

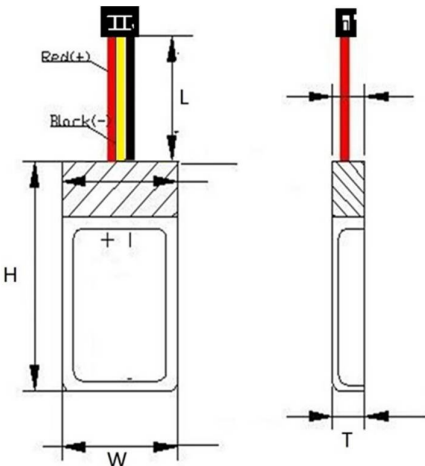

# POWER-XTRA

Model : Power-Xtra PX403442- 3.7V 560mAh Li-Polymer battery

Ver: REV001

NO: 900.869.503.110

## 1. Product Specification

				
Dimensions (Units: mm)	PCM	Normal PCM (1.5A)		
	LengthCable (L)	100±5mm		
	Height(H)	44.0±1mm		
	Width(W)	34.0±1mm		
	Thickness(T)	4.0±0.5mm		
	Cable	UL1007#24AWG		
	Plug	Molex-5264-3P Forward direction		
<b>No.</b>	<b>Item</b>	<b>General Parameter</b>		<b>Remark</b>
1	Rated Capacity	Typical	560mAh	Standard discharge ( 0.2C) after Standard charge
		Minimum	550mAh	
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	≤280mΩ		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 12 g		

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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: 0~45°C	60±25%R.H. Bare Cell
		Discharge: -20~60°C	
14	Storage Temperature Range	Less than 1 year: -20~25°C	60±25%R.H. at the shipment state
		less than 3 months: -20~40°C	
15	Single cell	Length(L)	42.0±0.5mm
		Width(W)	34.0±0.5mm
		Thickness(T)	4.0±0.2mm
		Initial Dimension	

## 2. Performance And Test Conditions

### 2.1 Standard Test Conditions

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°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 15~30°C and humidity 25~85%RH.

### 2.2 Measuring Instrument or Apparatus

#### 2.2.1 Dimension Measuring Instrument

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

#### 2.2.2 Voltmeter

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

#### 2.2.3 Ammeter

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

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## 2.2.4 Impedance Meter

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

## 2.3 Appearance

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

## 2.4 Temperature Dependence of discharge capacity

Table 3

Discharge Temperature	-10°C	0°C	23°C	60°C
Discharge Capacity (0.2C)	50%	80%	100%	95%

## 2.5 Cycle Life and Leakage-Proof

Table 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°C
2	Leakage-Proof	No leakage (visual inspection)	After full charge with standard charge, store at 55±3°C, 60±10%RH for 1 week.

## 3. Mechanical characteristics and Safety Test for Cell

Table 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.

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## 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	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 room temperature(20±2°C ).	No explosion, No fire The Temperature of the surface of the Cells are lower than 150°C
Short Circuit	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	Fresh, Fully charged	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
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

Battery Pack(PCM Standard)

Item	Symbol	Content	Criterion
Current	I <sub>DP</sub>	Max. Charging Current	1.5A
		Max. Discharging Current	1.5A
Over charge Protection	V <sub>DET1</sub>	Over charge detection voltage	4.28±0.05V
	tV <sub>DET1</sub>	Over charge detection delay time	80–200ms
	V <sub>REL1</sub>	Over charge release voltage	4.10±0.05V
Over discharge protection	V <sub>DET1</sub>	Over discharge detection voltage	2.40±0.10V
	tV <sub>DET1</sub>	Over discharge detection delay time	40-120ms
	V <sub>REL1</sub>	Over discharge release voltage	3.00±0.1V
Over current protection	V <sub>DET3</sub>	Over current detection voltage	1.30±0.5V
	I <sub>DP</sub>	Over current detection current	3.5±1.0A
	tV <sub>DET3</sub>	Detection delay time	5-20ms
		Release condition	Cut load
Short protection		Detection condition	Exterior short circuit
	T <sub>SHOR</sub>	Detection delay time	5-120ms
		Release condition	Cut short circuit
Interior resistance	R <sub>D5</sub>	Main loop electrify resistance	VC=2.5V,RDS≤34mΩ
Current consumption	I <sub>DD</sub>	Current consume in normal operation	3.0μA Type 6.0μA Max