may be damaged by heat above approx.100°C

6.6.2 Cell fixing

The battery should be fixed to the battery pack by its large surface area.

No cell movement in the battery pack should be allowed.

7 Others

7.1 Prevention of short circuit within a battery pack

Enough insulation layers between wiring and the cells shall be used to maintain extra safety protection.

7.2 Prohibition of disassembly

7.2.1 The disassembling may generate internal short circuit in the cell, which may cause gassing, firing, or other problems.

7.2.2 LIP battery should not have liquid from electrolyte flowing, but in case the electrolyte come into contact with the skin, or eyes, physicians shall flush the electrolyte immediately with fresh water and medical advice is to be sought.

7.3 Never incinerate nor dispose the cells in fire. These may cause firing of the cells, which is very dangerous and is prohibited.

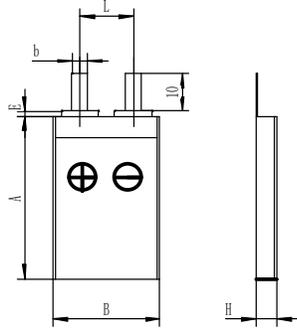
7.4 The cells shall never be soaked with liquids such as water, seawater drinks such as soft drinks, juices coffee or others.

7.5 The battery replacement shall be done only by either cells supplier or device supplier and never be done by the user.

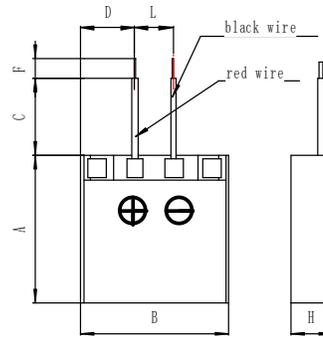
7.6 The cells might be damaged during shipping by shock. If any abnormal features of the cells are found such as damages in a plastic envelop of the cell, deformation of the cell package, smelling of electrolyte, electrolyte leakage and others, the cells shall never be used any more.

The cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid firing.

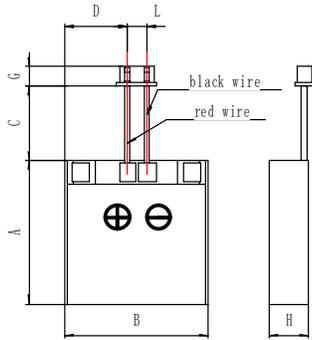
8. Schematic of Battery:



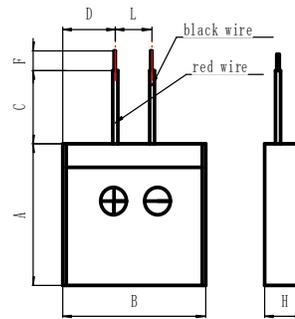
Cell or adding Ni tabs



Cell adding wire



Cell adding PCM, wire



Cell adding wire

Parameter: ✓

Sign	Item	Max (mm)	Remark	Sign	Item	Max (mm)	Remark
A	Length	116.0±0.5		L	Space between Tabs	20±2	
B	Width	50.0±0.5		E	PP membrane Length	/	
H	Thickness	6.8±0.2		b	Tab Width	7±0.1	
	Wire Standard	/			Plug Standard	/	