LITHIUM IRON PHOSPHATE BATTERY

SPECIFICATIONS

Model	:	IFR18650(1.3)
Description	:	Lithium Iron Phosphate rechargeable battery (RoHS compliant)
Dimension	:	Max. 18.6(Ø) x 65.7(H) mm
Nominal Capacity	:	1.30Ah (Min. 1.20Ah) at 260mA 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	:	38g (bare cell)
Internal Impedance	:	<35mΩ (with 1KHz AC testing at full charge)
Cycle Life	:	2,000 standard charge/discharge cycles > 70% (9.1Ah) 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 <65mA Standard Charge Current 260mA at 25°C below 8 hours Max. Charge Current 0.65A at 25°C below 3 hours
Discharging	:	Standard Discharge Current 260mA at 25°C Max. Discharge Current 3.9A 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 (~0.91Ah), 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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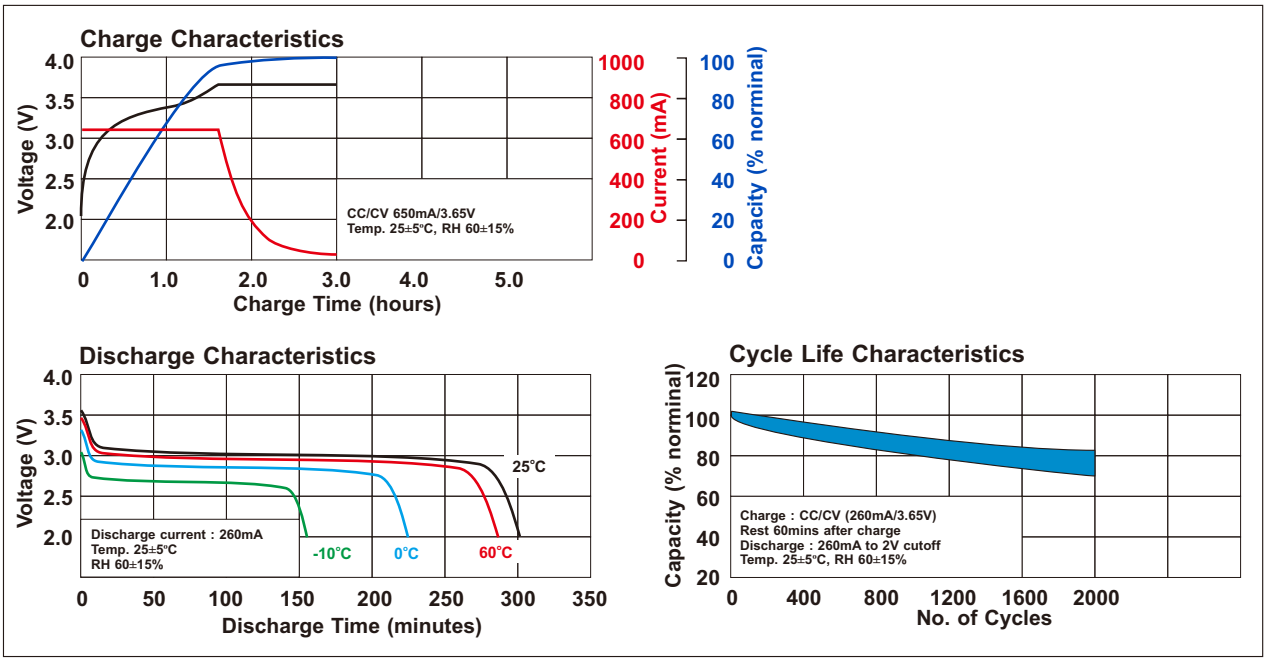
Capacity Retention	:	Discharge measured after the cell is stored for 28 days after standard charge. Capacity retention >= 85% initial capacity (~1.105Ah)
Maintenance Charging	:	Maintenance charging is required for storage over 3 months or when battery open circuit voltage below 3.3V. Prolonged storage 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) <=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 80mΩ±20mΩ at 20±5°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±5°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°C/min±2°C/min to a temperature of 130°C±2°C.
Crush Test	:	No fire, no explosion for crushing a fully charged cell between two flat surfaces with a force of 13kN±1kN at 20±5°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 2.6A 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 1.3A for 90 min. at 20±5°C.



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LITHIUM-ION POLYMER RECHARGEABLE BATTERY

SPECIFICATIONS

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

Charging	:	Charging current should less than the maximum charging current specified in the specification Charging voltage must up to the voltage specified in the specification Do not charge battery over the specified time in the specification Charging temperature should be within the specified range in the specification Reverse charging should be strictly prohibited Improper charging may generate heat, smoke, rupture or flame, and cause damage to the battery
Discharging	:	Discharging current should be less than the maximum discharging current specified in the specification Discharging temperature should be within the specified range in the specification Do not over discharge the battery below 2.5V/cell Over discharge may occur by self-discharge if the battery is left for a very long time without any use Improper discharge may cause loss of performance
Storage	:	Storage temperature should be within the specified range in the specification Storage is recommended in low humidity, nop corrosive gas atmosphere Long term storage may cause loss of capacity
Cycle Life	:	Cycle life differs by conditions of charging, discharging, operating temperature and/or storage condition Level of capacity differs by cycles of battery used
Product Design	:	Do not solder directly on bare cell Battery should be positioned far from heat source and heat components Appropriate shock absorber should be equipped to minimize shock on the battery Protection circuit against overcharge, over discharge, over current should be equipped to insure safety in case of misuse Battery should be designed to connect only to specified charger and system Reverse connection of battery should be avoided in system design Improper product and system design may cause loss of battery performance
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 when battery is moved / transported to other place Do not disassembly, short-cutcuit, incinerate, immersion in water, and mix use of battery Battery should be disposed in discharged state Improper handling may cause loss of battery performance
Warning	:	The battery may present risk of fire and chemical burn if mistreated. Keep away battery from children.

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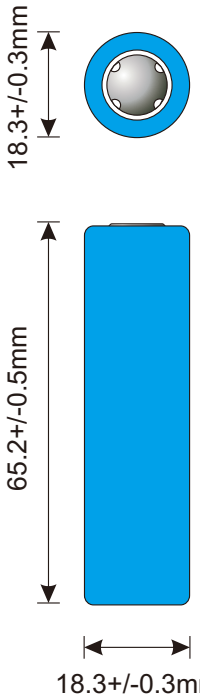
LITHIUM-ION POLYMER RECHARGEABLE BATTERY

PRODUCT DRAWING



Dimensions with PVC Jacket

Ink Jet

KINETIC (Lot. YYMM)
+ IFR18650(1.3) LiFePO4
3.2V 1.3Ah 4.16Wh

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