# Lithium-ion Rechargeable Battery


## Specifications

| | |
|---|---|
| Nominal Capacity | 120mAh (0.2 C discharge) |
| Min. Capacity | 110mAh (0.2 C discharge) |
| Charging Voltage | 4.2V |
| Nominal Voltage | 3.6V |
| Standard Charge | Method : CC / CV<br>(constant current / constant voltage)<br>Current : 0.5 C<br>Voltage : 4.2 V<br>End Current : 0.02 C |
| Max. Charge Current | 1 C |
| Max. Discharge Current | 2 C |
| End of Discharge Voltage | 2.75V |
| Weight | Approximately 5.2g |
| Operating Temperature | Charge : -20°C to +45°C<br>Discharge : -20°C to +60°C |
| Storage Temperature | -5°C to +35°C |
| Appearance | There shall be no such defect as scratch, flaw, crack, rust, leakage, which may adversely affect commercial value of the cell |

**Note:** 1 C = 1 Capacity

## Technical Requirements

**Testing Conditions (Unless Otherwise Specified)**

Temperature : 20 ±1°C
Relative Humidity : ≤ 75 ±5% RH
Atmosphere Pressure : 1 atm

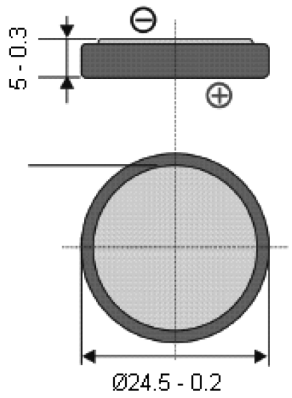
Accuracy of voltmeters and ammeters used in the test is equal to or better than the grade 0.5

## Electrical Characteristics

| Item | Testing Instruction | Requirements |
|---|---|---|
| Charge Condition | Charge the battery with constant current 0.5 C to 4.2V and then charge at constant voltage 4.2V until the current decays to 0.02 C during the constant voltage stage | - |
| Nominal Capacity | Within one hour after the charge according to 2.2.1, discharge at 0.2 C until 2.75V cut-off voltage | Capacity ≥ nominal capacity |
| 1 C discharge | With in 1 hour after the charge according to 2.2.1, discharge at constant current 1 C until 2.75 V cut-off voltage. If the discharge duration does not reach specified value, the test may be repeated up to three times in total | ≥ 90% of the nominal capacity |

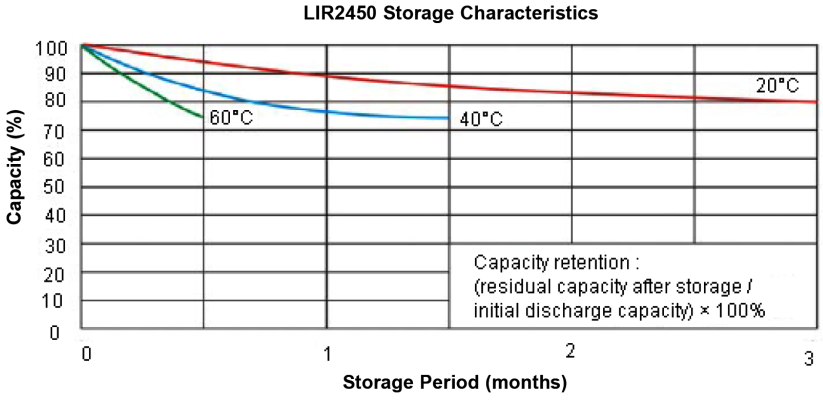
| Item | Testing Instruction | Requirements |
|---|---|---|
| Cycle Life | After the charge according to 2.2.1, the battery stays for 1 hour. At 25 ±5°C, discharge the battery at constant current 0.5 C until 2.75 V cut-off voltage. Then the battery stays for 1 hour. A cycle defined as one charge and discharge. This charge and discharge circle shall be repeated 500 times | The capacity at 500th cycle ≥ 80% of the nominal capacity |
| Electricity Preservation | After the charge according to 2.2.1, the battery stays at 20 ±5°C for 28 days and then discharge at 0.2 C to 2.75 V cut-off | The discharge capacity 80% of the nominal capacity |
| High Temperature Performance | After the charge according to 2.2.1, store the testing cells at 60 ±2°C for 4 hours. Then discharge at 1 C until 2.75 V cut-off voltage | The discharge capacity 90% of the nominal capacity |
| Low Temperature Performance | After the charge according to 2.2.1, store the testing cells at -20 ±2°C for 16 to 24 hours. Then discharge at 0.2 C until 2.75 V cut-off voltage | The discharge capacity 60% of the nominal capacity |
| Short-circuit | After the charge at 2.2.1, short circuit the cathode and anode. Stop testing when battery temperature decays to about 10°C from the maximum temperature | No fire, no explosion |
| Overcharge | Put the testing batteries connecting with thermocouple in ventilated cabinet, connect the cathode and anode to a power supply with CC / CV (constant current / constant voltage) function. Adjust the current to 3 C and voltage to 4.6 V. Then charge the battery at 3 C until the limit voltage reaches 4.6 V. The charging continued for 8 hrs | No fire, no explosion |
| Hot Box Test | Put the testing batteries connecting with thermocouple in constant temperature box. Heat the batteries and box (speed of ascending temperature is 5 ±2°C at room temperature simultaneously). Monitor the temperature change of the box. Keep for 10 minutes after the box temperature reaches 150 ±2°C, then stop the test | No fire, no explosion |
| Vibration Test | After the charge at 2.2.2, put the testing battery on the vibration testing equipment. Vibrate it from X,Y two different directions for 30 minutes (Frequency of vibration: 10 Hz - 30 Hz, displacement of single swing: 0.38 mm; Frequency of vibration: 30 Hz- 55 Hz, displace of single swing: 0.19 mm) in swept vibration from 10 Hz to 50 Hz. The swept rate is 1 oct / min. | No fire, no explosion ≥ 90% of the nominal capacity |
| Drop Test | After the charge at 2.2.2, free drop the testing battery from the height of 1 meter (the lowest point height) once from the each six positive and negative X, Y, Z directions to the hardwood board (the thickness of the board is about 50 mm) | No fire, no explosion ≥ 90% of the nominal capacity |

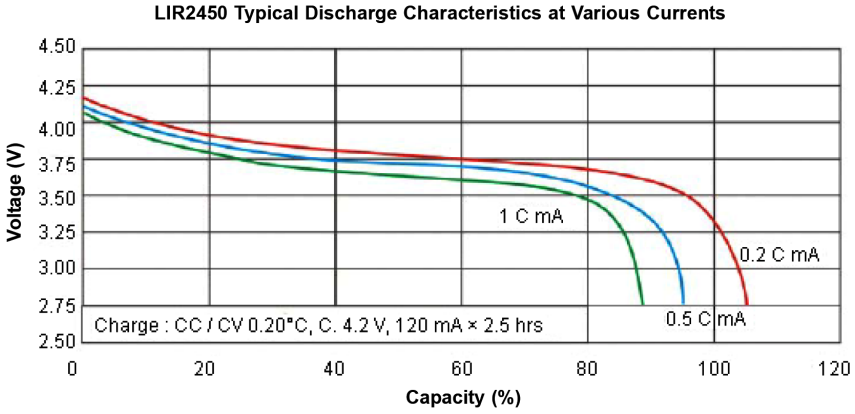
## Diagram



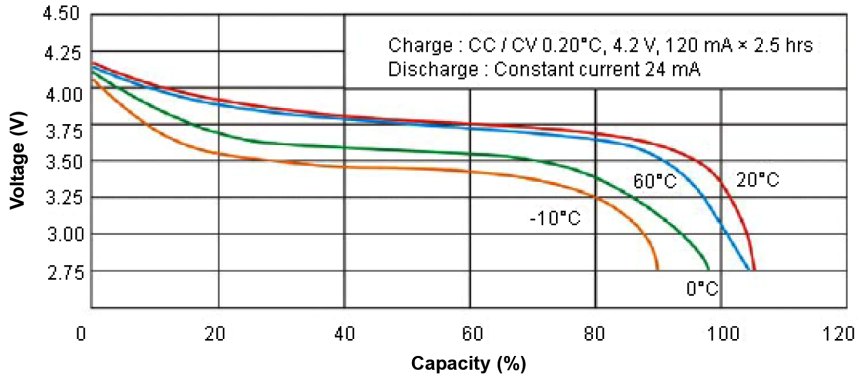

Dimensions : Millimetres

## Discharge Characteristics

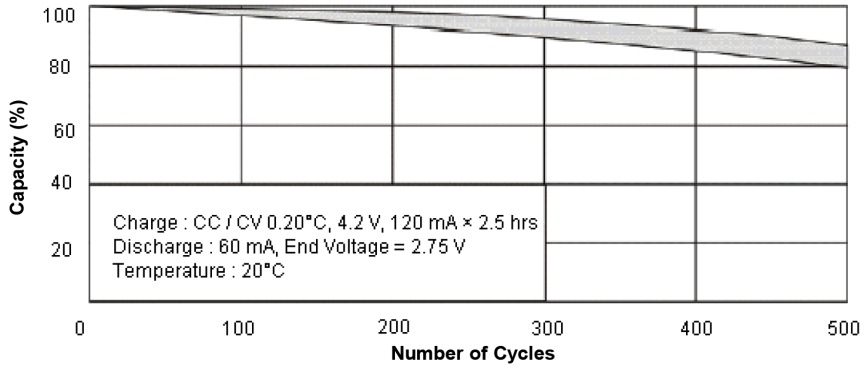


**LIR2450 Typical Temperature Characteristics**




**LIR2450 Typical Cycle Life**




## Part Number Table

| Description | Part Number |
|---|---|
| Coin Cell, Lithium, 3V, 120mAh | LIR2450 |