

Specification Approval Sheet

产品规格确认书

Version 版本: A Date/时间: 2026-5-23

Battery Specification: P10274170-18000mAh-12S1P-45.6V

电池规格: P10274170-18000mAh-12S1P-45.6V

Product Use: High-power battery

产品用途: 高功率电池

Customer:

客户:

Customer Approval/客户会签

Comment/客户回复:

Customer's Signature/客户签字:

Approved	Signature 签名	Date 日期
Prepared 制订	LCH	2026-5-23
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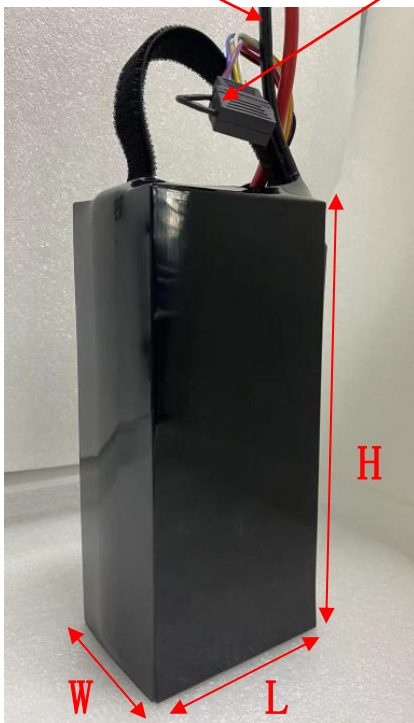
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1. 电池尺寸/Battery size (一边出线, 吹黑色套管, 外吹透明 PVC)

放电线: XT90-S 防火花母插, UL3512#8AWG
外露线长: 150mm±20mm

Molex43025-16Pin 端子排线,
UL3239#22AWG 外露线长
230mm±30mm



放电线: XT90-S

图片仅供参考

项目	内容	尺寸
W	电池组厚度 Thickness of package	≤125mm
L	电池组宽度 Width of package	≤76mm
H	电池组高度 Height of package	≤185mm
※	电池重量 weight	About 3.55 kg
※	电芯型号 Batteries models	P10274170 18000mAh

2.Specification/产品规格

NO.	Items	Specifications
2.1	Charge cut-off voltage 充电截止电压	52.2V (单串电芯电压不高于 4.35V) 52.2V (Cell Voltage less than 4.35V)
2.2	Nominal cut-off voltage 标称电压	45.6V
2.3	Discharge cut-off voltage 放电截止电压	36V
2.4	Nominal Capacity 标称容量	18000mAh @ 0.5C Discharge(放电)
2.5	Minimal Capacity 最小容量	18000mAh @ 0.5C Discharge(放电)
2.6	Standard Charging method 标准充电方法	0.5C CC (constant current) charge to 52.2V, then CV (constant voltage 52.2V) charge till charge current decline to $\leq 0.02C$ 0.5C CC (恒流) 充电至 52.2V, 再 CV (恒压 52.2V) 充电直至充电电流 $\leq 0.02C$
2.7	Max charge current 最大充电电流	2.0C (温度 $23 \pm 5^{\circ}C$)
2.8	discharge current 放电电流	持续放电: 持续 80A (由插头及线材决定, 电芯实际可达到 180A) Continuous Current: 80A (determined by plug and wire, battery cells can be up to 180A)
		瞬间电流: 100A (由插头和线材决定, 电芯实际可达到 360A $\leq 3S$) Peak Current: 100A (determined by plug and wire, battery cells can be up to 360A $\leq 3S$)
2.9	Operating temperature 工作温度	Charging: $0^{\circ}C \sim 40^{\circ}C$ 充电: $0^{\circ}C \sim 40^{\circ}C$ Discharging: $-20^{\circ}C \sim 55^{\circ}C$ 放电: $-20^{\circ}C \sim 55^{\circ}C$
2.10	Initial impedance 初始内阻(成品)	Internal resistance measured at AC 1KHz after 50% charge 半充状态下, 测量其AC 1KHz下的交流阻抗 $R \leq 15m\Omega$
2.11	Storage temperature(at shipping status: approx. 50% capacity of fully charged state) 储存温度 (在运输状态: 约完全充电状态的 50%容量)	1 month: $-20 \sim 40^{\circ}C$ 3 month: $-10 \sim 35^{\circ}C$ 1 year: $22 \sim 28^{\circ}C$ The battery should be charged in 3 month, keep its charge state in about 50% 电池应 3 个月充电 1 次, 保持电量在 50%以上
2.12	压差/ ΔV	$\leq 50mV/30$ 天 To spurt the code date shall prevail 以生产喷码日期为准
2.13	shipment voltage 成品出货电压	$\geq 44.4V$

3.Battery Cell Performance Criteria 电芯性能检查及测试

NO.	Items	Test Method and Condition	Criteria
3.1	Capacity 容量	According to the charge by 2.6 methods, 0.5C and 36V discharge cut-off voltage of the discharge capacity. 按用 2.6 方法充电后, 0.5C 放电至 36V 截止电压所放出的容量。	≥18000mAh
3.2	Cycle Life 循环寿命	Test condition: Charge:0.5C to 52.2V (Cell Voltage less than 4.35V) Discharge:1C to19.8V 80% or more of 1 st cycle capacity at 1C discharge of Operation 测试条件: 充电: 0.5C 充电到 52.2V (单串电芯电压不高于 4.35V) 放电: 1C 放电到 19.8V 当 1C 放电容量降至初始容量的 80%时, 所完成的循环次数定义为该电芯的循环寿命	≥300 次
3.3	Self-discharge 自放电	According to the charge by 2.6 methods, storied the cells under the condition 23±5°C for 30 days, then measured the capacity with 0.5C till 36V 按用 2.6 方法充电后, 在 23±5°C 条件下贮存 30 天, 再以 0.5C 放电至 36V 所放出的容量。	Residual capacity >90% 剩余容量>90%
3.4	Temperature Characteristics 温度特性	1. According to the charge by 2.6 methods. 2. Capacity comparison at each temperature, measured with constant discharge current 0.5C with 36V cut-off. Percentage as an index of the capacity compared with 100% at 23°C 1. 用 2.6 方法充电后, 2. 在不同温度条件下, 用 0.5C 的电流恒流放电至截止电压 36V。以 23°C 时放电容量为基准计算百分比。	-10 °C 容量保持率 ≥ 80% 0°C 容量保持率 ≥ 85% 50°C 容量保持率 ≥ 95%
3.5	High temperature Performance 高温性能	According to the charge by 2.6 methods, The electric core filled at 55 ± 2°C use 4 hours, and then to 0.5C discharge current to 36V. 用 2.6 方法充电后, 在 55°C±2°C 度的环境下搁置 4h, 然后以 0.5C 电流放电至 36V。	容量恢复率 ≥ 90% (以标称容量为准) 厚度 ≤ 10%

4. Mechanical characteristics 机械特性

NO.	Items	Test Method and Condition	Criteria
4.1	Vibration Test 振动测试	<p>According to the charge by 2.6 methods, fixed the products to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between 10Hz an 55Hz,the excursion of the vibration is 1.6mm.The cell shall be vibrated for 30 minutes per axis of XYZ axes.</p> <p>用 2.6 方法充电后, 将产品固定在振动台上, 沿 X、Y、Z 三个方向各振动 30 分钟, 振幅 1.6 mm, 振动频率为 10Hz~55Hz, 每分钟变化为 1Hz。</p>	No fire, no leakage. 无起火、无泄漏
4.2	Drop Test 跌落测试	<p>Charged with the 2.6 methods, the product from a height of 1 meters down to fall to the thickness of the hard board with thickness of 20mm, X, Y, Z from the positive and negative direction (six directions) in each direction, free fall 1.</p> <p>用 2.6 方法充电后, 将产品从 1 米高度跌落至跌落到厚度为 20mm 厚的硬木板上, 从 X、Y、Z 正负方向 (六个方向) 每个方向自由跌落 1 次。</p>	No fire, no leakage. 无起火、无泄漏
4.3	过放 Over discharge	<p>Charged with the 2.6 methods, the product discharge at 1C to 0V.</p> <p>用 2.6 方法充电后, 将产品以 1C 放电至 0V。</p>	No fire, no leakage. 无起火、无泄漏
4.4	过充电 Over charging	<p>The battery is arranged in the fume hood thermocouple, connection of positive and negative in constant current source of constant pressure, adjust the circuit to 1C2A, voltage is $n \times 4.5V$, then the battery to charge until the battery voltage is 1C, $n \times 4.5V$, the current is reduced to close to 0A. Monitor battery temperature change during the experiment, when the battery temperature drops to the lower peak about 10 °C the end of the experiment.</p> <p>将接有热电偶的电池置于通风橱中, 连接正负极于一恒流恒压源, 调节电流至 1C2A, 电压设为 $n \times 4.5V$, 然后对电池以 1C 充电, 直到电池电压为 $n \times 4.5V$, 电流降到接近 0A。试验过程中监视电池温度变化, 当电池温度下降到峰值低约 10°C 时, 结束试验。</p>	No fire, no leakage. 无起火、无泄漏

5. 充电说明/Instruction of charge

充电电流和充电电压不得超出本规格书中所规定的最大值

充电器的设计应满足本规格书的要求

使用超出本规格书要求的电流和电压范围可能引起电芯充放电性能、机械性能和安全性能的问题。

The current of charge and discharge should not exceed the maximum current in the specification.

The design of charger should meet the specification.

It may cause the quality problem of batteries charge and discharge performance, mechanical performance and safety performance problems when current and voltage range beyond the requirements of this specification.

6. 产品使用时警告事项及注意事项/The use of the product warnings and precautions

请勿将产品放进水中。Do not put the product into the water

请勿将产品加热或靠近火源。Do not use the product heating or near the fire source

请勿将产品擅自拆卸，改造。Do not use the product disassemble, transformation

请勿将产品强力重击。Do not smash product

请用专用适配器充电。Please charge with a special charger

7. Protection Circuit Module (PCM) /保护电路模块 (PCM)

The cell/battery pack shall be with a PCM that can protect cell/battery pack properly.PCM shall have functions of (1) overcharging prevention, (2) over-discharging prevention, and (3) over current prevention to maintain safety and prevent significant deterioration of cell performance.The over current can occur by external short circuit

电池包装应配有 PCM 以正确保护电芯/电池。PCM 应具备以下功能以保证安全并防止损坏电芯性能：1) 过充电保护；2) 过放电保护；3) 过流保护。

8. Storage/贮存

The battery shall be storied within $-20^{\circ}\text{C}\sim 40^{\circ}\text{C}$ range environmental condition.

If the battery has to be storied for a long time (**More than once every three months must fill the electricity**),the environmental condition should be:

Temperature: $23\pm 5^{\circ}\text{C}$

Humidity: $65\pm 20\%\text{RH}$

The voltage for a long time storage shall be $42\text{V}\sim 47.1\text{V}$ range.

电池组储存温度必须在 $-20^{\circ}\text{C}\sim 40^{\circ}\text{C}$ 的范围内。

长期存储电池组 (**超过三个月必须补电一次**) 须置于温度为 $23\pm 5^{\circ}\text{C}$ 、湿度为 $65\pm 20\%\text{RH}$ 的环境中。

建议贮存电压为 $42\text{V}\sim 47.1\text{V}$