

Li-ion Polymer Battery Specification

锂离子聚合物电池说明书

MODEL

型号: Polymer653446+PCM

Nominal Capacity

标称容量: 1000mAh

Customer

客户: _____

Total Page

文件页数: 10

Registered 编制	Checked 审核	Approved 批准

Customer Approve 客户确认		
Dept. 部门	Signature 签名	Date 日期
QA Dept 品质		
R&D Dept 研发		
Approved 批准		

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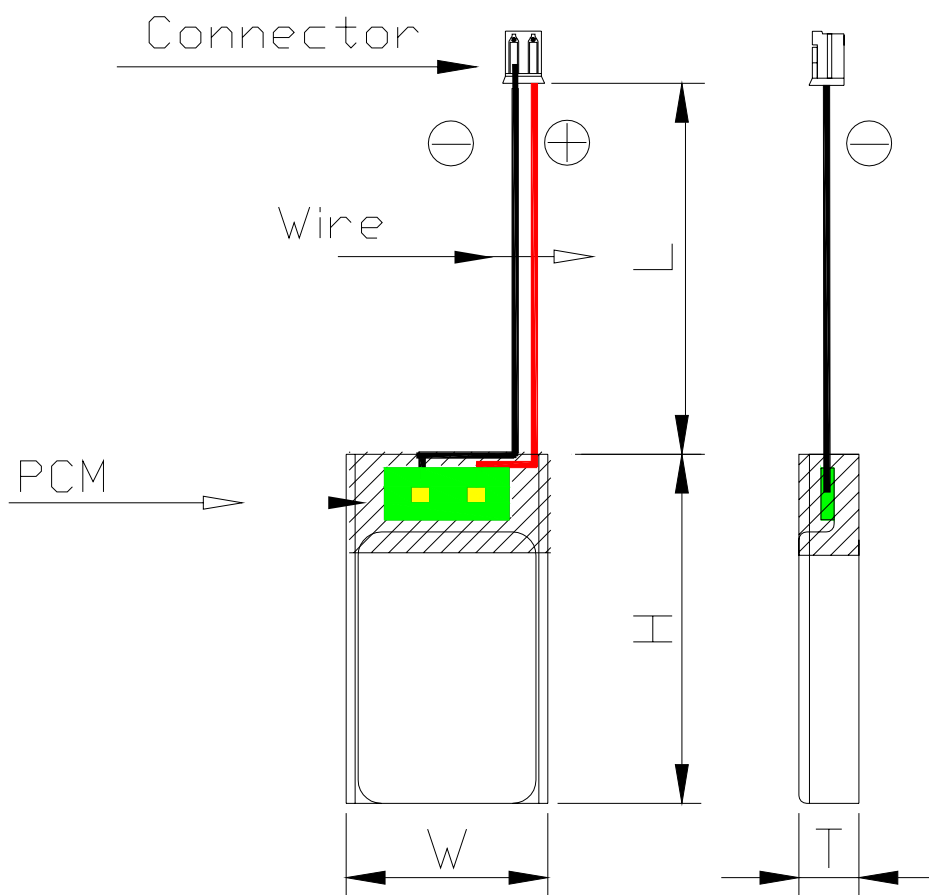
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2. Scope 适用范围

This specification describes the basic performance, technical requirement, testing method, warning and caution of the lithium ion Polymer rechargeable battery. The specification only applies to Naccon Power Technology Co Ltd.

本标准规定了锂聚合物可充电电池的基本性能、技术要求、测试方法及注意事项，本标准只适用于深圳市耐科森电源科技有限公司所生产的锂聚合物电池。

3. Initial Dimension 初始尺寸



T (厚度)	6.5 ± 0.3	W (宽度)	34 ± 1.0	H (高度)	Max48.0
L (线长)	30 ± 5	Connector Wire(插头线)JST-PH-2P 正 Positive UL1007/26#			
PCM MODEL (保护板型号)	SP-PCM-0009			UNIT (单位)	mm

4.Specification 产品规格

NO.	Item 项目	Specifications 规格要求
4.1	Nominal capacity 标称容量	1000mAh 0.2C Discharge (0.2C 放电)
	Minimum Capacity 最小容量	1000mAh 0.2C Discharge (0.2C 放电)
4.2	Nominal voltage 标称电压	3.7V
4.3	Charge current 充电电流	Standard Charge (标准充电) : 0.5C Rapid charge (快速充电) : 1C
4.4	Standard Charging method 标准充电方法	0.5C (450mA) CC (constant current) charge to 4.2V,then CV(constant voltage 4.2V)charge till charge current decline to 0.01C 0.5C (450mA) CC (恒流) 充电至 4.2V , 再 CV (恒压 4.2V) 充电直至充电电流 0.01C
4.5	Charging time 充电时间	Standard Charging (标准充电) Approx 5 hours 大约 5 小时 Rapid charge (快速充电) Approx 2.5hours 大约 2.5 小时
4.6	Max.charge current 最大充电电流	Constant Current 1C (950mA) Constant Voltage 4.2V 0.01 C cut-off (持续电流 : 1C (950mA) 持续电压 : 4.2V 截止电流 : 0.01 C)
4.7	Max.discharge current 最大放电电流	Constant current 1 C (950mA) end voltage3.0V (持续电流 : 1 C (950mA) 截止电压 : 3.0V)
4.8	Standard Discharge Current 标准放电电流	Constant current 0.2 C(190mA) end voltage3.0V(持续电流 : 0.2C (190mA) 截止电压 : 3.0V)
4.9	Discharge cut-off voltage 放电截止电压	3.0V
4.10	Charge cut-off Voltage 充电截止电压	4.20V
4.11	Initial Impedance 初始内阻	150mΩ
4.12	Weight 重量	Approx(约) : 20g
4.13	Operating temperature 工作温度	Charging(充电) : 0 ~45 Discharging(放电) : -20 ~60
4.14	Storage temperature 储存温度	1 month (1 个月) -20°C ~ 45 °C 6 months (6 个月) -20°C ~ 35 °C
4.15	Storage Humidity 储存湿度	75% RH
4.16	Appearance 外观	Without scratch,distortion,contamination and leakage (无划痕、变形、污迹、电解液泄露)
4.17	Standard environmental condition 标准环境	Temperature(温度) : 23 ± 5 Humidity (湿度) : 45-75%RH Atmospheric Pressure (大气压) : 86-106 Kpa

5 General Performance 常规性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
5.1	0.2C Capacity 0.2C 容量	After standard charging, rest battery for 10min, then discharging at 0.2C to voltage 3.0V, recording the discharging time. 标准充电后,搁置 10 分钟,然后用 0.2C 电流放电至 3.0V,所记录放电时间	300min
5.2	Cycle Life 循环寿命	Constant current 0.5C charge to 4.2V, then constant voltage charge to current declines to 0.01C, rest 10min , constant current 0.5C discharge to 3.0V , rest 10min. Repeat above steps till continuously discharging capacity Higher than 80% of the Initial Capacities of the Cells 先用 0.5 C 恒流充电至 4.2V ,再恒压 4.2V 充电直至充电电流 0.01C,搁置 10 分钟,再用 0.5C 电流放电至 3.0V;又搁置 10 分钟,重复以上步骤,直到放电容量是初始容量的 80%	300 times(次)
5.3	Capability of keeping electricity 荷电保持能力	20 ± 5 °C , After standard charging, rest the battery 28days, discharging at 0.2C to voltage 3.0V, recording the discharging time. 在 20 ± 5 °C 状态下,标准充电后,电芯搁置 28 天,然后用 0.2C 放电至 3.0V,所记录放电时间.	240min

6 Environment Performance 环境性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
6.1	Discharge at high temperature 高温放电	After standard charging, rest the Cells 4h at 60 ± 2 °C , then discharging at 1C to voltage 3.0V, recording the discharging time. 标准充电后,在 60 ± 2 °C 条件下贮存 4h,然后用 1C 放电至 3.0V,所记录放电时间.	54min
6.2	Discharge at low temperature 低温放电	After standard charging, rest the Cells 16h at -20 ± 2 °C , then discharging at 0.2C to voltage 3.0V, recording the discharging time. 标准充电后,在-20 ± 2 °C 条件下贮存 16h,然后用 0.2C 放电至 3.0V,所记录放电时间.	210min
6.3	Thermal shock 热冲击	Put the cells in the oven. The temperature of the oven is to be raised at 5 ± 2 °C per minute to a temperature of 130 ± 2 °C and remains 30 minutes. 将电池放进烘箱内,以 5 ± 2 °C /min 速度升高烘箱内温度至 130 ± 2 °C 后,恒温 30min.	No fire, no smoke 不起火,不冒烟

7 Safe Characteristic 安全性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
7.1	Over charge testing 过充测试	At 23 ± 5 , charging cells with constant current 3C to voltage 5V, then with constant voltage 5V till current decline to 0. Stop test till cells temperature 10 lower than max temperature. 在 23 ± 5 状态下, 电池用 3C 电流充电至 5V, 然后恒压 5V 让电流下降接近为 0A, 监视电池温度变化, 当电池温度下降一峰值低约 10 时, 停止实验.	No smoke or fire 不起火, 不冒烟
7.2	Over discharge testing 过放测试	At 23 ± 5 , According to the requirements of standard charge, the cells will be discharge to cut-off voltage, then connect with external load of 30 ohm for 24 hours. 在 23 ± 5 状态下, 按标准放电的要求放电至终止电压后, 外接 30 负载放电 24 小时.	No fire, no smoke, no leakage. 无起火, 无冒烟, 无泄液
7.3	Short-circuit testing 短路测试	At 23 ± 5 , After standard charging, connect cells anode and cathode by wire which impedance less than 50m , keep 6h. 在 23 ± 5 状态下, 标准充电后, 将电池的正负极用一根小于 50m 的导线连接, 放置 6 小时.	No smoke or fire 不起火, 不冒烟

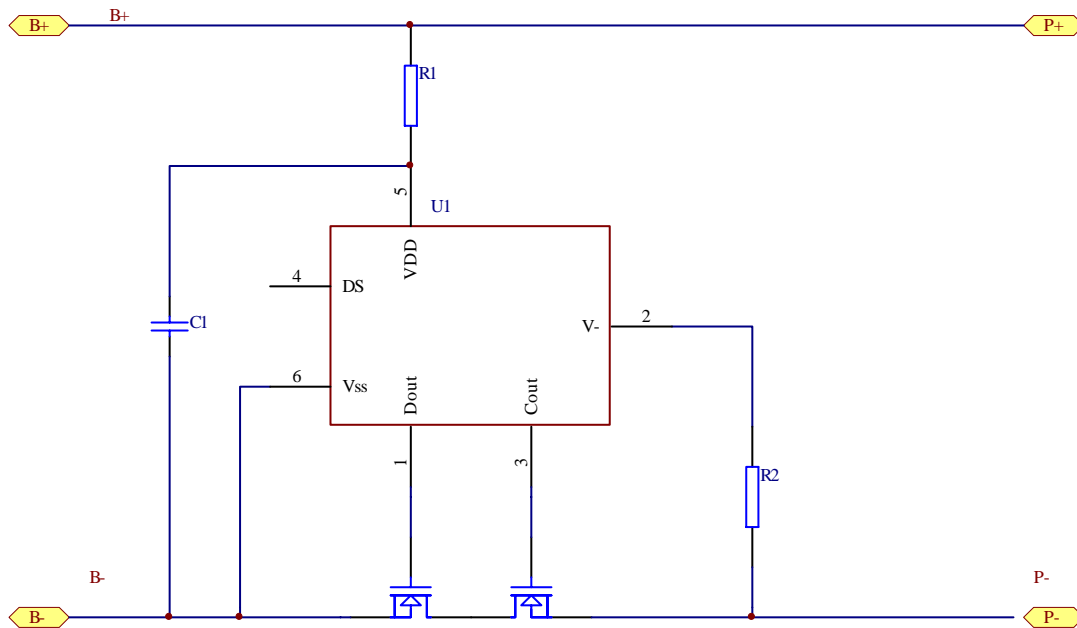
Above testing of safe characteristic must be with protective equipment.(安全性能测试应在有保护措施下进行)

8. Protection circuit(保护电路)

8.1 PCM Standard (保护板标准)

Symbol (符号)	Name (名称)	MIN. (最小值)	TYP. (典型值)	MAX. (最大值)	Unit (单位)
VDET1	Over-Charge detect voltage (过充电保护电压)	4.225	4.28	4.305	V
VDET2	Over-discharge detect voltage (过放电保护电压)	2.95	3.0	3.05	V
IEC	Excess Current threshold (最大过流值)	1.5	--	5.0	A
IDD	Supply current (自耗电电流)	--	--	7	μ A
ISTANDBY	Stand-by (备机)	--	--	1	μ A
RD	Internal resistance in normal operation (导通内阻)	--	--	70	m
Operating temperature 工作温度		-20		+55	
Recommendatory storage condition 推荐储存温度		Temperature range:-5~35 Humidity:0%~75RH			

8.2 Schematic diagram(原理图)



8.3 PARTS LIST 物料清单

序号 NO.	物料名称/品牌 Description/vendor	代号 Symbol	规格/型号 Spec./Model	单位 unit	数量 Q'ty
1	贴片电阻/SKYWELL	R1	0603/470 / ± 5%/RC03J471G	1	PCS
2	贴片电阻/SKYWELL	R2	0603/2K / ± 5%/RC03J202G	1	PCS
3	贴片电容/SKYWELL	C1	0603/0.1 μ F /+80%-20%/06032E104Z160BA	1	PCS
4	空白板/JJD		2740-A/Au 0.02um	1	PCS
5	IC/SEIKO	U1	S-8261ABJMD-G3J-T2G	1	PCS
6	贴片 MOS 管	U2	8810/8205	1	PCS

9. Warnings 警告

To prevent the possibility of the battery from leaking, heating, fire please observe the following precautions:

为防止电池可能发生的泄漏,发热,起火,请注意以下预防措施:

The soft aluminum packing foil is very easily damaged by sharp edge parts such as Ni-tabs, pins and needles .Do not strike battery with any sharp edge parts.

电池外包装膜易被镍片,尖针等尖锐部件损伤,禁止用尖锐部件碰伤电池.

Do not immerse the battery in water and seawater

严禁将电池浸入海水或水中.

Do not use and leave the battery near a heat source as fire or heater

禁止将电池在热高温源旁,如火,加热器等使用设备.

When recharging, use the battery charger specifically for that purpose

充电时请选用锂离子电池专用充电器.

Do not reverse the position and negative terminals

禁止颠倒正负极使用电池

Do not connect the battery to an electrical outlet

禁止将电池直接接入电源插座

Do not discard the battery in fire or heat it

禁止将电池丢入火或加热器中

The battery tabs are not so stubborn especially for aluminum tab.Do not bend tab.

电池极耳的机械强度不坚固,特别是铝极耳,禁止弯折.

Do not short-circuit the battery by directly connecting the positive and negative terminal with metal object such wire

禁止用金属直接将电池的正负极进行短路连接.

Do not transport and store the battery together with metal objects such as necklaces, hairpins etc.

禁止将电池与金属,如发夹,项链等一起运输或贮存.

Do not strike or throw the battery.

禁止敲击或抛掷,踩踏电池等.

Do not directly solder the battery and pierce the battery with a nail or other sharp object.

禁止直接焊接电池和用钉子或其它利器刺穿电池.

10. Cautions 注意

Do not use or leave the battery at very high temperature (for example, at strong direct sunlight or a vehicle in extremely hot conditions). Otherwise, it can overheat or fire or its performance will be degenerate and its service life will be decreased.

禁止在高温下(直热的阳光下或很热的汽车中)使用或放置电池,否则可能会引起电池过热,起火或功能失效,从而导致电池寿命减短.

Do not use it in a location where static electricity is great, otherwise, the safety devices may be damaged, causing hidden trouble of safety.

禁止在强静电和强磁场的地方使用,否则易破坏电池安全保护装置,带来安全隐患.

If the battery leaks, and the electrolyte get into the eyes. Do not rub eyes, instead, rinse the eyes, with clean running water, and immediately seek medical attention. Otherwise, eye injury can result.

如果电池发生泄漏,电解液进入眼睛,请不要揉擦,应用清水冲洗眼睛,并立即送医院治疗,否则会伤害眼睛.

If the battery gives off an odor, generates heat, becomes discolored or deformed, or in any way appear abnormal during use, recharging or storage, immediately remove it from the device or battery charge and stop using it.

如果电池在使用或贮存中发出异味,发热,变色,变形,或者是在充电过程中出现任何异常现象,立即将电池从充电器或装置中移开,并停止使用.

In case the battery terminals are dirt, clean the terminals with a dry cloth before use. Otherwise power failure or

charge failure may occur due to the poor connection with the instrument.

如果电池弄脏,使用前应用干布抹净,否则可能会因接触不良而影响性能失效.

Be aware discharged battery may cause fire or smoke,tape the terminals to insulate them.

废弃之电池应用绝缘纸包住电极,以防起火,冒烟.

If the battery is stored for a long time, the battery storage should be 3.75V and the battery is to be stored in a condition , Temperature 23 ± 5 , Humidity 45-75%RH

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3.75V且贮存环境要求.温度在 23 ± 5 湿度在45-75%RH

11.Period of Warranty 保质期

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

电池的保质期从出货之日算起为半年。如果证明电池的缺陷是在我们公司制造过程中造成的而不是客户滥用或错误使用造成,本公司负责退换电池。

12. Others 其它事项

12.1.The customer is requested to contact Naccon Power 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.

客户若需要将电池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池,应事先联系耐科森科技,因为需要进行特定的实验测试以核实电池在该使用条件下的性能及安全性。

12.2.Naccon Power will take no responsibility for any accident when the battery is used under other conditions than those described in this Document.

对于在超出文件规定以外的条件下使用电池而造成的任何意外事故,耐科森科技概不负责。

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

如有必要,耐科森科技会以书面形式告之客户有关正确操作使用电池的改进措施。

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

任何本说明书中未提及的事项,须经双方协商确定

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