PX503759 Battery Spec.

Model: PX503759

Stock Code: 900.869.503.178

Cell Type: PX503759

Nominal Voltage: 3.7V

Capacity: 1050mAh

Draft	Checking	Approved	Customer Confirmation
Dora	Peter		

1. Revision History 版本记录

Revision 版本	Date 日期	Editor 编著	Contents 内容
A0	2018-03-20	Dora	Draft

2. Product Specification 产品技术规格

(单电芯 Single cell)

No.	Item	General Parameter		Remark
1	Rated Capacity	Typical	1050mAh	Standard discharge （0.2C) after Standard charge
		Minimum	1025mAh	
2	Nominal Voltage	3.7V		Mean Operation Voltage
3	Voltage at end of Discharge	2.75V		Discharge Cut-off Voltage
4	Charging Voltage	4.2±0.03V		
5	Internal Impedance	≤180mΩ		Internal resistance measured at AC 1KHZ after 50% charge The measure must uses the new batteries that within one week after shipment and cycles less than 5 times
6	Weight	About 20 g		
7	Standard charge	Constant Current 0.2C Constant Voltage 4.2V 0.01 C cut-off		
8	Standard discharge	Constant current 0.2C end voltage2.75V		
9	Fast charge	Constant Current 1.0C Constant Voltage 4.2V 0.01C cut-off		
10	Fast discharge	Constant current 1.0C end voltage 2.75V		
11	Maximum Continuous Charge Current	1.0C		
12	Maximum Continuous Discharge Current	1.0C		
13	Operation Temperature Range	Charge: 0~45℃		60±25%R.H. Bare Cell
		Discharge: -20~60℃		
14	Storage Temperature Range	Less than 1 year: -20~25℃		60±25%R.H. at the shipment state
		less than 3 months: -20~40℃		
15	Single cell	Length 长(L)	59.0±0.5mm	Initial Dimension
		Width 宽(W)	37.0±0.5mm	
		Thickness 厚(T)	5.0±0.2mm	

3. Performance And Test Conditions 电池性能及测试条件

3.1 Standard Test Conditions 标准测试条件

Test should be conducted with new batteries within one week after shipment from our factory and the cells shall not be cycled more than five times before the test. Unless otherwise specified, test and measurement shall be done under temperature of 20±5℃ and relative humidity of 45~85%. If it is judged that the test results are not affected by such conditions, the tests may be conducted at temperature 15~30℃ and humidity 25~85%RH.

测试必须使用出厂时间不超过一个星期的新电池，且未进行过五次以上的充放电循环。除非特别说明，否则测试会在温度 20±5℃，相对湿度 45~85%的条件下进行。如果经鉴定测试结果不受上述条件影响，测试也可以在温度 15~30℃，相对湿度 25~85%RH 的条件下进行。

3.2 Measuring Instrument or Apparatus 测量器具及设备

3.2.1 Dimension Measuring Instrument 尺寸测量器具

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

尺寸测量器具的精度等级应不小于 0.01 mm 。

3.2.2 Voltmeter 伏特计

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

按照国家标准指定规格等级或采用灵敏度更高的，测量电压时内阻不应小于 10kΩ/V。

3.2.3 Ammeter 安培计

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

按照国家标准指定规格等级或采用灵敏度更高的，包括电流表及电线在内的总外阻应小于 0.01Ω。

3.2.4 Impedance Meter 电阻计

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

内阻测试仪测量原理应为交流阻抗法（1kHz LCR）。

3.3 Appearance 外观

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

电池外观应没有划伤、破裂、污渍、生锈、漏液等影响市场价值的缺陷存在。

3.4 Temperature Dependence of discharge capacity 放电温度特性

Table 3 （表 3）

Discharge Temperature （放电温度）	-10℃	0℃	23℃	60℃
Discharge Capacity （0.2C） （放电容量/0.2C）	50%	80%	100%	95%

3.5 Cycle Life and Leakage-Proof 循环寿命及漏液试验

Table 4（表 4）

No. （序号）	Item （项目）	Criteria （标准）	Test Conditions （测试条件）
1	Cycle Life （循环寿命） (0.5C)	Higher than 70% of the Initial Capacities of the Cells （初始容量的 70%）	Carry out 500cycle Charging/Discharging in the below condition. ◆Charge:Standard Charge ◆Discharge:0.5C to 2.75 V ◆Rest Time between charge/discharge:30min. ◆Temperature:20±5℃ 循环 500 次 充放电按以下条件: ◆充电: 标准充电 ◆放电:0.5C 放至 2.75V ◆搁置:30min. ◆温度:20±5℃
2	Leakage-Proof （漏液试验）	No leakage (visual inspection) （没有漏液/目测）	After full charge with standard charge, store at 55±3℃, 60±10%RH for 1 week. 标准充电条件下充满电后在温度 55±3℃，湿度 60±10%RH 下储存一个星期

4. Mechanical characteristics and Safety Test for Cell 电芯安全测试及机械特性

Table 5（表 5） (Mechanical characteristics)

No. (序号)	Items （项目）	Test Method and Condition （测试方法及条件）	Criteria （标准）
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 an 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 1.6mm，振动频率为 10Hz~55Hz，每分钟变化 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 1 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 explosion, No fire, no leakage. 无爆炸、无起火 、无泄漏
Item （项目）	Battery Condition	Test Method （测试方法）	Requirements （要求）

	（电池要求）		
Crush （挤压试验）	Fresh, Fully charged （充满电的新电池）	Crush between two flat plates. Applied force is about 13kN(1.72Mpa) for 30min. （电池放置在两块平面金属板间，施加 13KN（1.72Mpa）的作用力，且持续保持 30 分钟）	No explosion, No fire (无起火无爆炸)
Short Circuit （短路试验 20℃）	Fresh, Fully charged （充满电的新电池）	Each test sample battery, in turn, is to be short-circuited by connecting the (+) and (-) terminals of the battery with a Cu wire having a maximum resistance load of 0.1Ω.Tests are to be conducted at room temperature(20±2℃). （在常温下约 20±2℃依次把每个样品电池的正负极用铜线连接起来使电池外部短路--线路总电阻不超过 0.1Ω）	No explosion, No fire The Temperature of the surface of the Cells are lower than 150℃ (无起火无爆炸 电池表面温度应低于 150℃)
Short Circuit （短路试验 60℃）	Fresh, Fully charged （充满电的新电池）	Each test sample battery, in turn, is to be short-circuited by connecting the (+) and (-) terminals of the battery with a Cu wire having a maximum resistance load of 0.1Ω.Tests are to be conducted at temperature(60±2℃). （在常温下约 60±2℃依次把每个样品电池的正负极用铜线连接起来使电池外部短路--线路总电阻不超过 0.1Ω）	No explosion, No fire The Temperature of the surface of the Cells are lower than 150℃ (无起火无爆炸 电池表面温度应低于 150℃)
Impact （冲击试验）	Fresh, Fully charged （充满电的新电池）	A 56mm diameter bar is inlayed into the bottom of a 10kg weight. And the weight is to be dropped from a height of 1m onto a sample battery and then the bar will be across the center of the sample.（用一条直径为 56mm 的圆棒放置在电池中央，将一 10Kg 的重锤从 1m 的高度垂直落下在电池的中心位置）	No explosion, No fire (无起火无爆炸)
Forced Discharge （过放试验）	Fresh, Fully charged （充满电的新电池）	Discharge at a current of 1.0Cfor 2.5h. （以 1.0C 的电流放电 2.5 小时）	No explosion, No fire (无起火无爆炸)
Nail Pricking （针刺试验） (3mm)	Fresh, Fully charged （充满电的新电池）	Prick through the sample battery with a nail having a diameter of 3mm and remain 2h. （用直径为 3mm 的钉子刺穿电池并保持 2 个小时）	No explosion, No fire (无起火无爆炸)

5. Protection circuit 保护电路

(PCM Standard 保护板标准)

Item （项目）	Symbol (符号)	Content (详细内容)	Criterion (标准)
Current (电流)	IDP	Max.Charging Current (最大持续充电电流)	1.5A
		Max.Discharging (最大持续放电电流)	1.5A
Over charge Protection (过充保护)	VDET1	Over charge detection voltage (过充电检测电压)	4.28±0.05V
	tVDET1	Over charge detection delay time (过充电检测延迟时间)	80—200ms
	VREL1	Over charge release voltage (过充电解除电压)	4.10±0.05V
Over discharge protection (过放保护)	VDET1	Over discharge detection voltage (过放电检测电压)	2.40±0.10V
	tVDET1	Over discharge detection delay time (过放电检测延迟时间)	40-120ms
	VREL1	Over discharge release voltage (过放电解除电压)	3.00±0.1V
Over current protection (过流保护)	VDET3	Over current detection voltage (过电流检测电压)	1.30±0.5V
	IDP	Over current detection current (过电流保护电流)	3.5±1.5A
	tVDET3	Detection delay time (检测延迟时间)	5-20ms
		Release condition (保护解除条件)	Cut load (断开负载)
Short protection (短路保护)		Detection condition (保护条件)	Exterior short circuit (外部电路短路)
	TSHOR	Detection delay time (检测延迟时间)	5-120ms
		Release condition (保护解除条件)	Cut short circuit (断开短路电路)
Interior resistance (内阻)	RDS	Main loop electrify resistance (主回路通态电阻)	VC=2.5V,RDS≤34mΩ
Current consumption (消耗电流)	IDD	Current consume in normal operation (工作时电路内部消耗)	3.0μA Type 6.0μA Max

6. Handling of Cells

6.1 Consideration of strength of film package

1) Soft Aluminium foil

Easily damaged by sharp edge parts such as pins and needles, Ni-tabs, comparing with metal-can-cased LIB.

2).Sealed edge may be damaged by heat above 100°C, bend or fold sealed edge.

6.2 Prohibition short circuit

Never make short circuit cell. It generates very high current which causes heating of the cells and may cause electrolyte leakage, gassing or explosion that are very dangerous.

The Power-Xtra tabs may be easily short-circuited by putting them on conductive surface. Such outer short circuit may lead to heat generation and damage of the cell.

An appropriate circuitry with PCM shall be employed to protect accidental short circuit of the battery pack.

6.3.Mechanical shock

Power-Xtra cells have less mechanical endurance than metal-can-cased LIB.

Falling, hitting, bending, etc. may cause degradation of Power-Xtra characteristics.

6.4 Handling of tabs

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

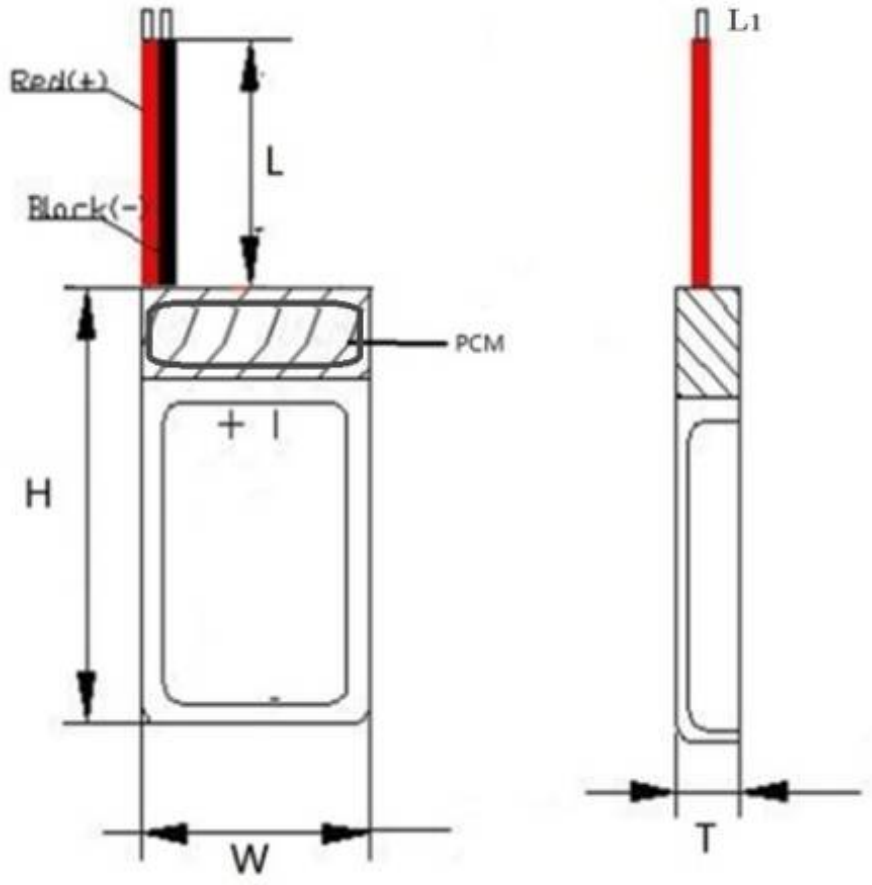
Don't bend tab.

Do not bend tabs unnecessarily.

7. Storing the Batteries

The batteries should be stored at room temperature, charged to about 30% to 50% of capacity. We recommend that batteries be charged about once per half a year to prevent over discharge.

8. Dimension 尺寸



Dimensions 尺寸 (Units 单位: mm)	PCM	Normal PCM 常规保护板（1.5A）
	Length Cable 线长（L）	100±5mm
	Height 高(H)	61.0±1mm
	Width 宽(W)	37.0±1mm
	Thickness 厚(T)	5.2±0.5mm
	T1	2mm(Tin plating 浸锡)
	Cable 线号	1007#26AWG

9. Drawing of Label 标签图

PET 透明标签，标签日期按出货月份更改；YY 为年，MM 为月，年在前，月份在后，（YYMM），如：1709（2017 年 09 月）。标签内容待定。

10. Drawing Packing 包装图

整齐装托盘，内置防潮袋，每箱不超 10KG；客户定制 Logo 纸箱，外箱 Logo 格式如下：

ENA-13 Bar code 条形码/侧唛:
贴于纸箱正/背两侧，侧唛尺寸视情况而定：

PO NO.	**Order**
MODEL NO.	**900.869.503.178**
QTY	**500PCS**
DATE	**YYYY-MM-DD**
Made in China	
8 680187 002206	

⇦根据每次订单更改

⇦根据每箱数量更改

⇦根据出货日期更改