

Model: LP506877

Capacity:

2800mAh

Prepared	Checked	Approved

Customer:

Customer Approval (Customer confirmation):		
Signature Checked Approved		

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1. Scope

This product specification defines the requirements of the rechargeable polymer lithium-ion battery supplied to the customer by EEMB Co., Ltd.

2. Product Basic Characteristics

No.	Item		Characteristics		Remark
2.1		Model	LP506877	LP506877	
	Consister	Nominal Capacity	2800	mAh	0.2C ₅ A
2.2	Capacity	Minimum	2700	mAh	0.2C ₅ A
2.3	Nom	inal Voltage	3.7	V	
2.4		Weight	Approx.56	g	
2.5	Intern	al Impedance	\leq 100	mΩ	AC 1KHz(50% charge)
		Length	\leq 78	mm	
2.6	Dimension	Width	\leq 68.5	mm	
		Thickness	≤ 5.3	mm	
	Charge	Maximum Current	2800	mA	1.0C ₅ A (CC&CV)
2.7		Limited Voltage	4.200±0.020	V	
		End-of Current	56	mA	
28	Discharge	Maximum Current	5600	mA	2.0C ₅ A
2.0	Discharge	End Voltage	2.750 ± 0.005	V	
2.0	Operation	Charge	$0 \sim 45$	°C	
2.9	Temperature	Discharge	-20 ~ +60	°C	
	Ct.	1 month	-20 ~ +60	°C	
2.10	Storage Temperature	3 month	-20 ~ +45	°C	
		12 month	-20 ~ +25	°C	
2.11	Storage Relative Humidity		65±20	%	

3. Shape and Dimensions (Unit: mm)

Item	Specification	
Т	Max5.3	
W	Max68.5	
L	Max78	
L1	Max79	
L2	10±1	
М	30±1	
Ν	4±0.5	





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4. Appearance

It shall be free from any defects such as remarkable scratches, breaks, cracks, discoloration, leakage, or middle deformation.

5. Specification

5.1 Electrical Characteristics

No.	Item	Criteria	Test Instructions
5.1.1	1C ₅ A rate discharge capacity	Discharge Time≥57min	Full charge at 20 ± 5 °C, rest for 30 min, then discharge at the same temperature with $1.0C_5A$ to 2.75V.
5.1.2	High temp. discharge capacity	Discharge Time≥54min	Full charge at $20\pm5^{\circ}$ C, store at $55\pm2^{\circ}$ C for 2h, then discharge at the same temperature with $1.0C_5$ A to 2.75V.
5.1.3	Low temp. discharge capacity	Discharge Time≥4.25h	Full charge at $20\pm5^{\circ}$ C, store at -20° C $\pm2^{\circ}$ C for 16h~24h, then discharge at the same temperature with 0.2C ₅ A to 2.75V
5.1.4	Cycle Life	≥300Cycles	After full charge, rest for 10 min, discharge at constant current of $1.0C_5A$ to 2.75V. Batteries are full charge after 10 minutes.Repeat above steps until the two consecutive cycles of discharge time is less than 48 min
5.1.5	Capacity Retention	Discharge Time≥4.5 h	After full charge, store at 20 ± 5 °C for 28 days. Then discharge with $0.2C_5A$ to $2.75V$

5.2 Acclimatization Characteristics

No.	Item	Criteria	Test Instructions
5.2.1	High Temp. and High Humidity	No deformation, no rust, no fire or explosion; Discharge time \geq 36min	After full charge, store at $40^{\circ}C \pm 2^{\circ}C(90\% \sim 95\% RH)$ for 48h. After test, place at $20^{\circ}C \pm 5^{\circ}C$ for 2h and then discharge with $1C_5A$ to end-voltage
5.2.2	Vibration	No deformation, leakage, no fire or explosion; Battery Voltage≥3.6V	Batteries are vibrated 30 min in three mutually perpendicular directions with amplitude of 0.38mm (10~30Hz) or 0.19mm (30~55Hz) and the scanning rate of loct per min
5.2.3	Drop	No leakage, no fire or explosion; Discharge Time≥51 min	Batteries are dropped onto a hard board with the thickness of $18\sim20$ mm from at least 1 meter height. Drop the batteries from six different directions and discharge them at $1C_5A$ to end-voltage.



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5.3 Safety Characteristics

No.	Item	Criteria	Test Instructions		
			Put the batteries with thermocouple into the ventilation		
			cabinet. Connect the polarities to constant voltage and		
5.3.1	Overcharge	No fire or explosion	adjust the current to 3CA, voltage to 4.8V. Charged the		
			cells at $3C_5A$ current $20\pm5^{\circ}C$ with a voltage limit of		
			4.8V and Current approach 0 A.		
			Put the batteries with thermocouple into the ventilation		
		No fire or explosion;	cabinet. Batteries are short-circuited by connecting the		
5.3.2	Short-Circuit	The maximum Temperature:	positive and negative terminals for 1h with a resistance		
		150℃	load of $100m\Omega$. Watch the changes of temperature. Test		
			the temperature of the batteries until it drops to 10° C.		
			Cell is heated in a circulating air oven at a rate of		
5.3.3	Heating	No fire or explosion	$(5\pm2)^{\circ}$ C per minute to 130°C, and then placed for 30		
			minutes at 130°C		
Note: U	Note: Unless otherwise specified, all tests stated in this specification are conducted at the following conditions:				
Temp. : $20\pm5^{\circ}$ C; Relative Humidity: $25\% \sim 85\%$.					

6. Battery shipment voltage: 3.83~3.9V

7. Matters needing attention

Strictly observes the following needing attention. EEMB will not be responsible for any accident occurred by handling outside of the precautions in this specification.

! Danger

- Strictly prohibits heat or throw cell into fire.
- Strictly prohibits throw and wet cell in liquid such as water, gasoline or drink etc.
- Strictly prohibits use leave cell close to fire or inside of a car where temperature may be above 60°C. Also do not charge / discharge in such conditions.
- Strictly prohibits put batteries in your pockets or a bag together with metal objects such as necklaces. Hairpins, coins, or screws. Do not store or transportation batteries with such objects.
- Strictly prohibits short circuit the (+) and (-) terminals with other metals.
- Do not place Cell in a device with the (+) and (-) in the wrong way around.
- Strictly prohibits pierce Cell with a sharp object such as a needle.
- Strictly prohibits disassemble or modify the cell.
- Strictly prohibits welding a cell directly.
- Do not use a Cell with serious scar or deformation.
- Thoroughly read the user's manual before use, inaccurate handling of lithium ion rechargeable cell may cause leakage, heat, smoke, an explosion, or fire, capacity decreasing.

! Warning

- Strictly prohibits put cell into a microware oven, dryer, or high-pressure container.
- Strictly prohibits use cell with dry cells and other primary batteries, or new and old battery or batteries of a different package, type, or brand.
- Stop charging the Cell if charging is not completed within the specified time.



- Stop using the Cell if abnormal heat, odor, discoloration, deformation or abnormal condition is detected during use, charge, or storage.
- Keep away from fire immediately when leakage or foul odor is detected.
- If liquid leaks onto your skin or clothes, wash well with fresh water immediately.
- If liquid leaking from the Cell gets into your eyes, do not rub your eyes. Wash them well with clean edible oil and go to see a doctor immediately.

! Caution

- Before using the Cell, be sure to read the user's manual and cautions on handling thoroughly.
- Charging with specific charger according to product specification. Charge with CC/CV method. Strictly prohibits revered charging. Connect cell reverse will not charge the cell. At the same time, it will reduce the charge-discharge characteristics and safety characteristics; this will lead to product heat and leakage.
- Store batteries out of reach of children so that they are not accidentally swallowed.
- If younger children use the Cell, their guardians should explain the proper handling.
- Before using the Cell, be sure to read the user's manual and cautions on handling thoroughly.
- Batteries have life cycles. If the time that the Cell powers equipment becomes much shorter than usual, the Cell life is at an end. Replace the Cell with a new same one.
- When not using Cell for an extended period, remove it from the equipment and store in a place with low humidity and low temperature.
- While the Cell pack is charged, used and stored, keep it away from objects or materials with static electric charges.
- If the terminals of the Cell become dirty, wipe with a dry clothe before using the Cell.
- Storage the cell in storage temperature range as the specifications. After full discharged, we suggest that charging to 3.7~4.0V with no using for a long time.
- Do not exceed these ranges of the following temperature ranges:

Charge temperature range : 0° C to 45° C;

Discharge temperature range : -20° C to 60° C.

Store less than 1 month $: -20^{\circ}\text{C} - +60^{\circ}\text{C}$

Store less than 3 months : -20° C - $+45^{\circ}$ C

Store less than 1 year $:-20^{\circ}C - +25^{\circ}C$

! Special Notice

Keep the cell in 50% charged state during long period storage. We recommend to charge the battery up to 50% of the total capacity every 3 months after receipt of the battery and maintain the voltage 3.7~4.0V. And store the battery in cool and dry place.