

# LITHIUM-ION POLYMER RECHARGEABLE BATTERY

## SPECIFICATIONS

|                         |                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model                   | : LIP602025                                                                                                                                                                                                                                                                                                                                                 |
| Description             | : Lithium-Ion Polymer rechargeable battery (RoHS compliant)                                                                                                                                                                                                                                                                                                 |
| Dimension               | : Max. 6.2 x 20.5 x 25.5mm                                                                                                                                                                                                                                                                                                                                  |
| Nominal Capacity        | : 250mAh (Min. 237.5mAh) at 50mA rate discharge to 3.0V at 25°C<br>3 cycles allowed for incoming inspection<br>Discharge capacity varies with discharge current and temperature                                                                                                                                                                             |
| Nominal Voltage         | : 3.7Volt (after charge)                                                                                                                                                                                                                                                                                                                                    |
| Cut-Off Voltage         | : 3.0Volt                                                                                                                                                                                                                                                                                                                                                   |
| Approximate Weight      | : 5.5g                                                                                                                                                                                                                                                                                                                                                      |
| Internal Impedance      | : <200mΩ (bare cell with 1KHz AC testing at full charge)                                                                                                                                                                                                                                                                                                    |
| Cycle Life              | : 100 standard charge/discharge cycles > 80% (200mAh) capacity<br>500 standard charge/discharge cycles > 70% (175mAh) capacity                                                                                                                                                                                                                              |
| Charging                | : Using dedicated CC/CV (4.20±0.03V) battery charger only<br>Charging with CC (Constant Current) to 4.20V, then<br>charge with CV (Constant Voltage) till charge current <12.5mA<br>Standard Charge Current 50mA at 25°C below 8 hours<br>Max. Charge Current 125mA at 25°C below 3 hours                                                                   |
| Discharging             | : Standard Discharge Current 50mA at 25°C<br>Max. Discharge Current 125mA at 25°C (Conditions apply)                                                                                                                                                                                                                                                        |
| Temperature Range       | : Charge 0°C to 45°C<br>Discharge -20°C to 60°C<br>Storage 10°C to 25°C (Recommended)<br>-10°C to 40°C (within 1 month)<br>-5°C to 35°C (within 3 months)                                                                                                                                                                                                   |
| Warranty                | : Limited warranty is provide against defects of poor workmanship<br>for 12 months from date of shipment. Problem caused by misuse,<br>mishandling, malfunction of equipment, or mix-use of cell is not<br>under this warranty. Replacement of cell is limited to 1-to-1 only                                                                               |
| Storage Characteristic  | : Long term storage may cause loss of capacity. Capacity recoverable<br>related to time of storage. Cell is recommended to store with 45%<br>capacity charged, temperature 20±5°C, and relative humidity 45%-75%.<br>After max. 12 months storage, capacity recovery will be > 70% initial<br>capacity (~175mAh), after 5 recovery charge/discharge cycles. |
| Appearance              | : No scratch, rust, discoloration, leakage which may adversely affect<br>commercial value of the cell                                                                                                                                                                                                                                                       |
| Standard Test Condition | : Unless otherwise specified, all test are conducted at temperature 20±5°C<br>and relative humidity 60±15%<br>The ammeter and voltmeter with accuracy grade 0.5 or higher<br>The slide caliper with scale 0.01mm<br>The impedance meter with AC 1kHz measurement                                                                                            |

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**Model : LIP602025**  
**Version : 1.00**

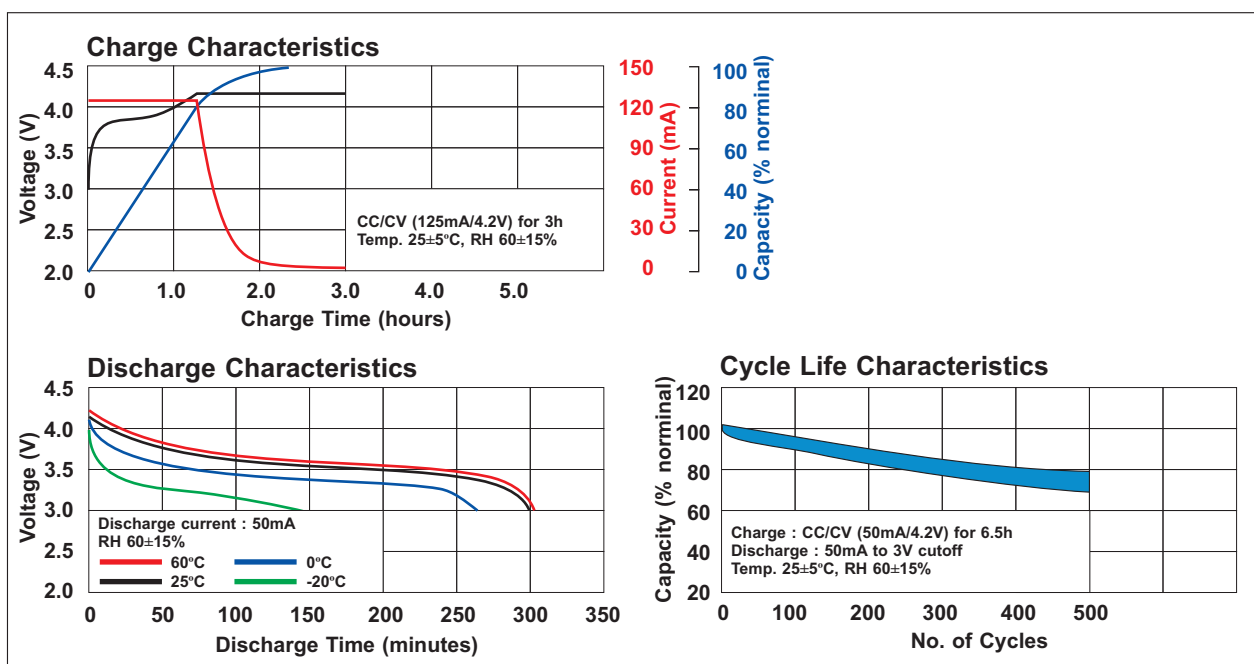
**WELL LINK**  
**INDUSTRIAL LIMITED**

**J827PA3**

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|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacity Retention          | : Discharge measured after the cell is stored for 28 days after standard charge. Capacity retention $\geq 85\%$ initial capacity ( $\sim 212.5\text{mAh}$ )                                                                                                                                                        |
| Maintenance Charging        | : Maintenance charging is required for storage over 3 months or when battery open circuit voltage below 3.8V. Prolonged storage without maintenance may result is battery gassing and loss of performance.                                                                                                         |
| Remarks :                   | : Charging voltage shall be less than 4.20V/cell. It must never exceed 4.25V/cell.                                                                                                                                                                                                                                 |
| Ex-Factory Condition        | : As per air shipment regulations, the battery must be shipped at a State of Charge (SoC) $\leq 30\%$ . We recommend customer to arrange supplementary charging of the battery after receiving the batteries.                                                                                                      |
| External Short Circuit Test | : No fire, no explosion for short-circuiting of the positive and negative terminals of a fully charged cell with a total external resistance of $80\text{m}\Omega \pm 20\text{m}\Omega$ at $20 \pm 5^\circ\text{C}$ .                                                                                              |
| Free Fall Test              | : No fire, no explosion for dropping a fully charged cell 3 times from a height of 1m at random orientations onto a concrete floor at $20 \pm 5^\circ\text{C}$ .                                                                                                                                                   |
| Thermal Abuse Test          | : No fire, no explosion for placing a fully charged cell in an oven with temperature raised at a rate of $5^\circ\text{C}/\text{min} \pm 2^\circ\text{C}/\text{min}$ to a temperature of $130^\circ\text{C} \pm 2^\circ\text{C}$ .                                                                                 |
| Crush Test                  | : No fire, no explosion for crushing a fully charged cell between two flat surfaces with a force of $13\text{kN} \pm 1\text{kN}$ at $20 \pm 5^\circ\text{C}$ until maximum force has been applied, or an abrupt voltage drop of 1/3 of the original voltage has been obtained, or 10% of deformation has occurred. |
| Over-charging Test          | : No fire, no explosion for charging a fully discharged cell at a constant current of $2\text{I}_\text{A}$ (500mA) until voltage reaches 4.8V or temperature reaches steady state.                                                                                                                                 |
| Forced Discharge Test       | : No fire, no explosion for reverse charging a fully discharged cell at a constant current of $1\text{I}_\text{A}$ (250mA) for 90 min. at $20 \pm 5^\circ\text{C}$ .                                                                                                                                               |



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Customer of lithium iron phosphate battery should employ appropriate cautions in order to obtain optimum performance and safety.

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| Charging         | : Charging current, voltage, time and temperature should be within the limit specified in the specification.<br>Reverse charging should be strictly prohibited.<br>Improper charging may generate heat, smoke, rupture or flame, and may cause leakage or damage to the cell and personal injury.                                                                                                                                                                                                                                                          |
| Discharging      | : Discharging current, voltage and temperature should be within the limit specified in the specification.<br>Short circuit and over discharging should be strictly prohibited.<br>Over discharge may occur by self-discharge if the cell is left idle for a long time, or by leakage current of equipment.<br>Improper discharging may generate heat, smoke, rupture or flame, and may cause leakage or damage to the cell and personal injury.                                                                                                            |
| Storage          | : Storage voltage, time, temperature and relative humidity should be within the limit specified in the specification. Storage is recommended in low temperature, low humidity, no corrosive gas atmosphere.<br>Long term storage may cause permanent loss of capacity.                                                                                                                                                                                                                                                                                     |
| Cycle Life       | : Cycle life performance differs by conditions of charging, discharging, temperature and/or storage condition.                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Shipping         | : The cell should be checked after long term storage prior to shipment.<br>Packaging should be according to latest requirement of IATA and IMDG.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Product Design   | : Do not solder directly on bare cell.<br>Cell should be positioned far from heat source and heat components.<br>Shock absorber should be equipped to minimize shock on the cell.<br>Protection circuit should be equipped to insure safety in case of misuse and abnormal conditions.<br>Battery should be designed to connect only to specified charger and system.<br>Product design should be able to avoid short circuit, reverse connection, vibration, shock and crush of battery.<br>Improper product design may cause damage and personal injury. |
| Product Assembly | : Battery cell should be inspected visually before product assembly to avoid usage of damaged cell (for example, sleeve damage, battery distortion, or leaking).<br>Excessive force on the battery terminals and battery surface should be avoided. Precaution should be taken to avoid short circuit of cell.<br>Precaution should be taken when cell is moved / transported to other place.<br>Battery pack should be assembled by cells from same batch, with similar capacity, voltage, internal resistance and charge level.                          |
| Warning          | : The cell may present risk of fire and chemical burn if mistreated.<br>Do not disassembly cell, immersion in water and dispose in fire.<br>Do not use cell with unusual conditions such as odors or leakage or heat.<br>Cell should be disposed in discharged state.<br>Improper handling may cause damage and personal injury.<br>Keep the cell away from children.                                                                                                                                                                                      |

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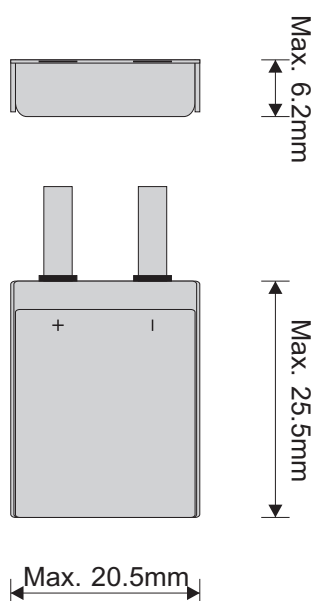
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## PRODUCT DRAWING



## PRINTING :

3.7V  
250mAh  
0.925Wh

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