

# GP Batteries

Product Specification

Model No. : GP 18650-26FP

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**Revision History**

Revision	Date	Initiator	Reason for Change
0	12 June, 2018	Alvin Chan	New Issue
1	03 July, 2018	Alvin Chan	Cycle life to 300 cycles, 80% of initial capacity to align with our PPB
2	11 July, 2018	Alvin Chan	Pack operating temperature upper limit is reduced from 60°C to 50°C
3	7 Aug, 2018	Kevin Chan	Pack operating temperature upper limit is increased from 50°C to 55°C

<b>Prepared By</b> Alvin Chan  Date: 03 July, 2018	<b>Approved By</b> Kevin Chan  Date: 6/8/2018
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## 1. APPLICABILITY

The specification is applicable to GP lithium ion rechargeable pack.

GP Model	:	GP 18650-26FP
Pack Size	:	Diameter = 19.1mm Max and Height = 72.0mm Max (Dimension is with cell sleeve)
Chemistry	:	Lithium mixed oxide
Energy Density	:	557Wh/L
Certifications	:	UN38.3

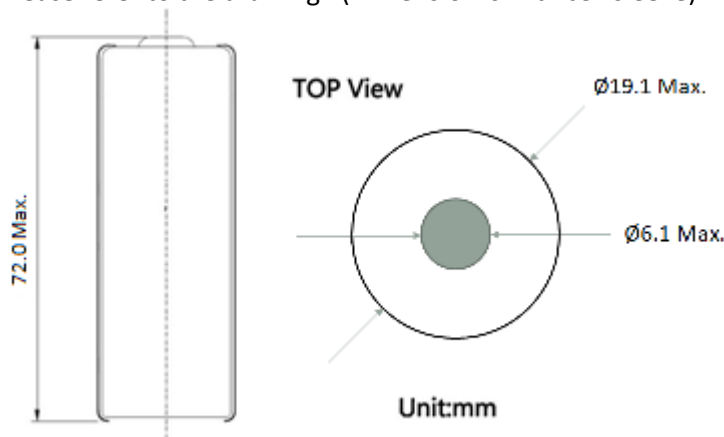
## 2. BATTERY PACK SPECIFICATION

No.	Item	Standard	Notes
1	Weight (g)	About 50g	
2	Rated Capacity (mAh)	2600	
3	Battery size	$\Phi(18.8 \pm 0.3) \times (71 \pm 1)$	
4	Impedance (m $\Omega$ )	$\leq 110$	Charged 50-60% · A frequency of 1KHz Internal Resistance Measurement Test
5	Charge mode	CC/CV	
6	Standard charging voltage (V)	4.2	Note In accordance with this voltage can only be filled with
7	Standard charge current (A)	1.3	
8	Maximum charge current (A)	2.6	
9	Charge cut-off current (mA)	52	
10	Maximum discharge current (A)	2.6	
12	Open-circuit voltage (V)	$3.7 \pm 0.2$	50-60% battery state of charge
13	Overcharge Voltage (V)	$4.25 \pm 0.025$	As long as there is a group of over-charge, will stop charging protection
14	Overcharge recovery voltage (V)	$4.05 \pm 0.05$	When each of batteries when the voltage falls below this value can only charge

No.	Item	Standard	Notes
15	Over-voltage discharge (V)	$2.75 \pm 0.1$	As long as the protection module detects over-discharge point, will stop discharging
16	Over discharge recovery voltage (V)	$3.0 \pm 0.1$	When the batteries voltage is higher than each of the value, before they can discharge
17	Over-current (A)	$5.0 \pm 2.0$	Protection Board Electrical Testing
18	Short-circuit protection function	Have	Fault self-recovery after the lifting output, careful not to make a direct short-circuit

### 3. CONFIGURATION AND DIMENSIONS

Please refer to the drawing. (Dimension is with cell sleeve)



## 4. CELL RATINGS

4.1	Rated voltage	:	3.7V
4.2	Capacity #	:	2600mAh (typical) 2550mAh (minimum)
4.3	Standard charge *	:	Constant current at 1300mA with max voltage not to exceed 4.20V, cut-off current at 26mA
4.4	Standard discharge *	:	Constant current at 520mA to 2.75V
4.5	Maximum charge current *	:	2000mA
4.6	Maximum discharge current *	:	2600mA (continuous)
4.7	Internal impedance *	:	≤ 60mΩ
4.8	Cell weight	:	≤ 50g
4.9	Operating temperature	:	0°C – 45°C (charge) -20°C – 55°C (discharge)
4.10	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

\* Temperature @ 25 ± 2°C

## 5. TYPICAL CHARACTERISTICS

### STANDARD TEST CONDITIONS

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

Ambient Temperature	:	25 ± 2°C
Relative Humidity	:	65 ± 20%

Item	Criteria		Test Conditions
Capacity	≥ 2550mAh		Standard charge and standard discharge described at section 4.3 and 4.4, respectively
Internal Impedance	≤ 60mΩ		Measure AC impedance at 1kHz within 1 hour after standard charge as described at section 4.3
Discharged capacity at different	-10°C	60%	Standard charge cell as described at section 4.3. Place cell in the temperature to be tested for 2 hours and

temperatures	0°C	80%	then discharge cell using standard discharge as described at section 4.4 and at specified temperature.
	25°C	100%	
	40°C	90%	
Cycle Life	≥ 80% of initial discharged capacity		Measure discharged capacity after conducting 300 cycles of charge/discharge at 0.5C/0.5C with cut-off voltage at 3.0V.
Charge Retention	≥ 80% (retention) ≥ 90% (recovery)		Measure standard discharge capacity of cells after standard charge to 100% SOC and stored at 23 ± 5°C for 28 days.

## 6. WARRANTY

One year limited warranty against workmanship and material defects. For application use on this battery pack, please contact your nearest GP Sales and Marketing office or Distributors.

## 7. CHARGE STATE OF CELL BEFORE SHIPMENT

25 to 30% SOC prior to delivery.

## 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 4.25V. 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 at or near a fire. Never short circuit the battery.
- Never discharge a battery to below 2.70V per cell.
- Never allow the battery to get wet or be immersed in water.
- After 3 months storage, battery may require some cycling to recover capacity. GP Batteries will not be liable to accidents caused by improper use.