

Product and Model Name

Product: Lithium Polymer Battery

Model Name: **063048**

Ratings

Capacity typical: 850mAh

From 4.2V to 3.0V by discharge current 0.2C

Minimum 800mAh

Nominal Voltage Average 3.7V

Specification:

AC Impedance Resistance $\leq 150\text{m}\Omega$

Discharge Cut-off Voltage 3.00V

Charge Current 180mA Standard Charge

Charge voltage 4.2V

Max. Charge Voltage 4.23V

Discharge Current 850mA

Weight / Approx 19.00g

Shipping Voltage / 3.85-3.95V

Operating Temperature Charge 0~+45°C

Discharge -20~+60°C

**Storage**

Storage Temperature less than 1 month -20~+45°C / less than 3 months -20~+35°C / less than 6months -20~+30°C

Recommended storage temperature: 25±2°C, at the shipment state 25±2°C

Performance

Standard Test Conditions

Test should be conducted with new batteries within one month after shipment from our factory and the cells shall not be cycled more than five times before the test. Unless otherwise defined, test and measurement shall be done under temperature of 25±2°C and relative humidity of 45~85%. The test results are not affected evidently by such conditions of temperature 15~30 °C or humidity 25~85%

Measuring Instrument or Apparatus

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

Voltmeter: Standard class specified in the national standard or more sensitive class having inner impedance more than 10 MΩ

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

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

Standard Charge 0.2CmA=150mA

Full charge condition: Constant current 0.2CmA to 4.2V, Constant voltage 4.2V to 0.02C , Approx 6hours, in all at 25±2°C.

Rest Period: Unless otherwise defined, 30min, rest period after charge, 30min, rest period after discharge.

Initial Performance Test

Item	Measuring Procedure	Requirements
1.Open-Circuit Voltage	The open-circuit voltage shall be measured within 24 hours after standard charge.	≥4.15V
2.AC Impedance Resistance	The Impedance shall be measured in an alternating current method (1kHz LCR meter) after standard charge at 25±2°C.	≤220mΩ
3.Minimum Capacity	The capacity on 0.2CmA discharge shall be measured after standard charge at 25±2°C (specified Cs).	C ₅ ≥720mAh

Electrical Performance

Temperature Dependence of Capacity (Discharge)

Cells shall meet the discharge capacity requirements listed in the below table under respective discharge temperatures. The capacities are to be measured with constant discharge current 0.2CmA (3.0V cut-off) after standard charge at 25±2°C.

Discharge Temperature	-20°C	25°C	60°C
Discharge Capacity	50%	100%	95%

Cycle Life

30min rest period after standard charge, 0.5CmA discharge to a cut-off voltage of 3.0V, 30min rest period, the capacity shall be measured after 500 cycles of standard charge and discharge at 25±2°C.

Capacity ≥80%

Shelf Life

Item	Measuring Procedure	Requirements
Storage Characteristics 1	1 The capacity on 1.0CmA discharge shall be measured after standard charge and then storage at 25±2°C for 30 days.	Remaining Capacity ≥85% C ₅
	2 After above measured Remaining capacity, the capacity on standard discharge shall be measured after standard charge.	Recovery capacity ≥90% C ₅
Storage Characteristics 2	1 The capacity on 1.0CmA discharge shall be measured after standard charge and then storage at 60±2°C for 7 days.	Remaining Capacity ≥75% C ₅
	2 After above measured Remaining capacity, the capacity on standard discharge shall be measured after standard charge.	Recovery capacity ≥80% C ₅

Long Time Storage Characteristics

After about half charge after a period of storage at 25 ± 2 °C for one year (365 days). The remaining available capacity is ≥ 85% C₅. The capacity is determined with the capacity of the by the most of preceding three cycles.

Measuring Procedure (Vibration test)

After standard charge, the battery is to be tested as following conditions:

Amplitude:0.38mm

Frequency:10~55Hz(sweep:1Hz/min)

Direction: X/Y/Z axis for 90~100min. The

battery is to be tested in three mutually perpendicular to each axis.

Requirements

No fire, no explosion, no smoking is obtained.

Measuring Procedure (Drop test)

Drop the battery in the shipment condition (fullcharge) from 1m height onto 18-20cm or thicker concrete with p-tile on it 3 times each of X, Y, and Z directions at 25 ± 2°C.

Requirements

No fire, no explosion, no smoking is obtained.

Safety Performance

Short-circuit test: After standard charge, the battery is to be short-circuited by connecting the positive and negative terminals of the battery with copper wire having a maximum resistance load of 0.1Ω.

Heating test

A battery is to be heated in a gravity convection or circulating air oven. The temperature of the oven is to be raised at a rate of $5 \pm 2^\circ\text{C}/\text{min}$ to a temperature of $130 \pm 2^\circ\text{C}$ at which temperature the oven is to remain for 30 minutes before the test is discontinued.

Over charging test

After standard charge, the battery is subjected to a charging current by connecting it to a dc-power supply. The beginning current is 1.0C, which is to be obtained by connecting a resistor of specified size and rating in series with the battery, the voltage of the dc-power supply is 4.8V. The test time is 8.0 hours. This does not require that the initial be maintained for 8.0 hours.

Low pressure test

After standard charge, store for 6h at a absolute pressure of 11.2KPa, next rest for 2hrs at $25 \pm 5^\circ\text{C}$.

Handling Instructions

Read and observe the following warnings and precautions to ensure correct and safe use of Lithium polymer batteries.

Danger!

Failure to observe the following precautions may result in battery leakage, overheating, explosion and/ or fire.

- Do not immerse the battery in water or allow it to get wet.
- Do not use or store the battery near sources of heat such as a fire or heater.
- Do not use any chargers other than those recommended to charge li-po batteries
- Do not reverse the positive(+) and negative(-) terminals.
- Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
- Do not put the battery into a fire or apply direct heat to it.
- Do not short-circuit the battery by connecting wires or other metal objects to the positive(+) and negative(-) terminals.
- Do not carry or put the battery together with necklaces, hairpins or other metal objects.
- Do not strike, throw or subject the battery to sever physical shock.
- Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
- Do not directly solder the battery terminals.
- Do not attempt to disassemble or modify the battery in any way.
- Do not recharge the battery near a fire or in extremely hot conditions.

Warning!

Failure to observe the following precautions may result in battery leakage, overheating, explosion and/ or fire.

- Do not place the battery in a microwave oven or pressurized container.
- Do not use the battery in combination with primary batteries (such as dry-cell batteries) or batteries of different capacity, type or brand.
- Do not use the battery if it gives off an odor, generates heat, becomes discolored or deformed, or appears abnormal in any way.
- Keep the batteries out of the reach of children. If a child somehow swallows a battery, seek medical attention immediately.
- If the battery leaks or emits an odor, immediately remove it from the proximity of any exposed flame. The leaking electrolyte can ignite and cause a fire or explosion.
- If the battery leaks and electrolyte gets in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.

Caution!

Do not use or store the battery where is exposed to extremely hot, such as under window of a car in direct sunlight in a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.

Use the battery only under the following environmental conditions. Failure to do so can result in reduced performance or a shorten service life. Recharging the battery outside of these temperatures can cause the battery to overheat, explode or catch fire.

Operating environment:

When charging the battery: $0^{\circ}\text{C} \sim 10^{\circ}\text{C}$ (0.5C)

When charging the battery: $10^{\circ}\text{C} \sim 45^{\circ}\text{C}$ (1C)

When discharging the battery: $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$

When stored up to 30 days: $-20^{\circ}\text{C} \sim 45^{\circ}\text{C}$

When stored up to 90 days: $-20^{\circ}\text{C} \sim 35^{\circ}\text{C}$

When stored up to 180 days: $-20^{\circ}\text{C} \sim 30^{\circ}\text{C}$

Dimensional drawing

