

1.1. 10000mAh Li-ion battery consists of:

Battery cells – 1 pc. (Figure 1), which is a basic lithium-ion battery consisting of two conductive electrodes - a cathode and an anode, separated by a porous separator and immersed in a liquid or gel electrolyte;



Figure 1 – External appearance of the battery cell

1.1.1. Printed circuit board 1212.001 – 1 pc. (Figure 2), which is a protection module. It is designed to prevent damage to the battery and electronic devices. Electronic components on printed circuit board 1212.002 must be strictly installed in their places and according to the design documentation. Any damage is NOT allowed. Printed circuit board 1212.001 must not have markings or varnish coating.

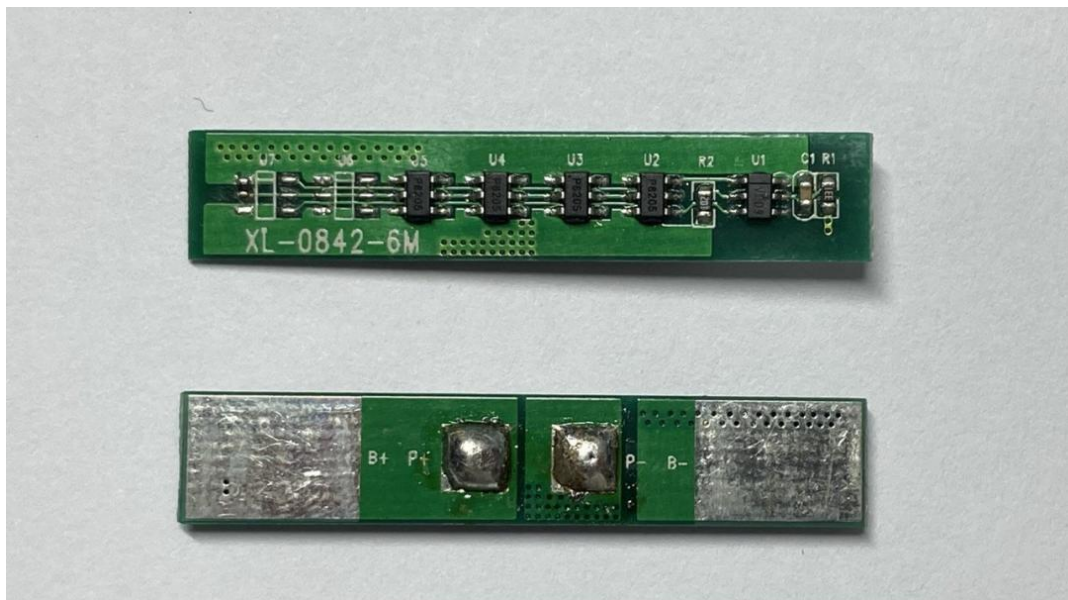


Figure 2 – External appearance of printed circuit board 1212.001

1.1.2. Blue PVC heat shrink tube sheaths.

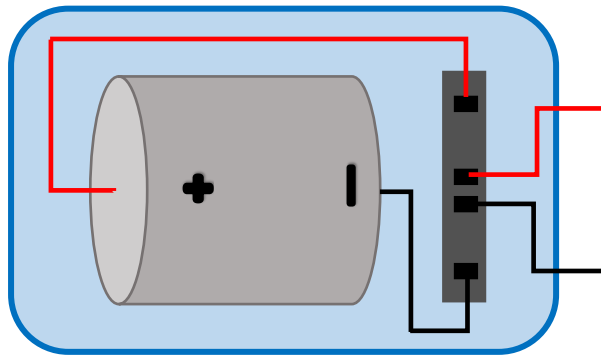
Characteristics:

- Max. operating temperature: 150C°.
- Min. operating temperature: - 40C°.
- Material: polyvinyl chloride (PVC).

- Width when folded: 80 mm.
- Inner diameter before heat shrinkage: 51 mm.
- Shrinkage ratio: $48 \pm 5\%$.
- Color: blue, green.
- Shrinkage temperature, °C — 80
- Wall thickness before shrinkage, mm — 0.08.

1.1.3. Two wires, black (negative polarity) and red (positive polarity). Wire name: AWM3239 20AWG high-voltage silicone insulated cable, length not less than 60 mm.

1.1.4. Two wires, black and red, must be soldered to the printed circuit board (Scheme 1). The printed circuit board 1212.001 with wires must be soldered to the cell.



Scheme 1 — Lithium-ion battery

1.1.2. Insulating tape should be glued over the printed circuit board and soldered joint. PVC heat-shrinkable tube should be placed over the cell, as shown in Figure 3.

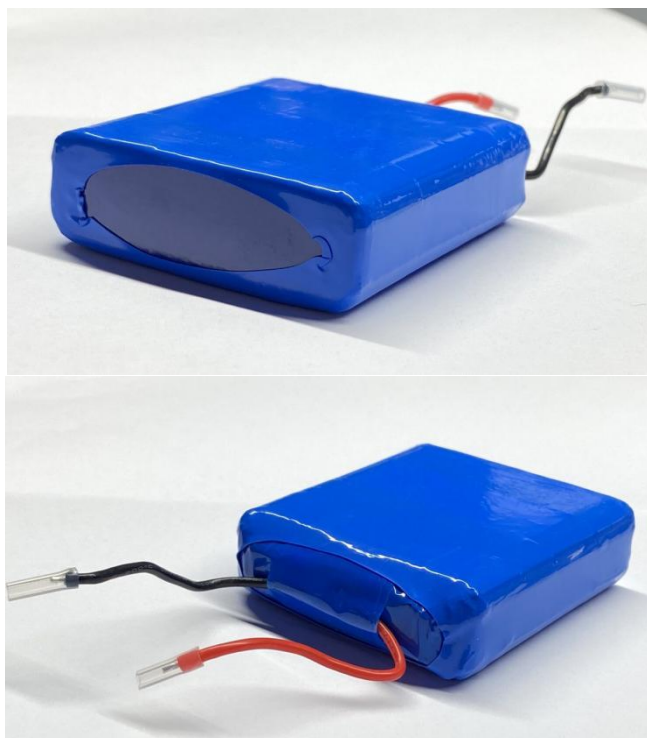


Figure 3 – Appearance of the 10,000 mAh battery

1.1.3. A 10,000 mAh lithium-ion battery under standard climatic conditions must provide a capacity of at least (10 ± 0.1) Ah, with a discharge current of (1.4 ± 0.1) A and a final voltage of at least (2.5 ± 0.1) V.

1.1.4. The product must provide protection against short circuit in the external circuit.

1.1.5. The product must provide protection against overcharging.

1.1.6. The product must provide protection against deep discharge.

1.1.7. Design and technical requirements are presented in Table 3.

Table 3

	Battery 10,000 mAh
Overall dimensions, mm	no more than $(68 \times 57.5 \times 19)$
Weight, g	not less than 170 not more than 180

1.1.8. The product shall withstand the effects of vibration at an ambient temperature of (20 ± 5) °C in accordance with the conditions specified in Table 4.

Table 4

Name of the impact parameter	Parameter value
Frequency, Hz	10 – 500
Amplitude of displacement or amplitude of acceleration	0.35 mm or maximum acceleration 50 m/s ²
Direction of vibration action	Along three mutually perpendicular axes for all types of batteries
Number of swing cycles	5 cycles
Scan speed	1 octave per minute
Note – The test duration is approximately 55 min. for each axis.	

1.1.10. Operating temperature range from minus 30 to plus 55 °C.

1.1.11. Limit temperature range from minus 50 to plus 55 °C.

1.1.12. The product must remain operational under conditions of high humidity.

1.1.13. The product must remain operational under conditions of low ambient temperature of minus 30 °C in discharge mode and 0 °C in charge mode.

1.1.14. The product must withstand exposure to the maximum low temperature of minus 50 °C.

1.1.15. The product must remain operational under conditions of exposure to high ambient temperature of plus 55 °C.

1.1.16. The product must withstand exposure to the maximum high temperature of plus 55 °C.

1.1.17. The product must withstand the interaction of changes in ambient temperature in the temperature range from the maximum low of minus 50 °C to the maximum high of plus 55 °C.

1.1.18. The product must remain operational under conditions of reduced atmospheric pressure of at least 6×10^4 Pa.

1.1.19. The product must withstand air transportation under conditions of reduced atmospheric pressure of at least 1.2×10^4 Pa.

1.1.20. The product must withstand exposure to solar radiation with an integral heat flux density of 1120 W/m², and an ultraviolet radiation flux density of 68 W/m².

1.1.21. The service life of the product must be at least 5 years.

1.1.22. The product operating time within the service life must be at least 500 cycles. The capacity at the end of the operating time must be at least 50% of the full battery capacity.

The materials used and purchased products, by the time the product is presented to the customer, must have an unused resource, service life and shelf life not less than the resource, service life and shelf life of the manufactured product.

1.1.23. The operating modes and conditions of purchased products and materials used in the product must comply with state and industry standards, technical specifications and drawings for them.

1.1.24. The marking must be stable throughout the service life of the product, mechanically strong and must not be erased or washed off by liquids used during maintenance.

1.1.25. The following must be applied to the battery:

- the inscription "Li-ion";
- the polarity sign "+" at the positive terminal and the polarity sign "-" at the negative terminal;
- year of manufacture;
- rated capacity;
- rated voltage.