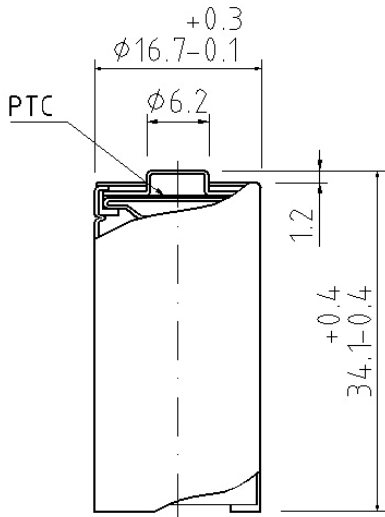
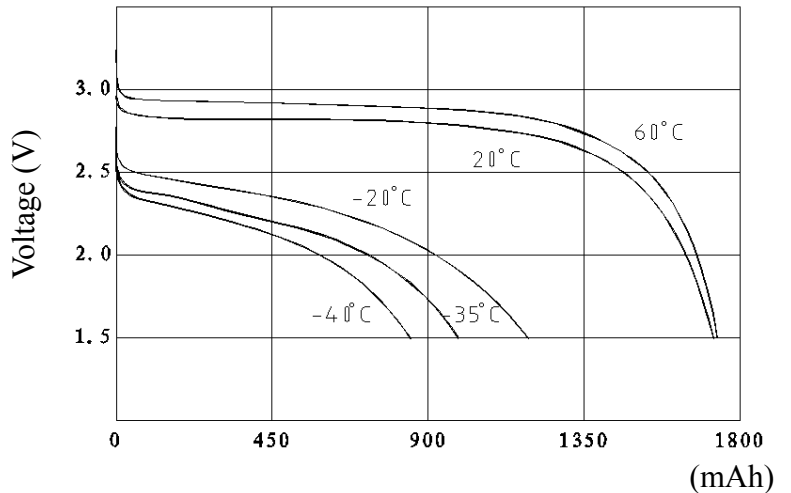


# HUALI BATTERY INDUSTRY CO.,LTD.

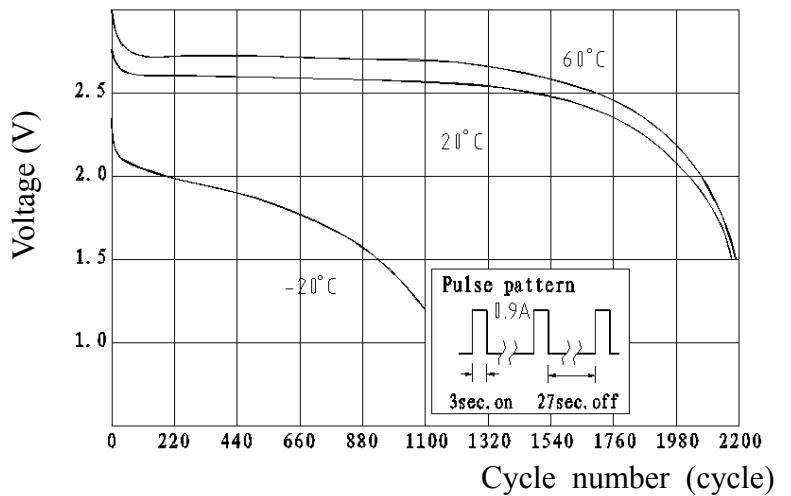
## LITHIUM BATTERY



Temperature characteristics(20mA)

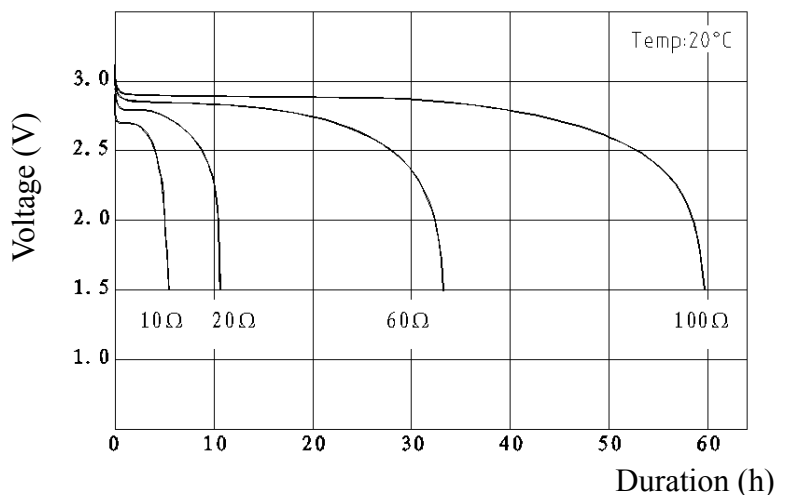


Pulse discharge characteristics



Model	CR123A
Nominal Voltage	3V
Nominal Capacity	1700mAh
Standard Discharge Current	20mA
Dimension	$\Phi 16.7 \times 34.1$ mm
Weight	15.8g
Temperature range	-40~60°C

Typical discharge characteristics



## HUALI BATTERY CO.,LTD.

1. Model Number : CR-123A
2. Nominal Voltage : 3 V
3. Nominal Capacity : 1700 mAh  
(Nominal capacity is based on standard discharge current and cutoff Voltage down to 1.5V at  $20\pm 5^{\circ}\text{C}$ )
4. Standard Discharge Current : 20 mA
5. Max. Continuous Discharge Current : 1500 mA
6. Construction
  - 6.1 Appearance, Dimensions : There shall be no noticeable deformation. The dimensions shall be according to the attached drawings.
  - 6.2 Weight : Approx. 15.8g
7. Performance
  - 7.1 Open Circuit Voltage : Min. 3 V
  - 7.2 Duration 1. ( at  $20\pm 2^{\circ}\text{C}$  )
    - 7.2.1 Pulse Discharge Conditions : Population Mean  $\geq 2000$  cycles
      - Pulse Current : 900 mA
      - One Cycle : 3 seconds on, 27 seconds off
      - Cut Off V. : 1.55 V
  - 7.3 Duration 2. ( at  $-20\pm 2^{\circ}\text{C}$  )
    - 7.3.1 Pulse Discharge Conditions : Population Mean  $\geq 1100$  cycles
      - Pulse Current : 900 mA
      - One Cycle : 3 seconds on, 27 seconds off
      - Cut off V. : 1.2 V
  - 7.4 Temperature Range : Discharge  $-40$  to  $60^{\circ}\text{C}$   
Storage  $-20$  to  $45^{\circ}\text{C}$
  - 7.5 Leakage Resistance : The battery shall not show leakage or salting which harms performance.
8. PTC ( Positive Temperature Coefficient ) Device Performance
  - 8.1 Appearance : There shall be no noticeable deformation and/or scratches.
  - 8.2 Resistance : The resistance shall be between 10 to 70  $\text{m}\Omega$  ( no load ).  
When 5 A flows, the resistance shall be more than 10  $\Omega$  before 80 seconds.
9. Test Conditions, Measuring Instruments and Measuring Methods
  - 9.1 Test Conditions : If not otherwise specified,  
Temperature :  $25\pm 5^{\circ}\text{C}$   
Humidity :  $65\pm 10\%$

## 9.2 Measuring Instruments

- i ) Volt Meter : Internal Impedance : More than  $1M\Omega$   
Accuracy : Less than 0.25%
- ii) Caliper : Accuracy : less than 0.25%
- iii) Balance : Sensitivity : More than 100 mg

## 9.3 Measuring Method

- i ) Outer Dimensions : This shall be measured with the caliper described in Item 9.2 ii ).
- ii) Weight : This shall be measured with the balance described in Item 9.2 iii ).
- iii) Appearance : Deformation or tarnish shall be visually checked.
- iv) Open Circuit Voltage : This shall be measured with the volt meter described in Item 9.2 i ).
- v ) Operating Time ( Duration ) : Operating time shall be measured with cycles until terminal voltage reaches the specified cut-off voltage.
- vi) Vibration Resistance : Amplitude ; 2 mm  
Number of Vibrations : 1000 rpm.  
Directions ; X, Y, Z  
Time ; 30 minutes in each direction
- vii) Leakage Resistance : Heat cycle test  
Leakage, appearance and outer dimensions shall be checked after 10 cycles according to MIL-STD-202E-106D.  
The battery shall be kept in a dry place. It should not show any dew point when stored in this condition.

## 10. Precautions for use

- 1) A battery shall not be stored at temperatures in excess of  $45^{\circ}\text{C}$ . Storage at less than  $30^{\circ}\text{C}$  is recommended. Storage at less than  $-40^{\circ}\text{C}$  can deform the plastic parts and may cause a leakage. To prevent self-discharge caused by corrosion, or decrease of insulation, humidity during storage shall be less than 70%.
- 2) The battery has an explosion resistant construction. But the following cautions should be taken, because combustible materials such as lithium metal and organic electrolyte are contained in the battery.
  - \* Do not use except in applicable model or equipment.
  - \* Do not connect more than three cells in series.
  - \* Do not mix different types (chemistries) of batteries.
  - \* Do not short circuit.
  - \* Do not dispose in fire.
  - \* Do not charge.
  - \* Do not disassemble.
  - \* Do not connect the wrong polarity (+, -)
- 3) Keep away from heat source of flame.
- 4) The battery shall not be washed by ultrasonic wave washer.