

1. Preface

The purpose of this product specification is to provide technical information for the rechargeable Lithium-ion prismatic battery ULP103465, manufactured and supplied by Unique Energy.

2. Description and Model

| | |
|-----------------|--|
| 2.1 Description | Rechargeable Lithium-ion prismatic battery |
| 2.2 Model | ULP103465 |

3. Specification

| | | |
|--------------------------------------|----------------------------|--|
| 3.1 Capacity | Nominal | 2000mAh |
| | Typical | 2200mAh |
| 3.2 Charging Voltage | | 4.20V |
| 3.3 Nominal Voltage | | 3.7V at 0.2C mA |
| 3.4 Standard Charging Method | | Constant current:1000mA Constant voltage 4.20V |
| 3.5 Cut-off Discharge Voltage | | 3.00V |
| 3.6 Max.Discharge Current | | 3000mA |
| 3.7 Max.Charge Current | | 2000mA |
| 3.8 Cycle Life | | >500 cycles at 0.5C mA discharge |
| 3.9 Ambient Temperature | | |
| | for Standard Charge | 0°C~ 45°C |
| | for Discharge | -20°C~ 60°C |
| 3.10 Storage | | |
| | for within the temperature | -20°C~ 60°C |
| | for within the humidity | ≤ 75% |
| 3.11 Energy Density | | |
| | Wh/L | ~300 |
| | Wh/Kg | ~120 |
| 3.12 Weight of Bare Cell | | ~60g |
| 3.13 Charge State Internal Impedance | | <60mΩ |

4. Appearance

Appearance shall be free from any remarkable scratch,flaws, rust, discoloration or electrolyte leakage(visible or by smell)

5. Standard Test condition

5.1 Environment Conditions

Unless otherwise specified,all test stated in this Product Specification are conducted within the temperature 15~25°C and the humidity 45~85%RH.

5.2 Test Equipment

(1) Impedance meter

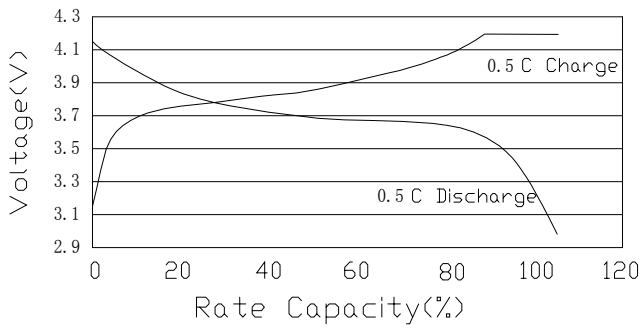
The impedance meter with AC 1kHz should be used

6. Test Procedure and Its Standard

| Item | Measuring Procedure | Standard |
|----------------------------------|---|--|
| 6.1 Appearance | Visual | No Defect and Leak |
| 6.2 Dimension | Caliper | As item 8 |
| 6.3 Weight | Scale | As item 3.12 |
| 6.4 Maximum Charge Current | CCCV(Constant Current Constant Voltage) | 2000mA |
| 6.5 Full charge | CCCV | CC-0.2CmA CV- 4.2V End-Current 20mA |
| 6.6 Open Circuit Voltage | Within 1hr after full charge,measure Open circuit voltage | >4.15V |
| 6.7 Internal Impedance | Measure the battery with 1kHz AC | <60mΩ |
| 6.8 Discharge Capacity | Within 1hr after full charge,discharge until final discharge,at 0.2C mA and measure the capacity | >2000mAh |
| 6.9 Maximum Discharge Current | Until final discharge voltage | 3000 mA |
| 6.10 Charge/Discharge Cycle Life | Charge:CCCV,CC- 0.5CmA,CV- 4.2V End-Current 20mA Discharge:0.5CmA to 3.00V,This charge/discharge shall be repeated 500 times | Discharge capacity should be >70% of item 6.8 |
| 6.11 Leakage Proof | After full charging,the battery shall be stored at 40±2°C and humidity 80±5%for 21 days | No leakage should be observed by visual inspection |
| 6.12 Temperature Characteristics | 1)After full charge at 20±5°C ,stand at -20±2°C for 18h,then discharge at 0.2C mA and measure the capacity 2)After full charge at 20±5°C ,stand at 55±2°C for 2hrs ,then discharge at 1C mA and measure the capacity | Discharge capacity should be>60% of item 6.8 and no abnormality on its appearance and stucture |
| 6.13 Charge Retension | After full charging,stand at 20±5°C for 28 days,measure the discharge capacity according to item 7.8 | Discharge capacity should be>85% of item 6.8 |

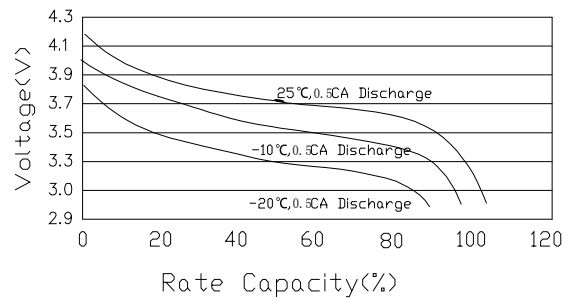
7.1 Charge/Discharge Characteristics

Charge:CC/CV 4.2V, 1000mA(0.5C),
 End- current 20mA
 Discharge:1000mA(0.5C) Cut-off at 3.00V
 Temperature:25°C



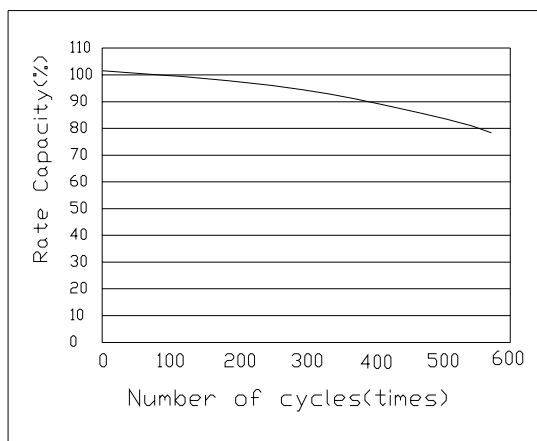
7.3 Temperature Characteristics

Charge: CC/CV 4.2V 0.5CA,End-Current 20mA
 Discharge:0.5CA,Cut-off at 3.00V



7.2 Charge/Discharge Cycle Life

Charge:CC/CV 4.2V, 0.5CmA,
 End-Current 20mA
 Discharge:0.5CmA,Cut-off at 3.00V
 Temperature:25°C



8. Dimension (Bare cell) mm

