

Jauch Battery Solutions

- Reliable energy for your application
- Standard cells and customized packs
- ESD protection
- Battery Certification Experts



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

Technical Data Sheet · LI21700JD-50E 1s1p

SPECIFICATIONS

Cell Used	LI21700JD-50E 1s1p
Jauch part number	253338
UL1642/UL2054	YES/NO
UN 38.3	YES
IEC62133	NO
Nominal Voltage	3.7V
Typ. Capacity	5000mAh
Min. Capacity	4900mAh
Weight	Approx. 80g

CHARGING CHARACTERISTICS PER BATTERY PACK

Charge Voltage	4.2V
Standard Charge Current	2450mA, end-of-charge current 245mA
Max. Charge Current	4900mA (not for cycle life)
Operating Temperature	0 to 50°C

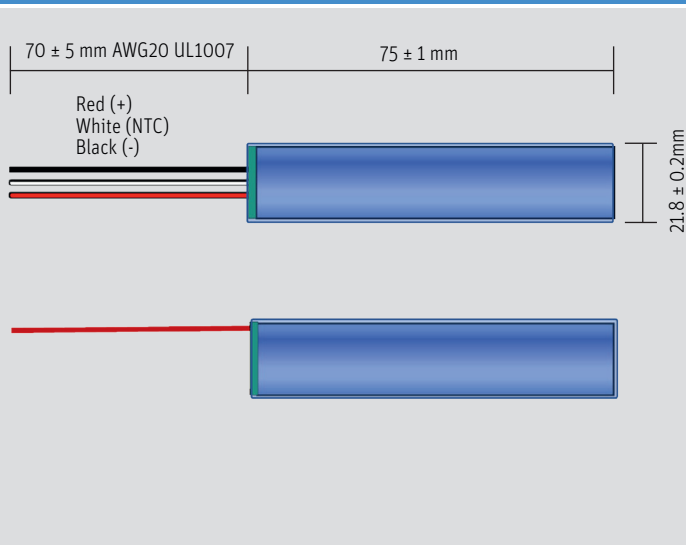
DISCHARGING CHARACTERISTICS PER BATTERY PACK

Cut-off Voltage	2.8V
Standard Discharge Current	980mA
Max. Continuous Discharge Current	6000mA (not for cycle life)
Operating Temperature	-20 to 60°C
Storage Temperature	-20 to 25°C
Delivery State of Charge	Max. 30%
Life Expectancy (0.5C/0.5C)	800 cycles >80%

PCM PARAMETER PER BATTERY CELL

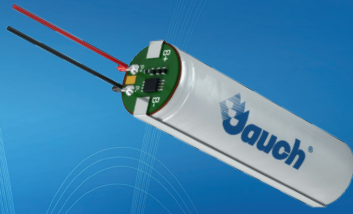
Overcharge Det. Voltage	4.28 ± 0.025V
Overcharge Rel. Voltage	4.08 ± 0.025V
Overdischarge Det. Voltage	2.8 ± 0.05V
Overdischarge Rel. Voltage	2.8 ± 0.05V
Overcurrent range Discharge	6 - 12.1A
Overcurrent range Charge	6 - 12.1A
NTC	10KΩ 1% β=3435
2nd Protection	7A fast acting Fuse

DRAWING PACK



LABEL





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HANDLING AND STORAGE

Caution

Do not incinerate, disassemble, short terminals, expose to high temperature 100°C (212°F) risk of fire, explosion. Keep small cells and batteries which are considered swallowable out of the reach of children. Swallowing may lead to burns, perforation of soft tissue and death. Severe burns can occur within 2 h of ingestion. In case of ingestion of a cell or battery, seek medical assistance promptly.

Appearance

Cells with following defects shall be sort out:

- Scratches
- Rust
- Faded colors or other discoloration
- Dirt
- Deformation
- Leakage

Design of the Battery Pack

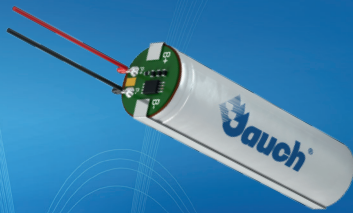
- When assembling into batteries, only strictly matched cells with same capacity, internal resistance and state of charge shall be used. The packing standard of the batteries should be strictly in accordance with the technical agreement. The temperature difference of each cell shall be less than 5°C. Do not combine cells from different batches.
- The battery pack should be designed to avoid the use of unauthorized chargers
- Using battery packs in unauthorized equipment and devices shall be avoided
- The battery pack shall be designed to avoid overlapping connections between positive and negative terminals or wires.
- Terminals should be designed to avoid reverse polarity
- Static electricity and water/dust ingress issues must be prevented. Poor sealing shall be avoided.
- In case of leakage the battery shall be designed so that the electrolyte cannot reach the protection circuit.
- Batteries shall be protected by a housing or the end device to protect against any type of mechanical deformation. Battery holders or other material e.g. glue shall be used to fix the battery inside the housing.
- The housing shall be glued with a sufficient adhesive, ultrasonic welded or screwed with tamper proofed screws to avoid unauthorized access to the inner battery.
- The electric circuit consumption shall be set as low as possible to avoid deep discharge while long term storage.
- A welding process shall be used. Soldering is not sufficient to insure strong connection. Heat sources such as soldering irons may damage cells.
- Do not use cells which have been dropped, shorted or show any type of defects described in 6.1.
- Do not rework a battery.

Protection Circuit

- **Overcharge protection:**
It is recommended that the overcharge protection disables the current flow when exceeding a voltage of 4.25V per cell.
- **Over discharge protection:**
Exceeding a cell voltage less than 2.75V shall strictly be avoided. The undervoltage protection must be designed accordingly.
- **Cell monitoring or balancing:**
For batteries consisting series connections, it is recommended to use a cell balancing circuit which keeps each cell voltage inside the specified limits. Each cell voltage must be at least monitored, and the current flow must stop when exceeding any specified voltage limits.
- **Overcurrent and short circuit protection:**
The overcurrent protection shall shut down the current flow at least when exceeding the maximum current values per cell.
- **Temperature protection:**
The battery shall be kept within the temperature limits specified by the cell manufacturer. Temperature protection can also be provided by the charge or the end device.

Storage

- Store unused batteries in their original packaging and keep them away from metal objects which may short circuit them.
- Storing unpackaged cells together could result in cell shorting and heat build-up
- Store and display batteries in their original packaging in well ventilated, dry and cool conditions
- Avoid storing or display batteries in direct sun or in places where they get exposed to rain



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HANDLING AND STORAGE

- The normal storage of Lithium-ion Polymer Battery Pack is made at temperature between +10°C and +25°C, never exceeding +30°C. In this way the maximum shelf-life (i.e. max. retention of cell performances after storage periods) of Lithium-Ion Battery Pack is achieved
- Storage temperatures above room temperature will increase the rate of self-discharge, reducing the available capacity of the cell. Humidity above 95% R.H. and below 40% R.H. should also be avoided for sustained periods, as these extremes are detrimental to batteries
- Storing the cells / batteries at low temperature is also suggested, but attention must be paid when transferring the cells to warmer environments, because of the possibility of having water condensing on to the cells (risk of short circuits)
- Do not stack battery cartons on top of each other exceeding a specified height. The height is clearly dependent on the strength of the packaging. As for general rule this height should not exceed 1.5 m for cardboard packages or 3 m for wooden cases. The above recommendations are equally valid for storage conditions during prolonged transit. Thus, batteries should be stored away from ship engines and not left for long periods in unventilated metal box cars (containers) during summer

Charge

- Charging method must be Constant Current – Constant Voltage (CC-CV)
- The specified charging characteristics shall not be exceeded
- The battery shall not be kept constantly on the mentioned max. voltage level
- The cell CID may work if the battery is charged continuously after fully charged and/or is charged at high temperature (abusive swelling for pouch cells). This may also happen during high temperature storage
- Trickle charge respective continuous charge is not suitable for Lithium-Ion / Lithium-Ion Polymer cells
- The battery must not be always kept at the maximum end of the charging voltage and/or temperature >30°C. If the battery is used for backup purposes or if the battery is outside the specified temperature ranges, please contact Jauch.
- Charging at a temperature of <15 °C or >40 °C with a charging current of >0.2 C will affect the service life.
- The aforementioned PCM parameters are necessary to protect the battery from foreseeable misuse and are required by the safety standard. The customer must ensure that the charging and discharging characteristics are not exceeded by the terminal and the charger

Safety Caution

- Misuse of cells/batteries may lead to heat generation, explosion or ignition which may lead to serious injuries.
- Keep small cells/batteries which are considered swallowable out of the reach of children. Swallowing may lead to burns, perforation of soft tissue and death. Severe burns can occur within 2 h of ingestion. In case of ingestion of a cell or battery, seek medical assistance promptly.
- The cell/battery shall be replaced when the using time gets much shorter than usual
- Terminals shall be covered before proper disposal
- For charging and discharging only professional test equipment designed for Li-Ion cells/batteries shall be used. Only constant current constant voltage (CC/CV) with overvoltage protection and current limitation shall be used.
- Cells/batteries shall not be put together with other metal objects because of high risk of short circuit.
- The cells/batteries shall be kept away from heat sources.
- Keep cells/batteries away from wet areas and direct contact to water.
- If the cells/battery gets abnormally hot, gives unusual smell, changes its color or shows any other abnormalities then please stop using immediately. Isolate the cells/batteries immediately into a safe area and keep distance.

Prohibitions

- Do not insert batteries in reverse. Observe the polarity markings on battery and equipment
- Do not expose the batteries to water or moisture.
- Do not leave the battery in a place of high temperature
- Do not use the battery in a place of high temperature
- Do not overheat batteries by exposure to high temperatures and direct sunlight.
- Do not short-circuit batteries
- Do not overcharge batteries
- Do not force discharge batteries
- Do not mix batteries
- Do not weld or solder directly to batteries
- Do not dismantle batteries
- Do not deform batteries
- Do not dispose of batteries in fire
- A battery with a damaged case shall be disposed immediately

Transportation

- Violent shaking of boxes filled with batteries must be avoided.
- The cells/batteries must be packed securely for transportation
- Boxes filled with batteries must be secured for transportation. Stacked and unsecured boxes must be avoided