Specification Approval Sheet
产品规格确认书

客户名称：

Model: YXL-450835/120mAh

型 号： YXL-450835/120mAh

制定	审核	批准	客户确认
陈国选	胡文杰	胡文杰	

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1.Scope

This document describes the Product Specification of the Lithium-Polymer (LIP) rechargeable battery cell supplied by Shenzhen Yongxinglong Amperex Technology Co.,Ltd.

适用范围

本规格说明书描述了深圳市永芯隆新能源科技有限公司（以下简称永芯隆科技）生产的可充电聚合物锂离子电池芯的产品性能指标

2.Model:YXL-450835

3. 型号:YXL-450835.Specification

产品规格

NO.	Items	Specifications
1	Charge voltage 充电电压	4.2V
2	Nominal voltage 标称电压	3.7V
3	Nominal capacity 标称容量	120mAh @ 0.2C Discharge(放电)
4	Minimum Capacity 最小容量	110mAh @ 0.2C Discharge(放电)
4	Charge current 充电电流	Standard Charging:：0.5C 标准充电：0.5C Rapid charge：1.0C 快速充电：1.0C
5	Standard Charging method 标准充电方法	0.5C（constant current）charge to 4.2V,then CV(constant voltage 4.2V)charge till charge current decline to ≤0.05C 0.5C CC（恒流）充电至 4.2V，再 CV（恒压 4.2V）充电直至充电电流≤0.05C
6	Charging time 充电时间	Standard Charging：3.0hours(Ref.) 标准充电：3.0 小时（参考值） Rapid charge：2hours(Ref.) 快速充电：2 小时（参考值）
7	Max.charge current 最大充电电流	1.0C
8	Max.discharge current 最大放电电流	1.5C
9	Discharge cut-off voltage 放电截止电压	3.0V
10	Overcurrent 过流保护	无
11	Operating temperature 工作温度	Charging：0℃~45℃ 充电：0℃~45℃ Discharging：0℃~45℃ 放电：0℃~45℃
12	Storage temperature 储存温度	-5℃~ +45℃
13	Cell Weight 电芯重量	Approx： g 约： g
14	Cell Dimension 电芯尺寸	Length 长度 35±1mm Max (not including tabs) Width 宽度：8± 1mmMax Thickness 厚度：4.5+0.8mm Max

4.Battery Cell Performance Criteria

电芯性能检查及测试

4.1 Electrical characteristics 充放电性能

NO.	Items	Test Method and Condition	Criteria
1	Standard Charge 标准充电	Charging the cell initially with constant current at 0.5C and then with constant voltage at 4.2V till charge current declines to 0.05C 先用 0.5C 恒流充电至 4.2V，再恒压 4.2V 充电直至充电电流≤0.05C	
2	Rated Capacity 初始容量	The capacity means the discharge capacity of the cell, which is measured with discharge current of 0.5C with 3.0V cut-off voltage after standard charge. 该容量是指标准充电后，0.5C 放电至 3.0V 截止电压所放出的容量。	≥120mAh
3	Cycle Life 循环寿命	Test condition： Charge:1C to 4.2V Discharge:1C to3.0V 75% or more of 1st cycle capacity at 1C discharge of Operation 测试条件： 充电：1C 充电到 4.2V 放电：1C 放电到 3.0V 当放电容量降至初始容量的 75%时，所完成的循环次数定义为该电芯的循环寿命	≥300
4	Self-discharge 自放电	After the standard charging, storied the cells under the condition as No.4.4 for 28days, then measured the capacity with 1C till 3.0V 标准充电后，在 No.4.4 条件下贮存 28 天，再以 1C 放电至 3.0V 所放出的容量。	Residual capacity >90% 剩余容量>90%
5	Initial impedance 初始内阻	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	≤200MΩ(END PRODUCTOR)
6	Cell Voltage 电芯电压	As of shipment. 出货状态	3.85V~4.15V
7	Temperature Characteristics 温度特性	1. According to item 4.1.1, at 20±5℃. 2. Capacity comparison at each temperature, measured with constant discharge current 1C with 3.0VV cut-off. Percentage as an index of the capacity compared with 1350% at 20℃ 1.在 20±5℃条件下，用 4.1.1 方法将电芯充电。 2.在不同温度条件下，用 1C 的电流恒流放电至截止电压 3.0V。以 20℃时放电容量为基准计算百分比。	-20℃: ≥60% 20℃: 1350% 50℃: ≥85%
8	Storage Characteristics 储存特性	1. According to item 4.1.1, at 20±5℃. 2. The battery shall be stored at 60±5℃ for 7days and rested at room temperature for 1 hour then measured with constant discharge current 1C with 3.0V cut-off. 1. 在 20±5℃条件下，用 4.1.1 方法将电芯充电。 2. 将电池在 60±5℃条件下贮存 7 天，然后在常温下静置 1 小时，用 1C 的电流恒流放电至 3.0V 截止电压。	Retained Capacity ≥85%

4.2 Mechanical characteristics

机械特性

NO.	Items	Test Method and Condition	Criteria
1	Vibration Test 振动测试	After standard charging, fixed the cell to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between 10Hz and 55Hz, the excursion of the vibration is 1.6mm.The cell shall be vibrated for 30 minutes per axis of XYZ axes. 将标准充电后的电芯固定在振动台上，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。	No leakage 无泄漏 No fire 不起火
2	Drop Test 跌落测试	The cell is to be dropped from a height of meter twice onto concrete ground. 将标准充电后的电芯从 1 米高度跌落至混凝土地面 2 次	No fire, no leakage 无起火、无泄漏

4.3 Visual inspection

外观检查

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

不允许有任何影响电芯性能的外观缺陷，诸如裂纹、裂缝、泄漏等。

4.4 Standard environmental test condition

Unless otherwise specified, all tests stated in this Product Specification are conducted at below condition:

Temperature：40±5℃

Humidity: 60±15%RH

标准测试环境

除非特别说明，本标准书中所有测试均在以下环境条件下进行：

温度：40±5℃

湿度：60±15%RH

5.Storage and Others

贮存及其它事项

a) Long Time Storage

If the Cell is stored for a long time, the cell's storage should be 3.6~3.9V and the cell is to be stored in a condition as No.4.4.

长期贮存

长期贮存的电池（超过 3 个月）须置于干燥、凉爽处。贮存电压为 3.6~3.9V 且贮存环境要求如 4.4。

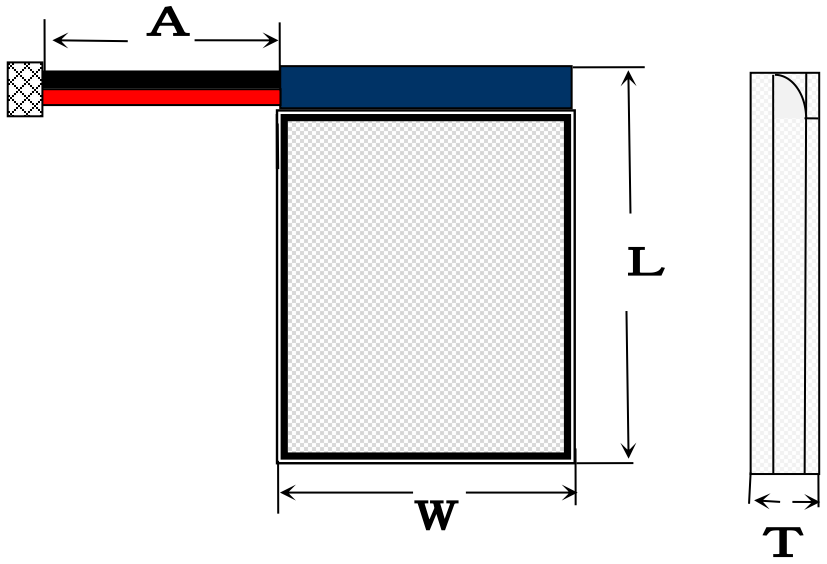
b) Others

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

其它事项

任何本说明书中未提及的事项，须经双方协商确定.

6. Drawing (all unit in mm, not in scale)
外形尺寸（单位：mm;未按比例）



项　目	说　明	尺寸规格
T	电池厚度	4.5+0.8mm(MAX)
W	电池宽度	8±1mm(MAX)
L	电池长度	35±1mm (MAX)
A	线长外露	
喷码内容		
组合方式	加板	
出线方式	无	
封焊位包材规格	高温茶色胶纸	
引线规格		
内阻	≤250mΩ	
运输电压	3.85V-4.2V	
折边方式	单折边	
保护板	6.8*40 普通板	

二、 保护板电性能参数：(参照相应元器件技术规格书，在常温 25℃下测试，相对湿度≤90%)

序号	项目		符号	检验方法及设备	检验标准			单位
					最小值	典型值	最大值	
4.1	过充保护	过充电检测电压	V_{DET1}	锂电保护板测试仪	4.25	4.30	4.35	V
		过充电检测延迟时间	**tV_{DET1}**	锂电保护板测试仪		100	120	ms
		过充电解除电压	V_{REL1}	锂电保护板测试仪	4.03	4.08	4.13	V
4.2	过放保护	过放电检测电压	**V_{DET2}**	锂电保护板测试仪	2.3	2.4	2.6	V
		过放电检测延迟时间	tV_{DET2}	锂电保护板测试仪	10	25	150	ms
		过放电解除电压	V_{REL2}	锂电保护板测试仪	2.8	2.9	3.1	V
4.3	过流保护	过电流检测电压	V_{DET3}	锂电保护板测试仪	0.12	0.15	0.18	V
		过电流保护电流	I_{DP}	锂电保护板测试仪	2.0	3.0	6.0	A
		检测延迟时间	tV_{DET3}	锂电保护板测试仪	5	10	15	ms
4.4	短路保护	检测延迟时间	T_{SHORT}	锂电保护板测试仪		500	700	μS
		保护解除条件		万用表	断开外部短路负载或充电恢复			
4.5	内阻	主回路通态电阻	R_{DS}	锂电保护板测试仪	35	50	65	mΩ
4.6	消耗电流	通常工作时消耗电流	I_{DD}	锂电保护板测试仪		3.0	6.0	μA
4.7	静态电流	休眠时消耗电流	I_{PWN}	锂电保护板测试仪			0.1	μA
4.8	识别电阻	S 端电阻值	R_S	万用表				KΩ
4.9	NTC 电阻	T 端电阻值	R_T	万用表				KΩ
4.10	码片	码片数据类型	/	锂电保护板测试仪 或读码器				

Appendix

附录

Handling Precautions and Guideline For LIP(Lithium-Ion Polymer)Rechargeable Batteries

聚合物锂离子充电电芯操作指示及注意事项

Preface

This document of' Handling Precautions and Guideline LIP Rechargeable Batteries shall be applied to the battery cells manufactured by Shenzhen Yongxinglong Amperex Technology Co.,Ltd.

前言

本文件“聚合物锂离子充电电芯操作指示及注意事项”仅适用于深圳市永芯隆新能源科技有限公司生产的电芯。

Note(1):

The customer is requested to contact Yongxinglong in advance, if and when the customer needs other applications or operating conditions than those described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

声明一：

客户若需要将电芯用于超出文件规定以外的设备，或在文件规定以外的使用条件下使用电芯，应事先联系永芯隆科技，因为需要进行特定的实验测试以核实电芯在该使用条件下的性能及安全性。

Note(2):

Yongxinglong will take no responsibility for any accident when the cell is used under other conditions than those described in this Document.

声明二：

对于在超出文件规定以外的条件下使用电芯而造成的任何意外事故，深圳市永芯隆概不负责。

Note(3):

Yongxinglong will inform, in a written form, the customer of improvement(s) regarding proper use and handing of the cell, if it is deemed necessary.

声明三：

如有必要，深圳市永芯隆会以书面形式告之客户有关正确操作使用电芯的改进措施。

8. Others

其它事项

8.1 Prevention of short circuit within a battery pack

Enough insulation layers between wiring and the cells shall be used to maintain extra safety protection.

8.2 Prohibition of disassembly

严禁拆卸电芯

1）Never disassemble the cells

The disassembling may generate internal short circuit in the cell, which may cause gassing, firing, or other problems.

在任何情况下不得拆卸电芯

拆卸电芯可能会导致内部短路，进而引起鼓气、着火及其它问题。

2）Electrolyte is harmful

LIP battery should not have liquid from electrolyte flowing, but in case the electrolyte come into contact with the skin, or eyes, physicians shall flush the electrolyte immediately with fresh water and medical advice is to be sought.

电解液有害

聚合物锂电池理论上不存在流动的电解液，但万一有电解液泄漏而接触到皮肤、眼睛或身体其它部位，应立即用清水冲洗电解液并就医。

8.3 Prohibition of dumping of cells into fire

Never incinerate nor dispose the cells in fire. These may cause firing of the cells, which is very dangerous and is prohibited.

严禁将电芯投入火中

在任何情况下，不得燃烧电芯或将电芯投入火中，否则会引起电芯燃烧，这是非常危险的，应绝对禁止。

8.4 Prohibition of cells immersion into liquid such as water

The cells shall never be soaked with liquids such as water, seawater drinks such as soft drinks, juices coffee or others.

严禁将电芯浸入液体 ，如水

不得将电芯浸泡液体，如淡水、海水、饮料（果汁、咖啡等）。

8.5 Battery cells replacement

The battery replacement shall be done only by either cells supplier or device supplier and never be done by the user.

电芯的更换

更换电芯应由电芯供应商或设备供应商完成，用户不得自行更换。

8.6 Prohibition of use of damaged cells

The cells might be damaged during shipping by shock. If any abnormal features of the cells are found such as damages in a plastic envelop of the cell, deformation of the cell package, smelling of electrolyte, electrolyte leakage and others, the cells shall never be used any more.

The cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid firing.

禁止使用已损坏的电芯

电芯在运输过程中可能因撞击等原因而损坏，若发现电芯有任何异常特征，如电芯塑料封边损坏，外壳破损，闻到电解液气体，电解液泄漏等，该电芯不得使用。

有电解液泄漏或散发电解液气味的电池应远离火源以避免着火。