



Model : Power-Xtra PX663539 3.7V 1100 mAh Li-Polymer Battery with Conn./PCM (1.5A) Ver: A0 NO: 900.869.503.177

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## PX663539 Battery Spec

**Model :** PX663539-M

**Stock Code:** 900.869.503.177

**Cell Type :** PX663537

**Nominal Voltage:** 3.7V

**Capacity:** 1100mAh

Draft	Checking	Approved	Customer Confirmation
Peter	Chun Qi Zeng		



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## Revision History 版本记录

Revision 版本	Date 日期	Editor 编著	Contents 内容
A0	2017-10-20	Peter	Draft

## 1. Product Specification 产品技术规格

Single cell (单电芯)

No.	Item	General Parameter		Remark
1	Rated Capacity	Typical	1100mAh	Standard discharge ( 0.2C) after Standard charge
		Minimum	1080mAh	
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 23 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 voltage 2.75V		
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 (充电) : 0~45°C		60±25%R.H.
		Discharge (放电) : -20~60°C		Bare Cell
14	Storage Temperature Range	Less than 1 year: -20~25°C		60±25%R.H.
		less than 3 months: -20~40°C		at the shipment state
15	Single cell	Length(L)	39.5±0.5mm	Initial Dimension
		Width (W)	35.5±0.5mm	
		Height(H)	6.6±0.2mm	

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

### 2.1 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  $20\pm5^{\circ}\text{C}$  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  $15\sim30^{\circ}\text{C}$  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  $20\pm5^{\circ}\text{C}$ ，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  $15\sim30^{\circ}\text{C}$ ，相对湿度 25-85%RH 的条件下进行。

### 2.2 Measuring Instrument or Apparatus 测量器具及设备

#### 2.2.1 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 。

#### 2.2.2 Voltmeter 伏特计

Standard class specified in the national standard or more sensitive class having inner impedance more than  $10\text{k}\Omega/\text{V}$

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  $10\text{k}\Omega/\text{V}$ 。

#### 2.2.3 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  $0.01\Omega$ .

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  $0.01\Omega$ 。

#### 2.2.4 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）。

### 2.3 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。

### 2.4 Temperature Dependence of discharge capacity 放电温度特性

Table 3 （表 3）

Discharge Temperature (放电温度)	$-10^{\circ}\text{C}$	$0^{\circ}\text{C}$	$23^{\circ}\text{C}$	$60^{\circ}\text{C}$
Discharge Capacity (0.2C) (放电容量/0.2C)	50%	80%	100%	95%

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

Table 4 (表 4)

No.	Item	Criteria	Test Conditions
1	Cycle Life (0.5C)	Higher than 70% of the Initial Capacities of the Cells	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℃
2	Leakage-Proof	No leakage (visual inspection)	After full charge with standard charge, store at 55±3℃, 60±10%RH for 1 week.

### 3. 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.	Items	Test Method and Condition	Criteria
1	Vibration Test	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.	No leakage No fire
2	Drop Test	The cell is to be dropped from a height of 1 meter twice onto concrete ground.	No explosion, No fire, no leakage

Table 6 (表 6)

(Safety Test)

Item	Battery Condition	Test Method	Requirements
Crush	Fresh, Fully charged	Crush between two flat plates. Applied force is about 13kN(1.72Mpa) for 30min.	No explosion, No fire
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℃ ).	No explosion, No fire The Temperature of the surface of the Cells are lower than 150℃

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Short Circuit (60°C)	Fresh, Fully charged	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°C ).	No explosion, No fire The Temperature of the surface of the Cells are lower than 150°C
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. (	No explosion, No fire (无起火无爆炸)
Forced Discharge	Fresh, Fully charged	Discharge at a current of 1.0C for 2.5h.	No explosion, No fire
Nail Pricking (3mm)	Fresh, Fully charged	Prick through the sample battery with a nail having a diameter of 3mm and remain 2h.	No explosion, No fire

## 4. Protection circuit 保护电路

(PCM Standard 保护板标准)

Item	Symbol	Content	Criterion
Over charge Protection	VDET1	Over charge detection voltage	4.28±0.05V
	tVDET1	Over charge detection delay time	80—200ms
	VREL1	Over charge release voltage	4.10±0.05V
Over discharge protection	VDET1	Over discharge detection voltage	2.40±0.10V
	tVDET1	Over discharge detection delay time	40-120ms
	VREL1	Over discharge release voltage	3.00±0.1V
Over current protection	VDET3	Over current detection voltage	1.30±0.5V
	IDP	Over current detection current	3.5±1.0A
	tVDET3	Detection delay time	5-20ms
		Release condition	Cut load
Short protection		Detection condition	Exterior short circuit
	TSHOR	Detection delay time	5-120ms
		Release condition	Cut short circuit
Interior resistance (内阻)	RDS	Main loop electrify resistance	VC=4.2V,RDS≤70mΩ
Current consumption	IDD	Current consume in normal operation	3.0μA Type 6.0μA Max

## 5. Handling of Cells 电池操作注意事项

### 5.1 Consideration of strength of film package 包装薄膜注意事项

#### 1) Soft Aluminium foil 铝箔软包装

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.

### 5.2 Prohibition short circuit 禁止电池短路

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.

### 5.3. Mechanical shock 机械撞击

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

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

### 5.4 Handling of tabs

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

Don't bend tab.

Do not bend tabs unnecessarily.

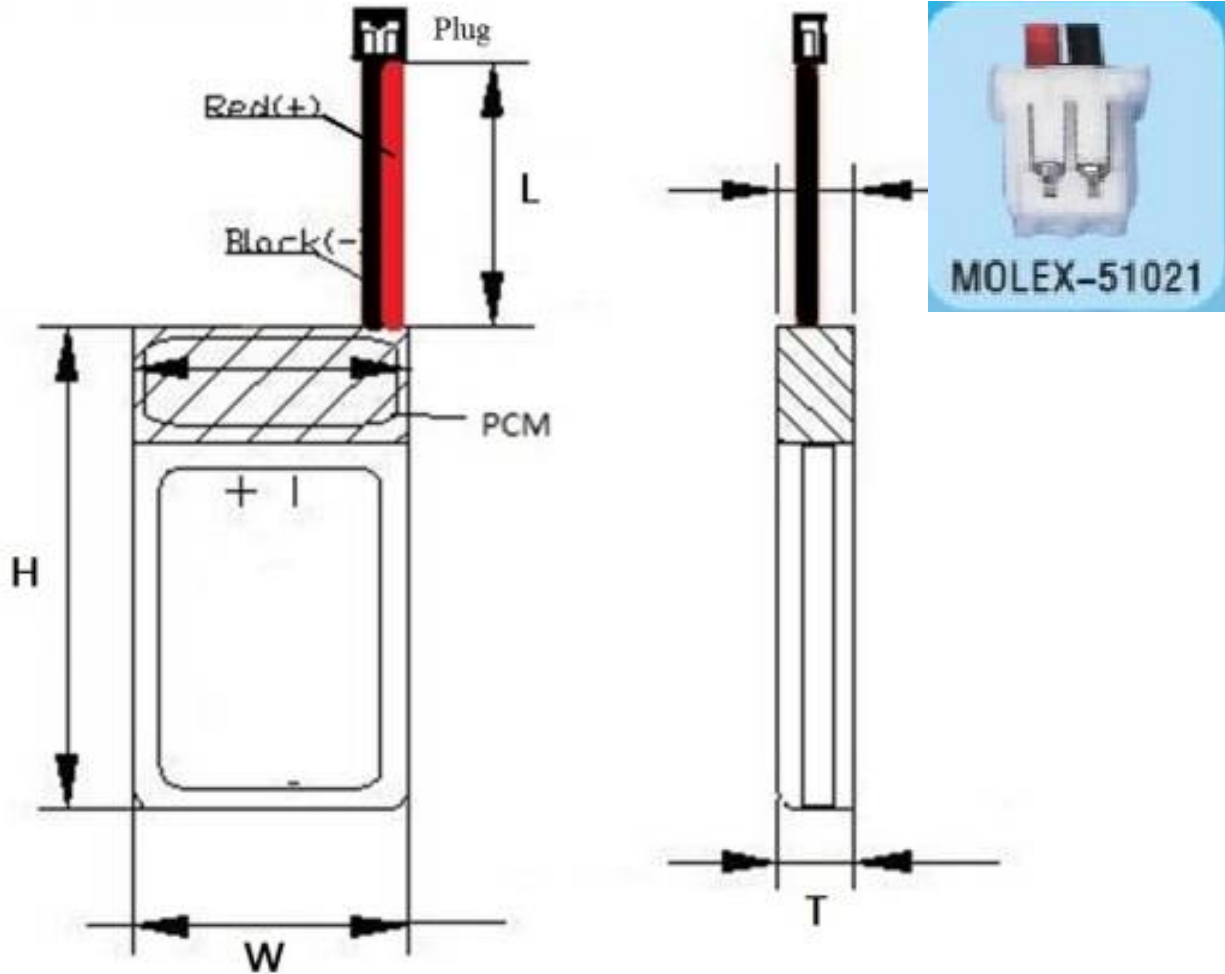
## 6. Storing the Batteries 电池的存放

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.

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## 7. Dimension 尺寸



Dimensions 尺寸 (Units 单位: mm)	PCM	常规保护板 Normal PCM (1.5A)
	Length Cable 线长 (L)	40±5mm (注: 不含插头)
	Width 宽(W)	36.0±1mm
	Height 高(H)	41.0±1mm
	Thickness 厚(T)	6.8±0.5mm
	Cable 线号	1007#24AWG
	Plug 插头	Molex 51021-2P opposite (copy)



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## 8. Drawing of Label 标签图

PET 透明标签, 2D(Data Matrix)二维码。日期按出货月份更改。MM 为月, YY 为年, 月在后, 年在前 (年月), 如: 1710 (2017 年 10 月)。标签格式如下:



## 9. Drawing Packing 包装图

PP 袋单独包装, 装内盒, 内置防潮袋, 每箱不超 10KG, 贴侧唛; 客户定制 Logo 外箱; 外箱 Logo 内容格式如下:

**POWER-XTRA**

侧唛:

条形码格式为: GS1(EAN.UCC)/ENA-13 Bar code, 侧唛分别贴于纸箱两侧 (尺寸视纸箱尺寸更改), 内容及格式如下:

PO NO.	Order	← 根据每次订单更改
MODEL NO.	900.869.503.177	
QTY	500PCS	← 根据每箱数量更改
DATE	YYYY-MM-DD	← 根据出货日期更改
Made in China		
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