

LITHIUM-ION POLYMER RECHARGEABLE BATTERY

SPECIFICATIONS

Model	: LIP603048
Description	: Lithium-Ion Polymer rechargeable battery (RoHS compliant)
Dimension	: Max. 6.2 x 30.5 x 48.5mm
Nominal Capacity	: 850mAh (Min. 807.5mAh) at 170mA rate discharge to 3.0V at 25°C 3 cycles allowed for incoming inspection Discharge capacity varies with discharge current and temperature
Nominal Voltage	: 3.7Volt (after charge)
Cut-Off Voltage	: 3.0Volt
Approximate Weight	: 18g
Internal Impedance	: <150mΩ (bare cell with 1KHz AC testing at full charge)
Cycle Life	: 100 standard charge/discharge cycles > 80% (680mAh) capacity 500 standard charge/discharge cycles > 70% (595mAh) capacity
Charging	: Using dedicated CC/CV (4.20±0.03V) battery charger only Charging with CC (Constant Current) to 4.20V, then charge with CV (Constant Voltage) till charge current <42.5mA Standard Charge Current 170mA at 25°C below 8 hours Max. Charge Current 425mA at 25°C below 3 hours
Discharging	: Standard Discharge Current 170mA at 25°C Max. Discharge Current 425mA at 25°C (Conditions apply)
Temperature Range	: Charge 0°C to 45°C Discharge -20°C to 60°C Storage 10°C to 25°C (Recommended) -10°C to 40°C (within 1 month) -5°C to 35°C (within 3 months)
Warranty	: Limited warranty is provide against defects of poor workmanship for 12 months from date of shipment. Problem caused by misuse, mishandling, malfunction of equipment, or mix-use of cell is not 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 related to time of storage. Cell is recommended to store with 45% capacity charged, temperature 20±5°C, and relative humidity 45%-75%. After max. 12 months storage, capacity recovery will be > 70% initial capacity (~595mAh), after 5 recovery charge/discharge cycles.
Appearance	: No scratch, rust, discoloration, leakage which may adversely affect commercial value of the cell
Standard Test Condition	: Unless otherwise specified, all test are conducted at temperature 20±5°C and relative humidity 60±15% The ammeter and voltmeter with accuracy grade 0.5 or higher The slide caliper with scale 0.01mm The impedance meter with AC 1kHz measurement

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Model : LIP603048
Version : 1.00

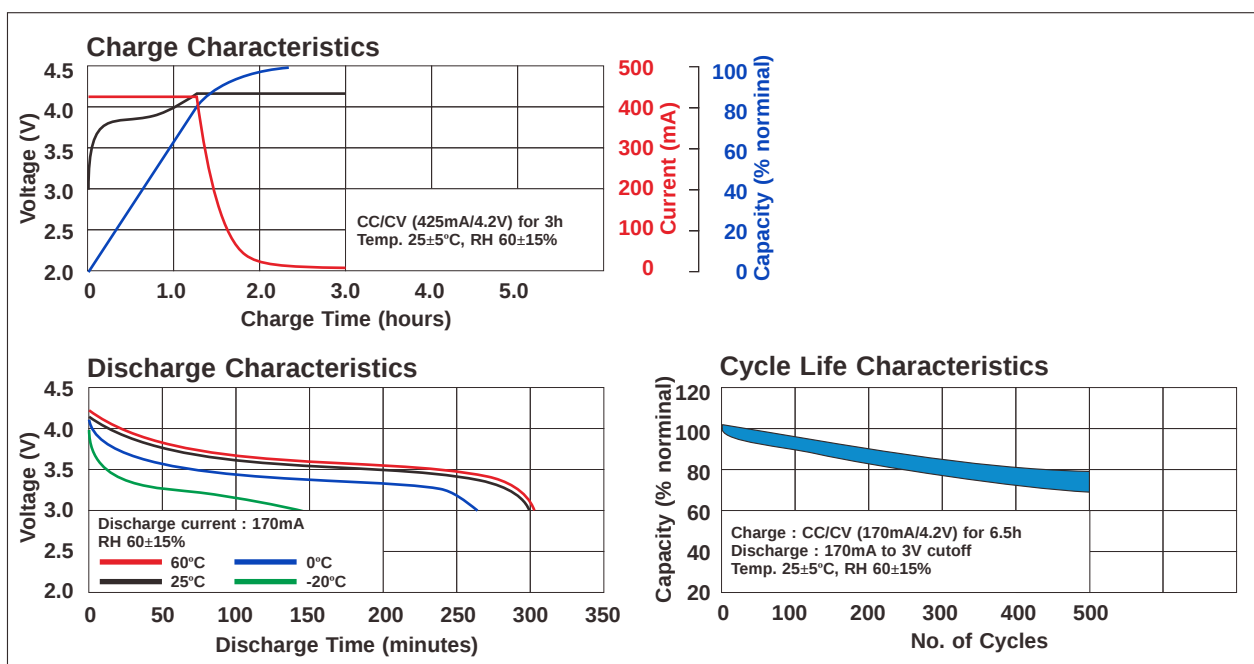
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Capacity Retention	: Discharge measured after the cell is stored for 28 days after standard charge. Capacity retention $\geq 85\%$ initial capacity ($\sim 722.5\text{mAh}$)
Maintenance Charging	: Maintenance charging is required for storage over 3 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 2I_A (1700mA) 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 1I_A (850mA) 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.

Charging	: Charging current, voltage, time and temperature should be within the limit specified in the specification. - Reverse charging should be strictly prohibited. - 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. - Short circuit and over discharging should be strictly prohibited. - Over discharge may occur by self-discharge if the cell is left idle for a long time, or by leakage current of equipment. - 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. - 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. - Packaging should be according to latest requirement of IATA and IMDG.
Product Design	: Do not solder directly on bare cell. - Cell should be positioned far from heat source and heat components. - Shock absorber should be equipped to minimize shock on the cell. - Protection circuit should be equipped to insure safety in case of misuse and abnormal conditions. - Battery should be designed to connect only to specified charger and system. - Product design should be able to avoid short circuit, reverse connection, vibration, shock and crush of battery. - 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). - Excessive force on the battery terminals and battery surface should be avoided. Precaution should be taken to avoid short circuit of cell. - Precaution should be taken when cell is moved / transported to other place. - 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. - Do not disassembly cell, immersion in water and dispose in fire. - Do not use cell with unusual conditions such as odors or leakage or heat. - Cell should be disposed in discharged state. - Improper handling may cause damage and personal injury. - Keep the cell away from children.

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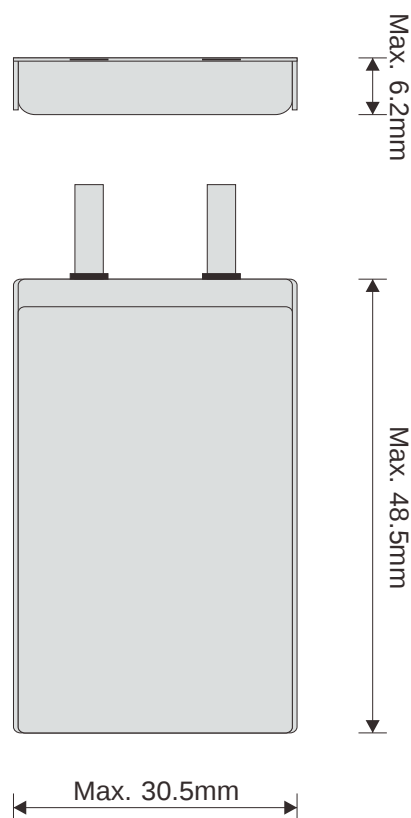
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LITHIUM-ION POLYMER RECHARGEABLE BATTERY

PRODUCT DRAWING



PRINTING :

KINETIC (Lot. YYMM)
LIP603048
3.7V 850mAh 3.145Wh



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