

# LITHIUM IRON PHOSPHATE BATTERY

## SPECIFICATIONS

Model	: IFR32700(5.0)
Description	: Lithium Iron Phosphate rechargeable battery (RoHS compliant)
Dimension	: Max. 32.5(Ø) x 71(H) mm
Nominal Capacity	: 5Ah (Min. 4.8Ah) at 1000mA rate discharge to 2.0V at 25°C 3 cycles allowed for incoming inspection Discharge capacity varies with discharge current and temperature
Nominal Voltage	: 3.2Volt (after charge)
Cut-Off Voltage	: 2.0Volt
Approximate Weight	: 128g (bare cell)
Internal Impedance	: <25mΩ (with 1KHz AC testing at full charge)
Cycle Life	: 2,000 standard charge/discharge cycles > 70% (3.5Ah) capacity
Charging	: Using dedicated CC/CV (3.65±0.03V) battery charger only Charging with CC (Constant Current) to 3.65V, then charge with CV (Constant Voltage) till charge current <250mA Standard Charge Current 1000mA at 25°C below 8 hours Max. Charge Current 2.5A at 25°C below 3 hours
Discharging	: Standard Discharge Current 1000mA at 25°C Max. Discharge Current 15A at 25°C (Conditions apply)
Temperature Range	: Charge 0°C to 45°C Discharge -10°C to 60°C Storage 10°C to 25°C (Recommended) -10°C to 45°C (within 1 month) -10°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 (~3.5Ah), 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 : IFR32700(5.0)**  
**Version : 1.10**

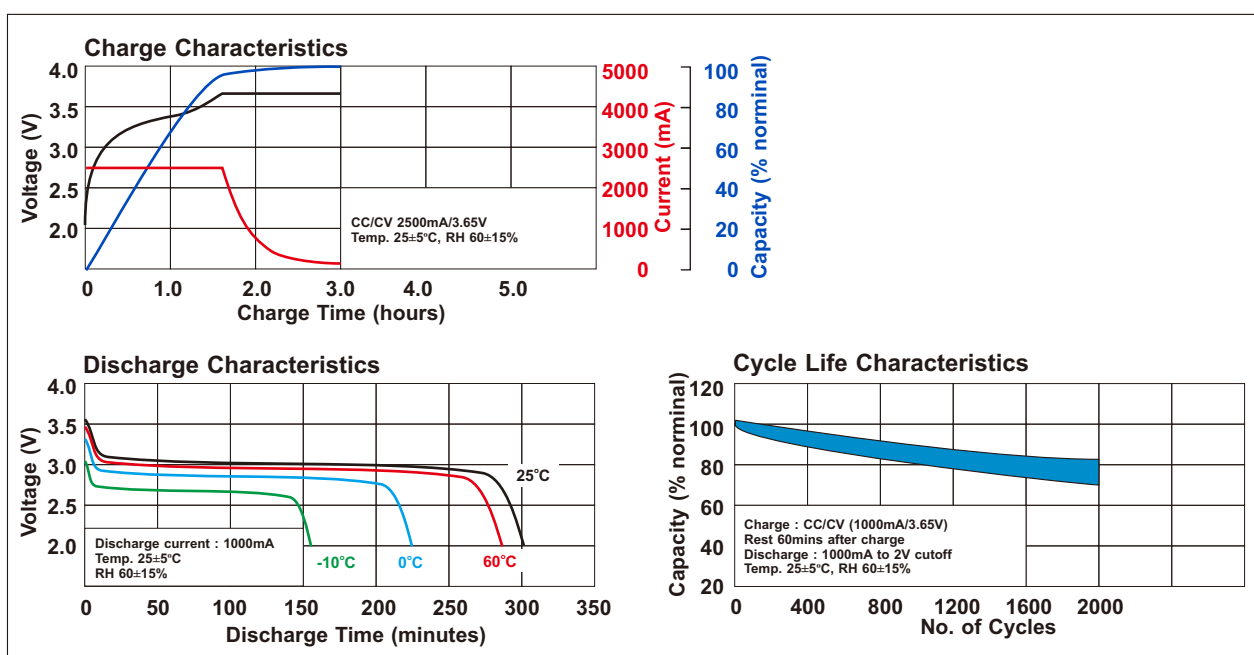
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Capacity Retention	: Discharge measured after the cell is stored for 28 days after standard charge. Capacity retention $\geq 85\%$ initial capacity ( $\sim 4.25\text{Ah}$ )
Maintenance Charging	: Maintenance charging is required for storage over 3 months or when battery open circuit voltage below 3.3V. Prolonged storage without maintenance may result is battery gassing and loss of performance.
Remarks :	: Charging voltage shall be less than 3.65V/cell. It must never exceed 3.68V/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 10A with a voltage limit of 4.8V for 8 hours.
Forced Discharge Test	: No fire, no explosion for reverse charging a fully discharged cell at a constant current of 6A 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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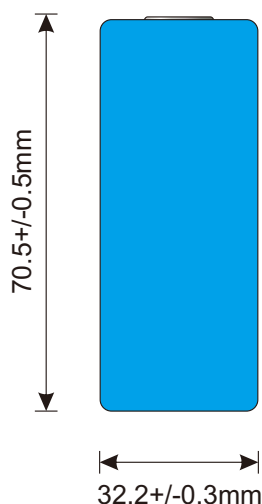
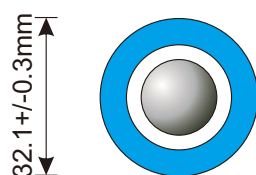
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## PRODUCT DRAWING



Dimensions with PVC Jacket

Ink Jet

KINETIC (Lot. YYMM)  
+ IFR32700(5.0) LiFePO4  
3.2V 5Ah 16.0Wh



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