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广东小电新能源有限公司

Guangdong Micro Power New Energy CO., Ltd

Model/型号: GT686386--5000mAh

Specifications/规格: 3.85V/ 5000mAh

Prepared by/Date 制定/日期	Checked by/Date 审核/日期	Approved by/Date 批准/日期
邹学其	郑小聪	
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技术专用章

（注：确认无误后，请在封面签字，整套回传.）

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Amendment Records/修改记录

Version/版本	Date/日期	Description/描述
A0	2025年4月25日	新版发行

Guangdong Micro Power New Energy CO., Ltd

Specifications for GT686386-5000mAh

1 Scope适用范围

This specification is applied to ATLWP Polymer semi-solid lithium-ion cell manufactured by Guangdong Micro Power New Energy CO., Ltd

本产品规格书适用于广东小电新能源有限公司生产的聚合物半固态锂离子电芯.

2 Product and Model Name产品种类及型号

2.1 Product： Polymer Lithium Ion Battery

产品种类： 聚合物锂离子电池

2.2 Model Name：WP-GT686386-5000mAh

产品型号： WP-GT686386-5000mAh

3 Ratings主要技术参数

Item		Rating	Note
3.1 Capacity容量	Typical典型	5100mAh	Discharge:0.5C(2500mA) cut off Voltage:3V for cell 0.2C放电至3.0V截止
	Minimum最小	5000mAh	
3.2 Nominal Voltage标称电压		Average 3.85V	Discharge:0.2CmA(1000mA) cut off Voltage:3V for cell 0.2C放电至3.0V截止
3.3 AC Impedance Resistance内阻		≤20mΩ	
3.4 Discharge Cut-off Voltage 放电截止电压		3.00V	
3.5 Charge Current充电电流		1000mA	Standard Charge标准充电
3.6 Charge Voltage充电电压		4.4V	
3.7 Max. Charge Voltage 充电最高电压		4.4V	
3.8 Charge Time充电时间		Approx 6.5h	Charge: 0.2CmA(1000mA)
3.9 Max. Charge Current 最大充电电流		10000mA	2.0CmA
3.10 Max. Discharge Current 最大放电电流		10000mA	2.0CmA
3.11 Operating Temperature 工作温度	Charge充电	15~+45℃	≤0.3C
		0~+15℃	≤0.2C
	Discharge放电	-10~+60℃	
3.12 Storage Temperature 储存温度	less than 1 month 小于一个月	-20~+45℃	Recommended storage temperature: 20℃,at the shipment state 运输时推荐贮存温度为20℃
	less than 6 months 小于六个月	-20~+35℃	

4 Outline Dimensions and Appearance电池外形尺寸及外观

4.1 Outline Dimensions外形尺寸

See attached drawing for WP-GT686386(Fig.1).

外形尺寸参见“WP-GT686386外形尺寸图”（图1）。

Thickness：6.80mm max.(Measured with weighting 1000gf at 25±2℃)

Width：63.00mm max.(Measured with weighting 1000gf at 25±2℃)

Length：86.00mm max.(not including tabs)

厚度：6.80mm max.（测量时测量仪器作用于电池上的压力为1000gf，温度25±2℃）

宽度：63.00mm max.（测量时测量仪器作用于电池上的压力为1000gf，温度25±2℃）

长度：86.00mm max.（不包括极耳胶）

This thickness will be swelling when high temperature storage or operation in high temperature.

备注：电池在高温下贮存或使用时厚度会发生少许膨胀。

4.2 Appearance外观

There shall be no such defect as scratch, flaw, crack, rust, leakage, which may adversely affect commercial value of battery.

电池外表面清洁，无电解液泄漏，无明显的划痕及机械损伤，无变形，无影响电池价值的其它外观缺陷。

5 Performance性能

5.1 Standard Test Conditions标准测试条件

Test should be conducted with new batteries within one month after shipment from our factory and the cells shall not be cycled more than five times before the test. Unless otherwise defined, test and measurement shall be done under temperature of 25±2℃ and relative humidity of 45～85%. The test results are not affected evidently by such conditions of temperature 15～30℃ or humidity 25～85%RH.

测试电池必须是本公司出厂时间不超过一个月的新电，且电池未进行过五次以上充放电循环。除非其它特殊要求，本产品规格书规定的测试条件为：温度 25±2℃，相对湿度 45%～85%。温度15～30℃或者相对湿度25～85%对测试结果没有明显影响。

5.2 Measuring Instrument or Apparatus测试设备要求

5.2.1 Dimension Measuring Instrument尺寸测量设备

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.

测量尺寸的仪器的精度应不小于0.01mm

5.2.2 Voltmeter电压表

Standard class specified in the national standard or more sensitive class having inner impedance more than 10 KΩ/V.

国家标准或更灵敏等级,内阻不小于10 KΩ/V.

5.2.3 Ammeter 电流表

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω.

国家标准或更灵敏等级，外部总体内阻包括电流表和导线应小于0.01Ω.

5.2.4 Impedance Meter内阻测试仪

Impedance shall be measured by a sinusoidal alternating current method(1kHz LCR meter).

内阻测试仪测试方法为交流阻抗法(AC 1kHz LCR).

5.3 Standard Charge标准充电

Test procedure and its criteria are referred as follows:

0.2CmA=1000mA

Full charge condition: Constant current 0.2CmA,Constant voltage 4.4V to 0.02CmA for 6.5hours in all at 25±2℃.

25±2℃环境下充电，0.2CmA 4.4V(CC-CV) 截止电流为0.02CmA，总充电时间不超过6.5小时。

5.4 Rest Period搁置时间

Unless otherwise defined, 10min,rest period after charge,10min,rest period after discharge.

如无特殊要求，电池充放电间隔为10min。

5.5 Initial Performance Test初始性能测试

Item	Measuring Procedure	Requirements
(1) Open-Circuit Voltage 开路电压	The open-circuit voltage shall be measured within 24 hours after standard charge. 标准充电后24小时内测试	≥4.30V
(2) AC Impedance Resistance 内阻	The Impedance shall be measured in an alternating current method (1kHz LCR meter) after standard charge at 25±2℃. 25±2℃环境下，标准充电后用交流阻法试	≤20mΩ
(3) Minimum Capacity 最小容量	The capacity on 0.2C(1000mA)discharge shall be measured after standard charge at 25±2℃ (specified C). 25±2℃环境下，标准充电后以0.2C恒流放电至截止电压时所放出的容量（即C）。	C≥5000mAh

5.6 Electrical Performance电性能

5.6.1 Temperature Dependence of Capacity (Discharge) 放电温度特性

Cells shall meet the discharge capacity requirements listed in the below table under respective discharge temperatures. The capacities are to be measured with constant discharge current 0.2CmA (2.75V cut-off) after standard charge at 25±2℃.

电池在25±2℃标准充电，然后在30分钟内冷却或加热到测试温度。放电前电池在此温度下保持2.5小时，放电电流为0.2CmA（截止电压2.75V），做完一个温度实验后，电池在室温下放置2h，然后进行充电（25±2℃），要求如下：

Discharge Temperature放电温度	-10℃	25℃	60℃
Discharge Capacity放电容量	50%	100%	95%

5.6.2 High Temperatu Performance高温性能

Leaving the battery at 80℃ for 4 hours after standard charge.

Recovery Capacity ≥60%C_5

标准充电后，将电池放置于80℃烤箱中4H，然后将电池用0.2CmA放电至3.0V，循环3次，测试恢复容量（3周循环的最大放电容量），要求如下：

容量恢复率≥60% C_5

5.6.3 Cycle Life 循环性能

30min rest period after standard charge,1.0C discharge to a cut-off voltage of 3.0V, 30min rest period, the capacity shall be measured after 300 cycles of standard charge and discharge at 25±2℃.

Capacity retention≥80%

标准充电后，搁置30min，1.0C放电至3.0V，搁置30min，测试温度25±2℃，重复上述步骤进行循环300周后，对比首次放电容量，（影响电池循环性能的重要参数），要求如下：

容量保持率≥80%

5.6.4 Long Time Storage Characteristics长期贮存性能

After about half charge after a period of storage at 25 ±2℃ for one year(365 days). The remaining available capacity is ≥85% C_5. The capacity is determined with the capacity of the by the most of preceding three cycles.

贮存前给电池充入约50%的容量，然后在25±2℃的环境条件下开路搁置365天，0.2CmA循环3次，测试恢复容量（3周循环的最大放电容量），容量恢复率≥85%。

5.6.5 Shelf Life荷电保持能力

Item项目		Measuring Procedure测试方法	Requirements要求
Storage Characteristics 1 常温贮存	1	The capacity on 0.2CmA discharge shall be measured after standard charge and then storage at 25±2℃ for 30 days. 标准充电后电池在25±2℃的环境中贮存30天，测试0.2CmA放电容量（保持容量）	Remaining Capacity ≥85% C_5 容量保持率≥85%
	2	After above measured Remaining capacity, the capacity on standard discharge shall be measured after standard charge. 0.2CmA循环3次，测试恢复容量（3周循环的最大放电容量）	Recovery capacity ≥90% C_5 容量恢复率≥90%
Storage Characteristics 2 高温贮存	1	The capacity on 0.2CmA discharge shall be measured after standard charge and then storage at 60±2℃ for 7 days. 标准充电后电池在60±2℃的环境中贮存7天，测试0.2CmA放电容量（保持容量）	Remaining Capacity ≥60% C_5 容量保持率≥60%
	2	After above measured Remaining capacity, the capacity on standard discharge shall be measured after standard charge. 0.2CmA循环3次，测试恢复容量（3周循环的最大放电容量）	Recovery capacity ≥80% C_5 容量恢复率≥80%

5.7 Mechanical Performance机械性能

Item项目	Measuring Procedure测试方法	Requirements要求
Vibration test 振动测试	After standard charge, the battery is to be tested as following conditions: Amplitude:0.8mm Frequency:10~55Hz(sweep:1Hz/min) Direction: X/Y/Z axis for 90~100min. The battery is to be tested in three mutually perpendicular to each axis. 标准充电后，对电池施加振幅0.8mm，频率变化1Hz/min，频率范围10~55Hz的简谐振动，振动时间约90~100min。	No fire, no explosion, no smoking is obtained. 不起火，不爆炸，不冒烟
Drop Test 自由跌落	Drop the battery in the shipment condition(full-charge)from 1m height onto 5cm or thicker concrete with p-tile on it 3 times each of X, Y, and Z directions at 25±2℃ 在25±2℃的环境条件下，将电池进行3次从1.0m高度的位置自由跌落到水泥板上的试验。	No fire, no explosion, no smoking is obtained. 不起火，不爆炸，不冒烟

5.8 Safety Performance安全性能

Item项目	Measuring Procedure测试方法	Requirements要求
Short-Circuit Test 短路测试	After standard charge, The battery should be in short circuit test with the total resistance of the outer circuit in the copper wire of 60-100mΩ. 标准充电后，电池应在外电路总电阻在60-100mΩ的铜线连接下进行短路试验。	No explosion, no fire. The temperature of the exterior cell casing shall not exceed 150℃. 不爆炸，不起火，电池外部温度不超过150℃
Heating Test 热冲击	A battery is to be heated in a gravity convection or circulating air oven. The temperature of the oven is to be raised at a rate of 5±2℃/min to a temperature of 130±2℃ at which temperature the oven is to remain for 30 minutes before the test is discontinued. 将电池放于热箱中，温度以5±2℃/min的速率升至130±2℃并保温30min.	No explosion, no fire. 不爆炸，不起火
Abnormal Charging Test 过充电	After standard charge, the battery is subjected to a charging current by connecting it to a dc-power supply. The beginning current is1.0C,which is to be obtained by connecting a resistor of specified size and rating in series with the battery, the voltage of the dc-power supply is 4.6V. The test time is 2.5 hours. This does not require that the initial I_c be maintained for 2.5 hours. 标准充电后，将电池正负极连载于恒压电源，设置电流为1.0C，电压为4.6V，然后对电池以1.0C充电，直至电压达到4.6V，并恒压保持2.5小时。	No explosion, no fire. 不爆炸，不起火

6 Storage And Others 贮存及其它事项

6.1 Long Time Storage 长期贮存

If stored for a long time(exceed three months), the cell should be stored in drying and cooling place. And the cell is to be stored in a condition as following.

The environmental condition should be: Temperature: 25±2℃,Humidity: 65±20％RH

It should be noted that the cell would be at an over-discharged state（the voltage below 2.75V/cell） by its self-discharge characteristics in case the cell is not used for long time. In order to prevent over-discharging, the cell shall be charged periodically to maintain between 3.7V and 3.9V.

长期贮存的电池（超过3个月）须置于干燥、凉爽处。

且贮存要求如下：须置于温度为25±2℃、湿度为65±20％RH的环境中。

需要注意的是，在电池长期未使用期间，它可能会用其自放电特性而处于某种过放电状态（电芯电压低于2.75V）。为防止过放电的发生，电池应定期充电，将其电压维持在3.7V至3.9V之间。

6.2 Others 其它事项

Any matters that this specification does not cover should be conferred between the customer and Micro.

任何本说明书中未提及的事项，须经双方协商确定。

7 Handling Instructions电池使用指南

Read and observe the following warnings and precautions to ensure correct and safe use of Li-ion batteries.

认真阅读下面的注意事项，确保正确安全使用锂离子电池。Micro对违反下述注意事项而产生的任何问题不予负责。

Danger!

Failure to observe the following precautions may result in battery leakage, overheating, explosion and/ or fire.

— Do not immerse the battery in water or allow it to get wet.
— Do not use or store the battery near sources of heat such as a fire or heater.
— Do not use any chargers other than those recommended by Micro.
— Do not reverse the positive(+) and negative(-) terminals.
— Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
— Do not put the battery into a fire or apply direct heat to it.
— Do not short-circuit the battery by connecting wires or other metal objects to the positive(+) and negative(-) terminals.
— Do not carry or put the battery together with necklaces, hairpins or other metal objects.
— Do not strike, throw or subject the battery to sever physical shock.
— Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
— Do not directly solder the battery terminals.
— Do not attempt to disassemble or modify the battery in any way.
— Do not recharge the battery near a fire or in extremely hot conditions.

危　险！

不仔细阅读下述事项可能导致电池泄露、爆炸或起火。

— 勿将电池投入水中或将其弄湿；
— 勿在热源（如火或加热器）附近使用或贮存电池；
— 请使用原厂充电器；
— 勿将正负极接反；
— 勿将电池直接连接到墙上插座或车载点烟式插座上；
— 勿将电池投入火中或给电池加热；
— 禁止用导线或其它金属物体将电池正负极短路，
— 禁止将电池与项链、发夹或其它金属物体一起运输或贮存；
— 禁止撞击、投掷或者使电池受到机械震动；
— 禁止用钉子或其它尖锐物体刺穿电池壳体，禁止锤击或脚踏电池；
— 禁止直接焊接电池端子；
— 禁止以任何方式分解电池；
— 禁止在火源或极热条件下给电池充电。

Warning!

Failure to observe the following precautions may result in battery leakage, overheating, explosion and/ or fire.

— Do not place the battery in a microwave oven or pressurized container.
— Do not use the battery in combination with primary batteries(such as dry-cell batteries) or batteries of different capacity, type or brand.
— Do not use the battery if it gives off an odor, generates heat, becomes discolored or deformed, or appears abnormal in any way. If the battery is in use or being recharged, remove it from the device or charger immediately and discontinue use.
— Keep the batteries out of the reach of children. If a child somehow swallows a battery , seek medical attention immediately.
— If the battery leaks or emits an odor, immediately remove it from the proximity of any exposed flame. The leaking electrolyte can ignite and cause a fire or explosion.
— If the battery leaks and electrolyte gets in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.

警　告！

不仔细阅读下述事项可能导致电池泄露、爆炸或起火。

— 禁止将电池置入微波炉或压力容器中；
— 禁止与一次电池（如干电池）或不同容量、型号、品种电池组合使用；
— 如果电池发出异味、发热、变形、变色或出现其它任何异常现象时不得使用；如果电池正在使用或充电，应立即从用电器中或充电器上取出并停止使用；
— 电池应放在小孩接触不到的地方，如果小孩不小心吞咽电池 应立即寻求医疗救助；
— 如果电池泄漏或发出异味，应立即将其从接近明火处移开；
泄漏的电解液可能引起火灾或爆炸；
— 如果电池漏液后电解液进入眼睛，不要擦，应用水冲洗，立即寻求医疗救助。如不及时处理，眼睛将会受到伤害。

Caution!

Do not use or store the battery where is exposed to extremely hot, such as under window of a car in direct sunlight in a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.

Use the battery only under those environmental conditions described in this document. Failure to do so can result in reduced performance or a shorten service life. Recharging the battery outside of these temperatures can cause the battery to overheat, explode or catch fire.

In cases where children use the battery, instruct them on the contents of the user's guide and keep an eye on them to ensure that the battery is being used correctly.

If the battery leaks and electrolyte gets your skin or clothing, immediately rinse the affected area with clean running water. If left as is, skin inflammation can occur.

For directions on battery installation and removal, read the instruction manual that accompanies the equipment in which the battery will be used.

If a device is not used for an extended period, the battery should be removed and stored in a cool, dry place. Otherwise, resting or reduced performance may occur.

If the terminals of the battery are dirty, wipe them clean with dry cloth before use. Otherwise, solid electrical contact may not be charged with the equipment, and this can cause power outages or charging to fail.

注　意！

不要使用处于极热环境中的电池，如阳光直射或热天的车内。否则，电池会过热，可能着火（点燃），这样就会影响电池的性能、缩短电池的使用寿命。

只能在本规格书规定的环境条件下使用电池，否则将会降低电池的性能或缩短电池的使用寿命。在规定之外的温度下充电可能导致电池过热、爆炸或起火。

当小孩使用电池时，需要按用户说明书的内容教他们，并密切注意他们确保正确使用电池。

如果电池漏液，电解液弄到皮肤或衣服上，立即用流动的水清洗受影响区域，否则可能导致皮肤发炎。

阅读用电池的装置说明书，正确进行电池的安装与拆卸。

如果设备长期不用，将电池取出并放置在凉爽、干燥的地方，否则，电池可能生锈或性能变差。

如果电池的端子变脏，使用前用干布擦干净。否则电池会接触不良，从而引起能量损耗或无法充电。

8 Period of Warranty保质期

The period of warranty is a year from the date of shipment. Micro guarantees to give a replacement in case of cells with defects proven due to manufacturing process instead of the customers abuse and misuse.

电池的保质期为出厂后一年。本公司承诺如果在一年中由于电池本身的质量问题，本公司将负责进行调换，如果是由于用户误用而产生的问题，不予调换。

9 Shipment & storage出厂状况

Partial charged condition.

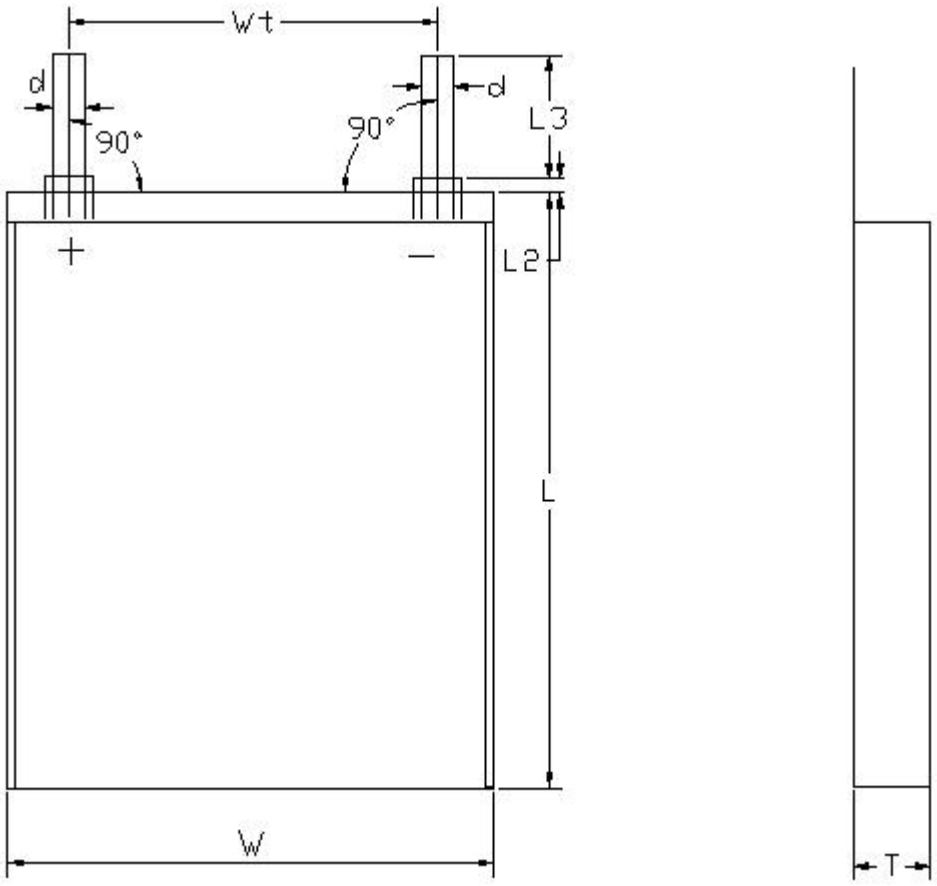
电池在出厂时已充入50%左右的电量，电池电压3.90~4.00V。

10 Amendment of this Specification产品规格书的修订

This specification is subject to change with prior notice.

本公司有权对本产品规格书进行修订，在对产品规格书修订后广东小电新能源有限公司将会通知客户。

Fig.1 Dimensional Drawing外形尺寸图



T（电芯厚度）	6.80mm max
W（电芯宽度）	63.00mm max.
L（电芯高度）	86.00mm max.
L2（极耳胶外露）	0.20～1.50 mm
L3（极耳外长）	11.00±1.00mm（含极耳胶）
d（极耳宽度）	7.00±0.20mm
Wt（极耳中心距）	33.00±2.00mm（居中）
折边方式	单折边，两侧包高温胶

Customer Approved/客户确认：