

TPV Component Specification

Basic Information / 基本信息					
TPV Part No. / 料号	Supplier Part Name / 厂商型号		Part Description / 品名描述		
392GR2LI5NT51F	326072-2000mAh		聚合物锂离子电池		
Supplier Name / 厂商名称	TPV Vendor Code / 厂商代码		Manufacturing Location / 制造产地		
江西力莱科技有限公司	3692201		江西力莱科技有限公司		
Safety Parts / 安规零件	YES <input type="checkbox"/>	NO <input type="checkbox"/>	Net Weight / 净重(g)	约 34g	
Environmental Guarantee / 环境保证					
<p>1. All raw materials of supplied parts shall met TPV latest version standard (RDEMS-01) and the requirement of regional or country laws and ordinances. 料件之所有原材料必须符合 TPV 环境物质管理最新版本标准(RDEMS-01)及销售国家、地区的法律法规及机型申请适用之条例。</p> <p>2. All raw materials of supplied parts shall comply below requirements (mark "√" in the "□" when needed). 料件之所有原材料必须符合以下所列 "□" 中打 "√" 项目的环保要求:</p> <p><input checked="" type="checkbox"/> HF: Low Halogen / 低卤 (氯 Cl <900ppm, 溴 Br<900ppm, Cl+Br<1500ppm)</p> <p><input checked="" type="checkbox"/> RP: Not contained any red phosphorus/无红磷: 不含任何红磷</p> <p><input type="checkbox"/> VOC: 挥发性有机物(According TPV standard RDEMS-01)/(依照 TPV RDEMS-01 标准)</p>					
Important Notice / 重点说明					
<p>1. Any specification change for component, especially following items: Raw Material, Process, Tooling, Factory, Label, halftone, and any engineering changed of production, should be approved by TPV. 零件的任何变更, 尤其原材、制程、模具、产地、标识、网版、以及任何生产之变更, 必须得到 TPV 之承认。</p> <p>2. Any engineering change for component should be in version record, supplier should provide management information for old version parts to TPV if required. 任何零件之工程变更必须有版本记录, 如需要, 厂商必须提供库存之旧料管理信息状况。</p> <p>3. Safety parts should be ensured that all safety certificate is complete and in the period of validity. Any change of safety certificate should be noticed to TPV timely and phased-in after approved by TPV. 安规零件, 须保证各项安规证书齐全且在有效期内。安规证书等任何变更必须及时报备 TPV, 且必须得到 TPV 认可后导入。</p>					
Supplier Information / 厂商信息					
Prepared 承办	邓瑞明	Check 确认	胡建凤	Approved 核准	童新进
Tel. 电话	+86 19169833567	Fax 传真		Email 邮件	mfg.chen@powercom e.hk
Address 地址	江西省吉安市吉安高新技术产业园区凤凰区				1/18



PRODUCT SPECIFICATION

DOC NO.	PC-SPE-2101300001
VERSION	B0
DATE	2022/03/15

电池规格书 Battery Specification Sheet

Customer Name 客户名称: TPV
Customer Model 客户型号: PC326072/2000mAh
Product Model 产品型号: PC326072/2000mAh
PC P/N 力莱编码: _____

Customer Approved 客户承认 Stamp 盖章	测试/日期 Test by/date	审核/日期 Check/date	批准/日期 Approval/date

制作/日期 Prepare/date	审核/日期 Check/date	批准/日期 Approval/date	校对/日期 Proofread/date
邓瑞明 2022/03/15		童新进 2022/03/15	
备注			

江西力莱科技有限公司

Powercom Technology (JiangXi) Limited

Fengming Avenue, Fenghuang Area, New & Hi-Tech Industry Development Zone,

Ji'an County, Ji'an City, Jiangxi Province, China.

TEL: +86-755-89480901

FAX: +86-755-89480969

<http://www.powercome.hk>

Contents 目录

1、Scope 适用范围.....	4
2、Reference standard 参考标准.....	4
3、Product basic information 产品基本信息.....	4
4、Cell Electrical characteristics 电气特性.....	5
5、Battery Performances Test Criterion 电池性能测试规范.....	6
5.1 Appearance 外观.....	6
5.2 Measurement Apparatus 测试设备.....	6
6、Battery safety performance 电池安全性能.....	6
7、Reliability Test 可靠性测试.....	7
8、Protection Circuit 保护电路.....	8
8.1 Schematic of the PCB 保护板原理图.....	8
8.2 Electric Protect Features 电路保护参数.....	9
9、Dimension Figure 尺寸描绘.....	10
9.1 Battery outline drawing 电池外形尺寸.....	10
10、Package 包装图.....	11
10、Battery BOM 电池物料清单.....	12
11、PCB BOM PCB 物料清单.....	12
12、Instructions and Safety Requirement 使用说明和安全规程.....	13
12.1 Recommending Usage 推荐使用事项.....	13
12.2 Hazard Warning 危险警告.....	13
12.3 Warning 警告.....	14
12.4 Cautions 注意事项.....	14
12.5 Quality Evaluation Programme 质量评定.....	15
12.6 Environment Protection 环保要求.....	15
12.7 Others 其他事项.....	15

1、Scope 适用范围

This description defines the general requirements for the battery's rating parameter, electrical requirement, safety requirement, environmental compatibility, test and judgment, usage instructions, safety regulation, quality evaluation and packaging, marking, storage, shipment and handling, which cellular phone battery with Li-ion rechargeable battery cell, adapted for Digital products.

本规格书描述电池之标称参数、电气特性、安全性能、环境适应性及其实验和判定、使用说明和安全规程、质量评定及包装、标志、贮存、运输等。适用于采用 Li-ion 电芯制成的配套电池。

2、Reference standard 参考标准:

GB31241-2014

3、Product basic information 产品基本信息

No 序号	Item 内容	Parameter 参数	Remark 备注
1	Rating Voltage 标称电压	3.8V	Mean Operation Voltage 即工作电压
2	Nominal Capacity 标称容量	2000mAh	Discharge from 0.2C to 3.0V after standard charging 标准充电后用 0.2C 放电至 3.0V
3	Minimum Capacity 最小容量	1950mAh	
4	Charge Voltage 充电电压	4.35V±0.05V	By standard charge method 标准充电方式
5	Impedance 内阻	150mΩ (Max)	Assemblage Impedance 装配后内阻
6	Delivery Voltage 出货电压	3.8-4.0V	Within 10 days from Factory 在出厂 10 天内
7	Standard Charging 标准充电	400mA	0.2C
8	Fast Charging 快速充电	1000mA	0.5C
9	Standard Charging 标准充电	8.0Hours	charge time (Ref) 充电时间 (供参考)
10	Fast Charging 快速充电	2 Hours	charge time (Ref) 充电时间 (供参考)
11	Discharging cut-off voltage 放电截止电压	2.4-2.6V	
12	Maximum charging current 最大充电电流	1400mA	0.7C
13	Maximum discharging current 最大放电电流	2000mA	1.0C
14	ID Resistor ID 电阻	/	
15	NTC Resistor NTC 电阻	10K ±1% B=3435	

4、Cell Electrical characteristics/电气特性

Item 项目	Inspecting Method 测试方法		Standard 标准
Standard charging method 标准充电方式	Nominal temperature 23±3℃, 0.2C constant current 4.35V constant voltage charge to 4.35V, continue charging till current decline to ≤0.01C 在 23±3℃ 温度下, 用 0.2C 电流充电至 4.35V; 再以 4.35V 电压恒压终点至小于等于 0.01C		Charging time ≤ 8hours 充电时间 ≤ 8 小时
Cycle Life 循环寿命	Charging and discharging battery as blewconditions 0.5C standard charge to 4.35V end-off, 0.5C standard discharge to 3.0V cut-off, Continuous charge and discharge for 500 cycles the capacity will be measure after the 500 th cycle 充放电按以下条件: 0.5C 标准充电至 4.35V, 0.5C 标准放电至 3.0V, 连续充放电循环 500 次, 在第 500 次结束后测量容量		≥80% of initial capacity 循环寿命 ≥ 500 次、容量 ≥ 80%
Retention Capability 荷电保持能力	After full charging, storing the battery 28 days with 20 ± 5℃ condition, and then staying 1 hours with discharge current of 0.2C till 3.0V cut-off voltage. 电芯满充电后, 在 20±5℃ 的环境条件下存放 28 天, 然后以 0.2C 电流连续放电至 3.0V 终止电压。		Capacity ≥ 85% 容量 ≥ 85%
Operating Temperature 工作温度	Charging 充电	0~45℃	Charge at very low temperature such as blew 0℃, will be get a lower capacity and reduce cycle life of the battery 低温充电效率会下降, 会影响电池使用寿命
	Discharging 放电	-10~60℃	
Maximum charging current 最大充电电流	0~15℃	0.7C	
	15~45℃	0.7C	
Maximum discharging current 最大放电电流	-10~15℃	1.0C	
	15~60℃	1.0C	
Storage condition 储存条件	Temperature 温度	Storage time 储存时间	Storage capacity should be 40%~50% full charge capacity 贮存时应充电至电池容量的 40%~50%
	-10℃ ~ 45℃	Less than 1 month 小于 1 个月	
	-10℃ ~ 35℃	Less than 3 month 小于 3 个月	
	0℃ ~ 35℃	Less than 12 month 小于 12 个月	

DOC NO.	PC-SPE-2101300001
VERSION	B0
DATE	2022/03/15

5、Battery Performances Test Criterion 电池性能测试规范

5.1 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。

5.2 Measurement Apparatus 测试设备

(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。(2) Voltmeter 电压表

Standard class specified in the national standard or more sensitive class having inner impedance not less than 10 K Ω /V.

国家标准或更灵敏等级，内阻不小于 10 K Ω /V。

(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 0.01 Ω .

国家标准或更灵敏等级，外部总内阻包括电流表和导线应小于 0.01 Ω 。

(4) Impedance Meter 内阻测试仪

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

内阻测试仪测试方法为交流阻抗法(AC 1kHz LCR)。

5.3 Testing Condition (unless otherwise specified) 测试条件（除非另作说明）

Temperature 20 \pm 5 $^{\circ}$ C, Relative humidity: 60 \pm 20%, Atmosphere pressure: 86~106Kpa.

温度: 20 \pm 5 $^{\circ}$ C, 相对湿度: 60 \pm 25%, 大气压强: 86~106Kpa.

6、Battery safety performance 电池安全性能

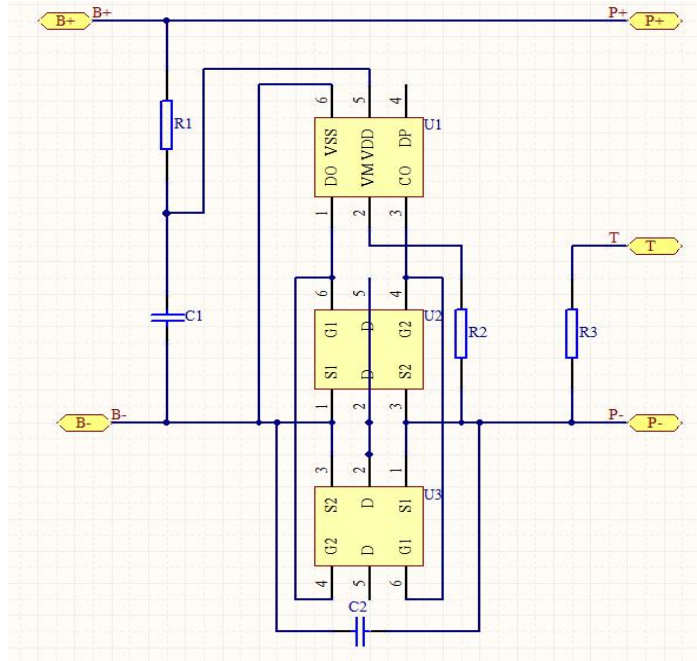
Item 项目	Inspecting Method 测试方法	Standard 标准
Overcharge Protection 过充保护性能	After battery charge finished, then charge the battery for 7 hours with a power which can provide 4.6V voltage and 3C current. 电池充电结束后，用 3C 电流和 4.6V 电压输出的电源继续加载 7 小时。	No explosion, No fire. 无爆炸、不起火
Over discharge Protection 过放保护性能	The battery is discharged at 0.2C in the constant current till it reaches over discharge protection voltage at (20 \pm 5) $^{\circ}$ C, connected with a 30 Ω lead and discharged for 7h 电池在环境温度 20 \pm 5 $^{\circ}$ C 的条件下，以 0.2C 放电至终止电压后，外接 N*30 Ω 负载电阻放电 7h。	No explosion, No fire. 无爆炸、不起火
Short-circuit Protection 短路保护	After standard charging, short circuit positive and negative pole 1h, the resistance of the wire shall be 80 \pm 20m Ω . 按标准充电后，短路其正负极 1h，短路导线电阻 80 \pm 20m Ω	No explosion, No fire. 无爆炸、不起火

7、Reliability Test 可靠性测试

Item 项目	Inspecting Method 测试方法	Standard 标准
High temperature performance 高温性能	When the battery is standard charged, it shall be put into a chamber at $(60\pm 2)^{\circ}\text{C}$ for 2h, then discharged at 0.2C constant current to out-off voltage. 电池标准充电后置于 $60\pm 2^{\circ}\text{C}$ 的高温试验箱中 2h, 用 0.2C 放电至终止电压	Discharging shall not be less than 3 hours 电池放电时间不低于 3h
Low temperature performance 低温性能	After standard charging, placing the battery in to low temperature test chamber $(-10\pm 2)^{\circ}\text{C}$ and discharge as 0.2C to cut-off voltage. 电池标准充电后置于 $-10\pm 2^{\circ}\text{C}$ 的低温试验箱中 4h, 用 0.2C 放电至终止电压。	Discharging shall not be less than 3 hours 电池放电时间不低于 3 小时
Thermal exposure test 热冲击	The battery is fully charged in standard charging condition, and store in the over with $130\pm 2^{\circ}\text{C}$ for 30 minutes. 将电池满充电后, 放置于热箱中, 温度以 $(5\pm 2^{\circ}\text{C})/\text{min}$ 的速率升至 $130^{\circ}\text{C}\pm 2^{\circ}\text{C}$ 并保温 30min。	No explosion, No fire. 无爆炸、不起火
Constant temperature and Humidity 恒定湿热	After standard charging, put cell into the chamber that the temperature is 40 ± 2 and the humidity ranges between 90 and 95% for 48 hours, then put it at $23\pm 2^{\circ}\text{C}$ for 2hrs, then discharged at 0.2C constant current to out-off voltage. 满充电后将电芯放入 $40\pm 2^{\circ}\text{C}$ 及相对湿度为 90~95% 的恒温恒湿箱中 48 小时后, 取出在 $23\pm 2^{\circ}\text{C}$ 环境下搁置 2h, 再以 0.2C 电流放电至截止电压。	No distortion, no rust, no leakage, no venting, no rupture, no fire, no explosion, the discharge time is not less than 3hrs. 不变形、不锈蚀、不泄漏、不泄气、不破裂、不起火、不爆炸、放电时间不低于 3h。
Vibration 振动	After fully charging, fixing the battery onto the vibration platform. with amplitude 0.38mm circularly scanning vibrating in the frequency of 7HZ-200HZ from three directions X、Y、Z for 3h respectively in its scanning frequency velocity 10CT/min. 电池标准充电后, 将电池固定在振动台上, 以对数扫频方式在 15 分钟从 7HZ 到 200HZ 并返回到 7HZ, 沿电池互相垂直的三个方向进行, 按上述扫频方式重复 12 次, 振动 3h	Voltage should be no less than 90% of the initial voltage, no fire and no explode. 电池电压应不低于 90% 的初始电压, 不起火、不爆炸
Free fall test 自由跌落测试	After standard charging, the cell is to be dropped from a height of 1 meter onto a thickness of 20mm board, dropped once in the positive and negative directions of three mutually perpendicular X, Y, Z axes. 满充电电芯从 1 米高处自由跌落到 20mm 厚的硬木板上, 从 X, Y, Z 正负方向每个面自由跌落一次。	No smoke, no fire, no explosion 无漏液或爆炸 注: 该实验不适用于不可更换型电池组

8. Protection Circuit 保护电路

8.1 Schematic of the PCB 保护板原理图



8.2 PCB Layout PCB 保护布线

顶层丝印



顶层线路及焊盘



底层丝印



底层线路及焊盘



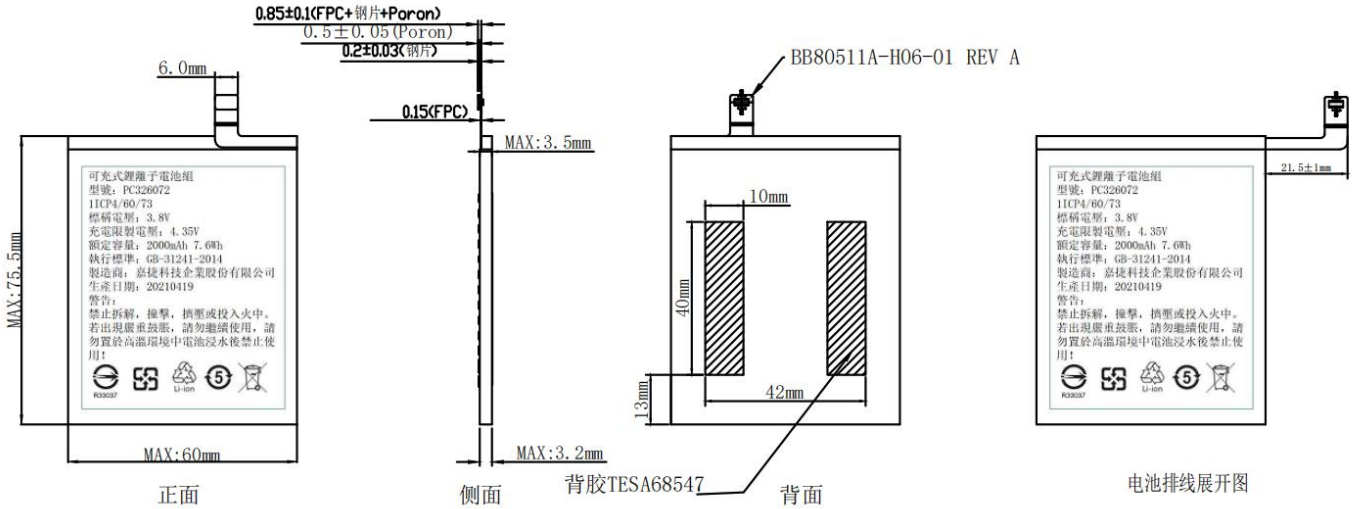
8.3 Electric Protect Features 电路保护参数

Item 项目	Symbol 符号	Content 内容	Criterion 标准
Over charge Protection 过充保护	V_{DET1}	Over charge detection voltage 过充保护电压	4.35V~4.4V
	tV_{DET1}	Over charge detection delay time 过充保护延迟时间	$\leq 1.4\text{ms}$
	V_{REL1}	Over charge release voltage 过充恢复电压	4.125V~4.225V
Over discharge protection 过放保护	V_{DET2}	Over discharge detection voltage 过放保护电压	2.4V~2.6V
	tV_{DET2}	Over discharge detection delay time 过放保护延迟时间	$\leq 180\text{ms}$
	V_{REL2}	Over discharge release voltage 过放恢复电压	2.9V~3.1V
Over current protection 过流保护	V_{DET3}	Over current detection voltage 过流保护电压	$150\pm 20\text{mv}$
	I_{DC}	Over charge detection current 过充电保护电流	/
	I_{DP}	Over current detection current 过流保护电流	4.0~10.0A
	tV_{DET3}	Detection delay time 延迟时间	$\leq 20\text{ms}$
		Release condition 恢复条件	Cut load
Short protection 短路保护		Detection condition 检测条件	Exterior short circuit
	T_{SHORT}	Detection delay time 短路延时	$\leq 380\mu\text{s}$
		Release condition 恢复条件	Cut short circuit
Interior resistance 内阻	R_{DS}	Main loop electrify resistance 回路内阻	$V_C=4.35\text{V}; R_{DS}\leq 65\text{m}\Omega$
Current consumption 工作消耗	I_{DD}	Current consume in normal operation 工作消耗电流	8.0 μA Max
Working temperature 工作温度		/	-40~85 $^{\circ}\text{C}$
0V Charging 0V 充电		/	YES

DOC NO.	PC-SPE-2101300001
VERSION	B0
DATE	2022/03/15

9.Dimension Figure 尺寸描绘

9.1 Battery outline drawing 电池外形尺寸

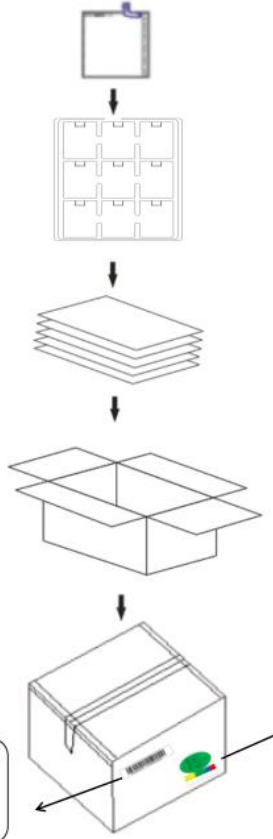


電池噴碼噴正面, 生產日期隨做貨日期變更

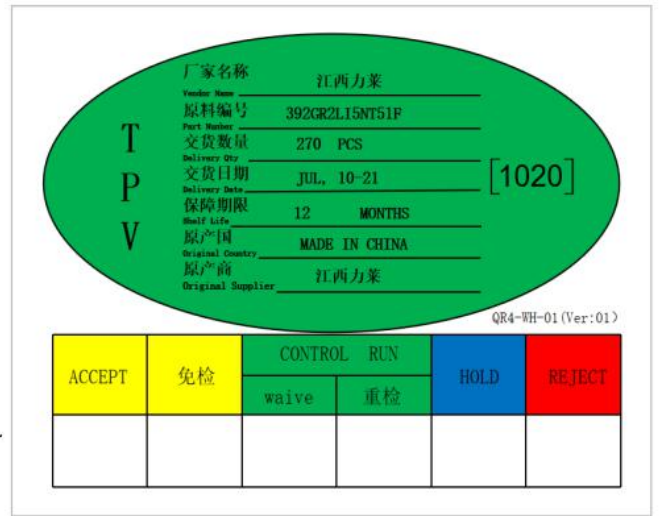
9.2 标贴



10. Package 包装图



条形码标贴



月别标标贴

包装材料

1. 电池吸塑盒
2. PE风琴袋（包裹吸塑盒和电池）
3. 外箱:K=K加硬，外观平整，打三个钉子，正面文字：UP； 侧面文字（向上、易碎物品、防潮、怕晒），尺寸：330*260*230 *6.0mm
4. 一个吸塑盒装9PCS电池，一箱装30盒，一箱装270PCS电池

打包方式：

如上图所示，将成品电池整齐装放在吸塑上，然后将装满电池的吸塑一层一层叠起来，直至叠满一箱，再用保鲜膜缠紧吸塑，最后将缠好的成品电池装进纸箱，进行封箱。

11、Battery BOM 电池物料清单

No 编号	Item 项目	Specification 规格型号	Q'ty 数量	Remark 备注
1	Cell/电芯	PC326072-2000mAh	1	江西力菜
2	PCB/保护板	VA7071+8205-6*2+NTCZ:10K+过静电	1	达人高科
3	连接器	BB80511A-H06-01 REV A	1	锦润电子
4	标贴	54#合成纸材质: 0.1*53*64mm	1	勇胜

12、PCB BOM PCB 物料清单

Material Name 元件名称	Specification 规格型号	Position 零件位置	Qty 用量	备注
保护 IC	VA7071 SOT-23-6	U1	1	中星微
MOS 管	8205 SOT-23-6	U2	2	科通
电容 Capacitance	0.1uF ± 10%	C1/C2	2	厚声/国巨
电阻 Resistance	100Ω ± 5%	R1	1	厚声/国巨
电阻 Resistance	2K ± 5%	R2	1	厚声/国巨
电阻 Resistance	10K ± 1% B=3435	R3	1	顺络

13 Instructions and Safety Requirement 使用说明和安全规程

13.1 Recommending Usage 推荐使用事项

1. Please read the battery instructions and the label on its surface before use.
使用电池前，请仔细阅读使用说明书和电池表面标识。
2. Use the battery indoors under normal condition, temperature: $(20\pm 5)^\circ\text{C}$ absolute humidity: $65\pm 20\%$.
请在正常的室内环境中使用电池，温度： $(20\pm 5)^\circ\text{C}$ ，相对湿度： $65\pm 20\%$ 。
3. When in use, the battery shall be kept out of heat、high voltage and avoided children's touching. Do not drop the battery.
在使用过程中，应远离热源、高压，避免儿童玩弄电池，切勿摔打电池。
4. Use the compatible charger. Do not put the battery into the charger over 24hours.
本电池只能使用配套充电器充电，不要将电池放在充电器超过 24 小时。
5. Do not touch contacts together. Do not demolish or assembly the battery by yourself. Do not put the battery in the damp place to avoid danger.
切勿将电池正负极短路，切勿自己拆装电池，也勿让电池放在受潮处，以免发生危险。
6. When the battery was stored for a long period, put it well in its half capacity. Do not wrap it with conduct material to avoid the damage caused by the direct contact between the metal and battery. Keep the battery in day places.
长期不用时，请将电池储存完好，让电池处于半电荷状态。请用不导电材料包裹电池，以避免金属直接接触电池，造成电池损坏，将电池保存阴凉干燥处。
7. Well disposed the disused battery. Do not put it into fire or water.
废弃电池请安全妥当处理，不要投入火中或水中。

13.2 Hazard Warning 危险警告

1.Forbid Disassemble Batteries 禁止拆装电池

The battery has protective component and circuit internally to avoid danger. Mishandling such as improper disassembly will destroy its protective function and make it heat, smoke, distort or burning.
电池内部具有保护机构和保护电路可以避免发生危险。不合适的拆装会损坏保护功能，将会造成让电池发热、冒烟、变形或燃烧。

2.Forbid Short-circuit Batteries 禁止让电池短路

Do not touch the plus and minus contacts with metals. Do not put the battery with metal element together in either storage or movement. If the battery is short-circuit, it carries magnified current, which will cause damage and make the battery heat, smoke, distort or burning.
不要将电池的正负极用金属连接，也不要将电池与金属片放在一起存储和移动。如果电池被短路，将会有超大电流流过，将会损坏电池，造成电池发热、冒烟、变形或燃烧。

3.Forbid heat and burn the battery 严禁加热和焚烧电池

If heating or burning the battery, it will caused the isolated element in the battery dissolved, protection function stopped or the electrode burning, over heated, which will make the battery heat, smoke, distort or burning.
加热和焚烧电池将会造成电池隔离物的溶化、安全功能丧失或电解质燃烧，过热就会使电池发热、冒烟、变形或燃烧。

4.To avoid use the battery near the heat 避免在热源附近使用电池

Do not use the battery near the fire and stove, or over 80°C and over heating, will cause the battery internal short-circuit and make it heat, smoke, distort or burning.
不要在火源、烤炉附近或超过 80°C 的环境中使用电池，过热将会导致电池内部短路，使电池发热、冒烟、变形或燃烧。

5.Forbid bathing the battery 禁止弄湿电池

Do not dampen the battery, or even immerse it in the water, which will cause internal protection circuit and its function lost or abnormal chemical reactions, which will lead to heating, smoking, distortion or burning.
不要弄湿电池，更不能将电池投入水中，否则会造成电池内部保护电路和功能丧失及发生不正常的化学反应，电池有可能发热、冒烟、变形或燃烧。

6.Avoid charging near fire or in the sunlight 避免在火源附近或阳光直射下充电

Otherwise, it will cause internal protection circuit and its function lost or abnormal chemical reactions, which will lead to heating, smoking, distortion or burning.
否则会造成电池内部保护电路和功能丧失和发生不正常的化学反应，电池有可能发热、冒烟、变形或燃烧。

7. Danger in using non-indicated chargers in 使用非专用充电器给电池充电，会发生危险

Charging in abnormal condition, the battery will cause internal protection circuit and its function lost or abnormal chemical reactions, which will lead to heating, smoking, distortion or burning.

在非正常的条件下充电会造成电池内部保护电路功能丧失和发生不正常的化学反应，电池有可能发热、冒烟、变形或燃烧。

8. Forbid Damage Battery 禁止破坏电池

Do not allow damage the battery with the metals gouged, forged or dropped etc. , otherwise, it will cause over-heated, distort, smoke or burning, even in danger.

禁止用金属凿入电池、锤打或摔打电池或其他方法破坏电池，否则会造成电池发热、冒烟、变形或燃烧，甚至会发生危险。

9. Forbid directly welding on the battery 禁止在电池主体上直接焊

Over-heated will cause the isolated element dissolved in the battery and losing protective function its cycle life, even will cause over-heated, distort, smoke or burning.

过热将会造成电池隔离物的溶化、安全保护功能丧失，使电池发热、冒烟、变形或燃烧。

10. Forbid directly charging on the power socket or car kit cigarette 严禁将电池直接在电源插座上或车载点烟器上充电

High voltage and amplified current will damage the battery and reduce its cycle life, even will cause over-heated, distort, smoke or burning.

高压、大电流将会过电池而使其损坏，或使电池发热、冒烟、变形或燃烧。

11. Do not use this battery for other equipment 不可将电池用于其他设备

Improprate usage will damage the battery and reduce its cycle life, even will cause over-heated, distort, smoke or burning.

不恰当使用会损坏电池的性能、降低寿命，甚至会使电池发热、冒烟、变形或燃烧。

12. Do not touch the leak-out battery 不要直接接触及漏液电池

The leak-out electrolyte will cause the skin uncomfortable. If it drops into eyes, do not rob the eyes but wash in time, and go to hospital for treatment.

渗漏的电解液会造成皮肤不适，万一电解液进入眼睛，尽快用清水冲洗，不可揉眼，并迅速送医院处理。

13.3 Warning 警告

1. This battery cannot mix with deposal or twice- recycled batteries in use. Otherwise, for its abnormal charge and discharge, it will cause over-heated, distort, smoke or burning.

电池不可与其它类型的一次或二次电池混用，否则因为不正常的充、放电造成电池发热、冒烟、变形或燃烧。

2. Keep the battery out of children's reach and prevent them biting or swallowing the battery.

将电池远离孩童不能得到的地方，以避免孩童噬咬或吞咽电池，如果吞咽了电池，应迅速送医院处理。

3. Do not insert the battery onto the charger for a long time If charging beyond the normal time, the battery is still in the charger, please stop charging. The abnormal charging will cause battery over-heated, distort, smoke or burning.

如果超过正常充电时间很长时间充电器仍在充电，应停止充电，不正常的充电有可能会使电池发热、冒烟变形或燃烧。

4. Do not put into microwave stove or any other pressure apparatus. Take the battery away from the cellular phone or the charger if it is instant heated or leak-out (or odors) and depose it. The bad battery will causes over-heated, smoke or burning.

不可置于微波炉或其他压力容器中，瞬间加热或结构漏液(或有异味)，应让电池离开手机或充电器并弃用。使用不正常的电池会发热、冒烟、变形或燃烧。

13.4 Cautions 注意事项

1. Notice 注意

The battery shall be prevented to be exposed in effulgence so as not to cause over-heated, distort, smoke and weaken its performance and cycle life.

避免在强光曝晒环境下使用电池，以免发热、变形、冒烟.至少避免电池性能下降、降低寿命。

2. Electro Static-free 防静电

There is a protective circuit inside the battery to prevent contingency. Do not use the battery in the Electro static circumstances, (above 1000V), for it is easily destroyed the circuit board so that the battery doses not work and causes over-heated, distort, smoke or burning.

电池中装有保护电路以避免各种意外情况发生。不要在产生静电的场所使用电池，因为静电（1000V 以上）容易损坏保护板，而导致电池工作不正常，发热、变形、冒烟或起火燃烧。

3. Discharging Temperature Range 充电温度范围

Recommended discharging temperature range is 10-45°C, beyond which it will result in decadence of the battery performance and shortness of its life.

推荐的充电温度范围是 10-45°C。在超出此范围的环境中充电会造成电池性能下降、减少寿命。

4. Read carefully the manual before use or whenever in need.

在使用电池之前，请仔细阅读使用手册并经常在需要时阅读。

5. Charging Method 充电方式

Use the special chargers in the recommended charging method to charge the battery.

请使用专用充电器和推荐的充电方式，在推荐的环境条件下给电池充电。

6. First Usage 第一次使用

When you use the battery for its first time, do not put it into the cellular phone or any other equipment once you find it in unusual conditions such as unclearness or odors. The battery should be returned to the vendor.

在第一次使用电池时，若发现电池不整洁或有异味等不正常现象，不可继续将电池用于手机或其他它设备，应将电池返回销售商。

7. Children Use 儿童使用

When Children use the battery, they should be under their parents' instructions and superintend in use.

儿童使用电池前，应受父母指导，并在使用中受监督是否正确。

8. Avoid Children's Touch 避免孩童接触电池

Battery should keep out of the place where children in reach. Prevent children taking the battery out of the charger or the cellular phone to play.

电池应放在孩童不易拿到的位置，应避免孩童将电池从充电器或手机中取出、玩弄。

9. To avoid the leak-out liquid be exposed to the skin or clothes. If touched, please wash by clean water so as not to cause the skin uncomfortable

注意避免电池漏液接触皮肤或衣物，若已接触请用清水冲洗，以免造成皮肤不适。

10. Consultation 咨询

When you buy the battery, please note how to contact with the vendors, so that you may get in touch with vendors for consultation whenever in need.

购买电池时，请注意销售商联络方法，以便需要时及进与销售商取得联系，得到咨询。

11. Guarantee period 保用期

Guarantee is one year since it is out of the factory, Any damage by incorrect use and not quality problem, even in its guarantee period, free service won't be provided by the manufacturer.

保用期是自出厂之日起一年。但是属于使用不当而非质量问题，即使在保用期内，生产厂家也不会无偿更换新电池。

12. Safety Usage Guarantee 安全使用保障

If the battery is used on other instruments, please contact with your manufacturer for how to get the best performance, at least consult its maximum current, fast charge and special application.

如果将电池用于其他设备，请与供应商讨保护功能的完善性。至少应该咨询电池的大电流、快速充电、特殊应用的问题。



PRODUCT SPECIFICATION

DOC NO.	PC-SPE-2101300001
VERSION	B0
DATE	2022/03/15

13.5 Quality Evaluation Programme 质量评定

Quality evaluation composes of authoritative check and quality consistence check. Authoritative check is carried out on design decision, emended design and production decision. It should be confirmed by both Purchaser and Vendor on sampling proposal, check project, sequence and judgment etc., which in principle, should be all included. Quality consistence check should be divided into lot by lot check-up and periodical check-up, as to test the quality steadiness during the products in production (refer to GB2828—1987 standard)。The detailed check-ups compose of appearance, internal resistance, rating capacity or 0.2C discharging capacity etc.

质量检验分为鉴定检验和质量一致性检验。鉴定检验一般在设计定型、更改设计和生产定型时进行，抽样方案、检验项目、顺序以及判定规则等事宜由供需双方协商确定。原则上应包括以上各项性能试验。质量一致性检验分为逐批检查和周期检查，用以判定产品生产过程中能否合格保证产品质量的持续稳定。可以参照 GB2828—1987，标准执行。具体检查的检验项目应包括外观、内阻、额定容量或 0.2C 放电容量等。

13.6 Environment Protection 环保要求

This product accord with ROHS requirement.

此产品符合 ROHS 环保要求。

13.7 Others 其他事项

Any matters that this specification doesn't cover should be conferred between the customer and
任何本规格书中未提及的事项，需要经双方协商确定