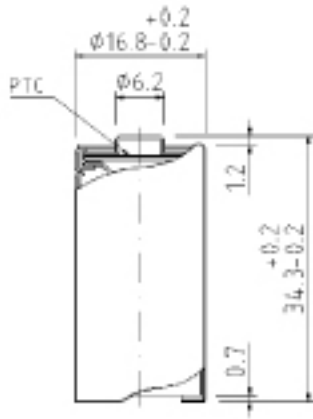
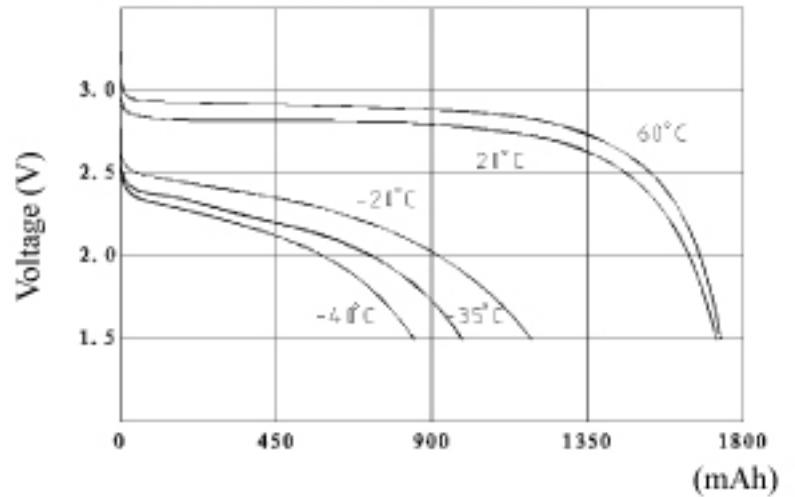


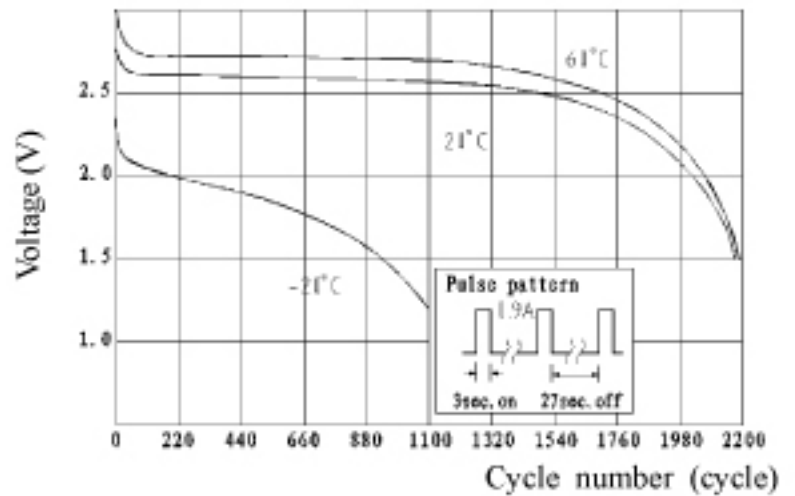
# LITHIUM BATTERY



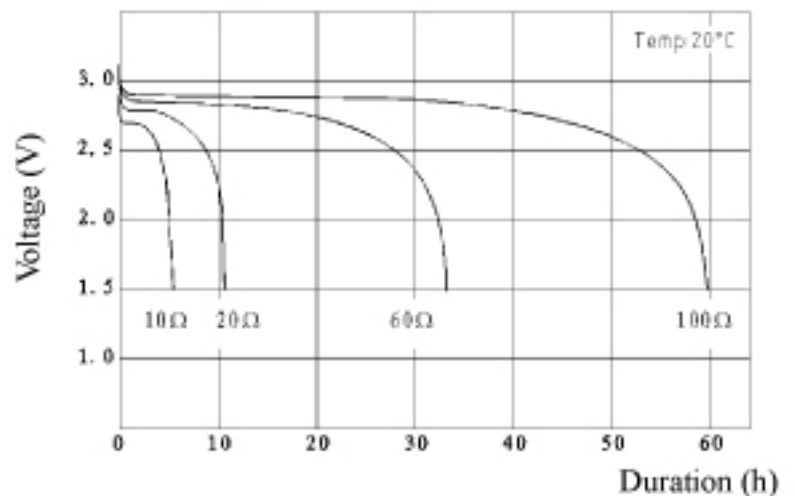
Temperature characteristics(20mA)



Pulse discharge characteristics



Typical discharge characteristics



Model	CR123A
Nominal Voltage	3V
Nominal Capacity	1700mAh
Continuous standard load	20mA
Dimension	$\phi 16.8 \times 34.3$ mm
Weight	15.8g
Temperature range	-40~60°C

1. Model Number : CR-123A
2. Nominal Voltage : 3 V
3. Nominal Capacity : 1700 mAh  
(Nominal capacity is based on standard drain and cutoff Voltage down to 2.0V at  $25\pm 5^{\circ}\text{C}$ )
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  $-40$  to  $75^{\circ}\text{C}$
  - 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 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 :  $65\pm 10\%$

Kinds of datas for discharge performance	
Discharge conditions	Average discharge results
Discharge at room temperature at the rate of 100mA	1696mAh
Discharge in an ambient temperature of -20°C,at the rate of 100mA	1170mAh
Discharge in an ambient temperature of -35°C,at the rate of 20mA	990mAh
Discharge in an ambient temperature of 60°C,at the rate of 100mA	1789mAh
Discharge at room temperature at 20 Ohm	13h
Discharge at room temperature at 10 Ohm	6.55h
Discharge at room temperature at 60 Ohm	38h
Pulse discharged at room temperature, at the current of 1.2A (3sec.on 27sec.off)	1576cycles
Pulse discharged at room temperature, at the current of 0.9A (3sec.on 27sec.off)	2237cycles
Pulse discharged in an ambient temperature of 60°C,at the current of 1.2A (3sec.on 27sec.off)	1573cycles
Average parameters	0.28 Ohm, 3.33V, 14A

## 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 short circuit.
  - \* Do not dispose in fire.
  - \* Do not charge.
  - \* Do not disassemble.
- 3) Keep away from heat source of flame.
- 4) The battery shall not be washed by ultrasonic wave washer.