SOSHINE INTERNATIONAL (H.K.) CO., LTD

Library Sort	**Product Specifications**	VER	A
Library Name	**Li-ion Rechargeable Battery**	Date	2010/06/08

Li-ion Battery

Specification

Model: Li-ion 9V-500mAh

Prepared	Auditing	Approved
WUYJUN	LVCHENGXUN	SILING
2010.06.01	2010.06.03	2010.06.08

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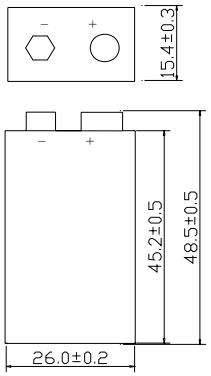
1. Primary technical Parameters

Type	Rechargeable Lithium-ion
Model	Li-ion 9V-500mAh
Dimension	（48.5±0.5）×（26±0.2）×（15.4±0.3）mm
C_5mAh	460（mini）
C_5mA	500
Nominal Voltage	7.4V
Capacity	Nominal 500mAh Minimum 460mAh when discharged at 0.2C_5mA to 5.5V
Recommended Charging Conditions	0.2C_5mA charge termination control parameters taper current 0.01C_5mA at 8.4V
Service Life	1000cycles（≥60% C_5mAh,0.2C discharge）
Weight	< 36.6g
Charging Voltage	8.4±0.15V
Protection Circuit Module	Over Voltage Limit: Min 8.4.00V Normal 8.45V Max 8.7V Under Voltage Limit: Min 5.35.00V Normal 5.5V Max 5.65V Over Current Protection: Min 0.12V Normal 0.15V Max 0.18V Short circuit Test Voltage: Min VDD-1.2V Normal VDD-0.9V Max VDD-0.6V Max. Quiescent Drain: 0.1Ma ESD Protection: 10 kV Internal resistance: 65mΩ (max)
Ambient Temperature Range	Charging ： 0～+45℃ Discharging ： -20～+60℃ Storage ： -20～+40℃

Subject to change without prior notice

Dimension



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2. Li-ion 9V Battery Characteristics

Test item	Test conditions	Requirements
(1)Outside Appearance	Visual check	No abnormal stain, Deformation nor damage
(2) Standard test conditions	Measurements are carried out at 20±5℃ and relative humidity of 65±20% without other specified condition. Accuracy of voltmeters and ammeters used in test is equal to or better than the grade 0.5.	
(3) Standard charge	Cells shall be charged continuously at the constant current of 0.2C_5mA to 8.4V, then charge at the constant voltage of 8.4V until the end current of 0.01C_5mA	
(4)Standard discharge	Cells shall be discharged continuously at the constant current of 0.2C_5mA to 5.5V	
(5)Open-circuit voltage (OCV)		≥7.4V
(6)Rate Capacity	Cells shall be charged in Item (3) and discharged in Item (4) within 10 minutes after full charged. If the discharge duration does not reach the specified value, the test may be repeated up to three times in total.	Rated capacity: 500mAh
(7)Cycle Life(20℃)	Cells shall be charged continuously at the constant current of 0.2C_5mA to 8.4V and discharged continuously at the constant current of 0.2C_5mA to 5.5V.A cycles defined as one charge and discharge .carry out cycles until discharge capacity <60% C_5mAh	≥1000 cycles

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3 Safety Evaluation ：

When Li-ion rechargeable batteries are used on above the permit voltage or current, electrolyte may disassemble, this case will affect safety performance of Li-ion rechargeable batteries. So protection circuit module were used in order to prevent overcharge 、over discharge and over current .

PCM Model：SB95-G

Test Item	Test Conditions	Requirements	Requirements
(1) Overcharge	Cells shall be charged in Item 1(3), then charged at 500mA current with a voltage limit of 9.3V.charging is continued for 8 hours.	Protection voltage: 8.7±0.04V	No fire, Nor explosion
(2)Over discharge	Cells discharged continuously at the constant current of 500mA to 5.5V,then connect cells terminals with 30Ω.Discharging is continued for 24 hours	Protection voltage: 5.5±0.15V	No fire, Nor explosion
(3)Over current	Cells shall be charged in Item 1(3), and then charge current is to be raised at a rate of 0.2A per second until the battery pack is protective cut-off.	Protection current: 1.5-3A	No fire, Nor explosion
(4)Short Circuit Test	Cells shall be charged in Item 1(3), Connect battery terminals with electric wire (electric resistance: 0.2Ω or less),continued for 1 hours		No fire, Nor explosion

4 Duration of Guarantee the Product

We can keep on the quality in twelve months In order to keeping on the quality of the batteries, it's need to charge and discharge once every three months.

5 Cell Condition at the Shipment

To be determined (Recommendation Approx. ≥7.4V about 50% charged state)

6 Storage

Far from the fire and the high temperature.

7 Handling Precautions

To assure product safety, describe the following precautions in the instruction manual of the equipment.

! Danger

Do not heat or throw battery into a fire.

Do not use, leave battery close to fire or inside of a car where temperature may be above 60℃. Also do not charge / discharge in such conditions.

Hairpins, coins, or screws. Do not store batteries with such objects.

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Do not short circuit the (+) and (-) terminals with other metals.
Do not place battery in a device with the (+) and (-) in the wrong way around.
Do not hit with a hammer, step on or throw or drop to cause strong shock.
Do not disassemble or modify the battery.
Do not solder a battery directly.
Do not use a battery with serious scar or deformation.

! Warning

Do not use battery with dry cells and other primary batteries, or batteries of a different package, type, or brand.
Stop charging the battery if charging is not completed within the specified time.

During use, charge, or storage

Keep away from fire immediately when leakage or foul odor is detected.
If liquid leaks onto your skin or clothes, wash well with fresh water immediately.
If liquid leaking from the battery gets into your eyes, do not rub your eyes. Wash them well with clean water and go to see a doctor immediately.

! Caution

Store batteries out of reach of children so that they are not accidentally swallowed.
Batteries have life cycles. If the time that the battery powers equipment becomes much shorter than usual, the battery life is at an end. Replace the battery with a new same one.
Remove a battery whose life cycle has expired from equipment immediately.
When the battery is thrown away, be sure it is non-conducting by applying vinyl tape to the (+) and (-) terminals.
When not using battery for an extended period, remove it from the equipment and store in a place with low humidity and low temperature.
While the battery pack is charged, used and stored, keep it away from objects or materials with static electric charges.
The battery can be used within the following temperature ranges. Do not exceed these ranges.
Charge temperature range: 0℃ to 45℃
Discharge temperature range: -20℃ to 60℃
(When using equipment)