

# GP Batteries

**Product Specification**

**Model No. : ICR18650-26F**

Document Number: YQS0902

Revision: R1

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## Revision History

Revision	Date	Initiator	Reason for Change
00	15th Aug 2013	Vivian Fong	New Issue
01	23rd Apr 2014	Andy Chan	Updated maximum continuous charging current

Prepared By	Approved By
Andy Chan	David Zheng
Date: 23rd Apr 2014	Date: 23rd Apr 2014

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## 1. APPLICABILITY

The specification is applicable to GP Lithium Ion Rechargeable batteries.

GP Model: ICR18650-26F  
Cell Size: Cylindrical Cell with Diameter = 18.3 mm Max and Height = 65.4mm Max

Capacity : 2650mAh
Ri : < 60mohm
Cycle life : 350 cycles

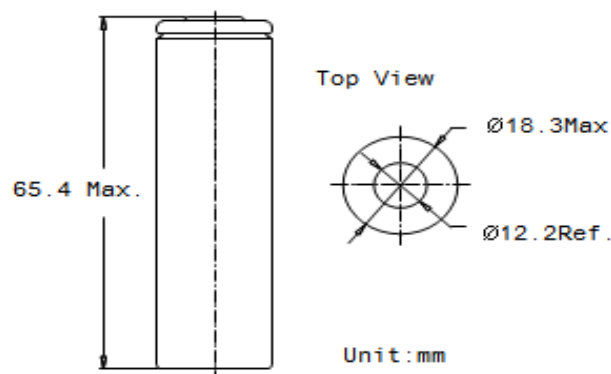
## 2. RATINGS

2.1	Rated voltage	:	3.7 V
2.2	Capacity#	:	2650 mAh (maximum) 2600 mAh (typical)
2.3	Standard charge	:	1300 mA to 4.2V and then 4.2V cut off at 26mA
2.4	Standard discharge	:	520 mA to 2.75V
2.5	Maximum charge current	:	2000 mA
2.6	Maximum discharge current	:	5200 mA
2.7	Cell weight	:	~ 48g
2.8	Operating temperature	:	0°C – 45°C (charge) -20°C – 60°C (discharge)
2.9	Storage temperature	:	0°C – 45°C (1 month) 0°C – 35°C (6 months) 0°C – 25°C (12 months)

# Based on standard charge/discharge @RT

## 3. CONFIGURATION AND DIMENSIONS

Please refer to the drawing.



## 4. TEST CONDITIONS

Unless otherwise specified, all tests should be conducted within one month of delivery under the following conditions:

Ambient Temperature	:	23 ± 5°C
Relative Humidity	:	65 ± 20%

## 5. TYPICAL CHARACTERISTICS

Item	Criteria	Test Conditions	
Capacity	≥ 2550 mAh	Standard charge and standard discharge	
Internal Impedance	≤ 60 mohm	Measure AC impedance at 1kHz within 1 hour after standard charge	
Typical discharge capacity at different temperatures	-10°C	60%	Standard charge cell at 23 ± 5°C. Place cell in the temperature to be tested for 2 hours and then discharge cell at Standard charge.
	0°C	80%	
	25°C	100%	
	40°C	90%	
Cycle Life, 23°C	> 70%	Measure discharge capacity after conducting 350 cycles of standard charge/discharge.	
Storage characteristics	≥ 80% (retention) ≥ 90% (recovery)	Measure discharge capacity (retention) of cells after standard charge to 100% SOC and stored at 23 ± 2°C for 28 days. After that, charge the cell at standard condition and measure capacity (recovery) under 23 ± 2°C condition.	

## 6. WARRANTY

One year limited warranty against workmanship and material defects. The information ( subject to change without prior notice ) contained in this document is for reference only and should not be used as a basis for product guarantee or warranty. For applications other than those described here, please contact your nearest GP Sales and Marketing office or Distributors. Manufacturer reserves the right to alter, amend the design, model and specification without prior notice.

## 7. STATUS OF CELLS AS OF EX-FACTORY

Charge from 30% to 50% according to delivery condition.

The cell should be shipped in 3.50V ~ 3.90V charging voltage range.

## 8. SAFETY PRECAUTION

Please follow the safety precaution carefully as improper handling of lithium ion batteries may result in injury or damage from electrolyte leakage, heating ignition or explosion. To ensure safety, consult with GP regarding the charge and discharge specifications, equipment structure, warning labels and other important details when designing equipment to use GP rechargeable lithium ion batteries.

Never charge the battery above 4.20V.

Never reverse charge the battery.

Never heat or incinerate the battery.

Never pierce, crush or cause mechanical damage to the battery.

Never charge a battery at high temperature condition, such as under the blazing sun or near a fire.

Never short circuit the battery.

Never discharge a battery to below 2.75V per cell.

Stop discharge a battery when cell temp above 65°C.

Never allow the battery to get wet or be immersed in water.

For long period of storage, temperature should be below 25°C.

After long period of storage, battery may require some cycling to recover capacity.

## Protection Circuit Module (PCM)

The Cell(s) / Battery Pack shall be used with a PCM which can protect Cell(s) / Battery Pack properly. The PCM shall have functions of (a) overcharging protection;(b) over-discharging protection and (c) over current protection, to maintain safety and significant deterioration of cell performance. The over current can occur by external short circuit.

- a. Overcharging prohibition
  - Overcharging prevention function shall work if any one of the cell of the battery reaches 4.25V or above which charging should be stopped.
- b. Overdischarge prohibition
  - Overdischarging prevention function shall work if the Cell(S) / Battery Pack reaches below 2.50V.
  - It is recommended that the dissipation current of PCM shall be designed to minimal such as 0.5 microamperes or less after the over-discharge prevention function works.
  - The protection function shall monitor each cell for controlling the current throughout the time.

## Design of Protection Circuit Module(PCM)

- a. PCM shall be located away from the gas-release vent of the cell as much as possible.
- b. Circuit pattern of PCM shall be away from each other as much as possible.