

LITHIUM BATTERY

CR123A

SPECIFICATION

Date: April 24, 2012

Approved by: Scotty Scott

**PANASONIC ENERGY CORPORATION OF AMERICA
LITHIUM BATTERY DIVISION**

1. Designation	:	CR123A
2. Nominal Voltage	:	3 V
3. Nominal Capacity	:	1550 mAh
	Load	: 100 Ω at 20 °C
	Cut Off V	: 2.0 V
4. Max. Continuous Discharge Current	:	1000 mA at 20 °C
5. Construction		
5.1 Appearance, Dimensions	:	There shall be no noticeable deformation. The dimensions shall be according to the attached drawings.
5.2 Weight	:	Approx. 17 g
5.3 Safety Device	:	PTC device installed inside cell
6. Performance		
6.1 Open Circuit Voltage	:	Min. 3 V
6.2 Duration 1. (at 21 \pm 2°C)		
6.2.1 Pulse Discharge Conditions	:	Average 1900 cycles
	Pulse Current	: 900 mA
	One Cycle	: 3 seconds on, 27 seconds off
	Cut Off V.	: 1.55 V
6.3 Duration 2. (at - 21 \pm 2°C)		
6.3.1 Pulse Discharge Conditions	:	Average 1100 cycles
	Pulse Current	: 900 mA
	One Cycle	: 3 seconds on, 27 seconds off
	Cut Off V.	: 1.55 V
6.4 Impedance	:	Max. 1.0 Ω
6.5 Vibration Resistance	:	Deterioration of performance shall not occur.
6.6 Temperature Range	:	Discharge -20 to 60 °C Storage -20 to 45 °C Note: Contact Panasonic in case of continuous usage in temperatures over 60°C.

6.7 Leakage Resistance : The battery shall not show leakage or salting.

6.8 Recommended Storage Conditions : Temperature: 5° C to 35° C
Humidity: Less than 70% RH

7. Test Conditions, Measuring Instruments and Measuring Methods

7.1 Test Conditions : If not otherwise specified,
Temperature 25 ± 5 °C
Humidity 65 ± 10% RH

7.2 Measuring Instruments

- i) Volt Meter : Input impedance $\geq 10M\Omega$
: Accuracy $\leq 0.5 \%$
- ii) Battery Impedance Meter : Sine wave AC method (1 kHz, 0.1mA)
(Hioki 3560)
- iii) Caliper : Accuracy $\leq 1 \%$ by JIS
- iv) Balance : Sensitivity $\leq 100 \text{ mg}$

7.3 Measuring Method

- i) Outer Dimensions : This shall be measured with the caliper described in Item 7.2 iii).
- ii) Weight : This shall be measured with the balance described in Item 7.2 iv).
- iii) Appearance : Deformation or blemish shall be visually checked.
- iv) Open Circuit Voltage : This shall be measured with the volt meter described in Item 7.2 i).
- v) Operating Time (Duration) : Operating time shall be measured with cycles until terminal voltage reaches the specified cut -off voltage.
- vi) Battery Impedance : This shall be measured by the meter described in Item 7.2 ii).
- vii) Vibration Test : This test shall be performed in accordance with UN Manual of Test and Criteria section 38.3.4.3.
- viii) Leakage Resistance : This shall be checked in accordance with IEC 60086-4 6.4.2

8. Indication

8.1 Date Code System: **MM-YYYY** expiration date

Example:

01-2021

01= January (month of manufacture)

2021 = 2011 (year of manufacture) + 10 years

Final method to be determined pending customer requirement.

8.2 UL Standard

This battery is certified by Underwriters Laboratories under UL 1642, Lithium Batteries. The UL file number is MH12210.

8.3 Production Site

Panasonic Energy Corporation of America - Lithium Battery Division
One Panasonic Drive, Columbus, GA 31907, U.S.A.

9. Operations and Modification of This Specification

Modification must be carried out under mutual agreement. Any accidents caused by non-described items in this specification must be discussed and solved mutually.

10. Important Notes (Warranty)

1) The batteries are warranted to conform to the description contained in this specification for a period twelve [12] months from the ex-factory date and any claim by you (customer) must be made within such period.

During that warranty period, if the batteries are proved to become defective, replacement batteries will be supplied in due course at sole expense of Panasonic Energy Corporation of America – Lithium Battery Division upon Panasonic Energy Corporation of America – Lithium Battery Division’s own determination that this is apparently caused by negligence of Panasonic Energy Corporation of America – Lithium Battery Division.

Any further claims based on the delivery of defective batteries shall be excluded. Such exclusion shall not affect the liability of Panasonic Energy Corporation of America – Lithium Battery Division based on product liability for grossly negligent or intentional behavior of Panasonic Energy Corporation of America – Lithium Battery Division.

2) Confirmation of the matching and reliability of batteries into your actual sets or units is your own responsibility.

3) Panasonic Energy Corporation of America – Lithium Battery Division shall not warrant or be responsible in any case where your failure to carry out proper handling, operating, installation, testing, service and checkout of the batteries and / or to follow the instructions, cautions, warnings, notes provided in these specifications, or other Panasonic Energy Corporation of America – Lithium Battery Division reasonable instructions or advice.

4) You will be responsible for any tabbing and lead wire (with connector) application.

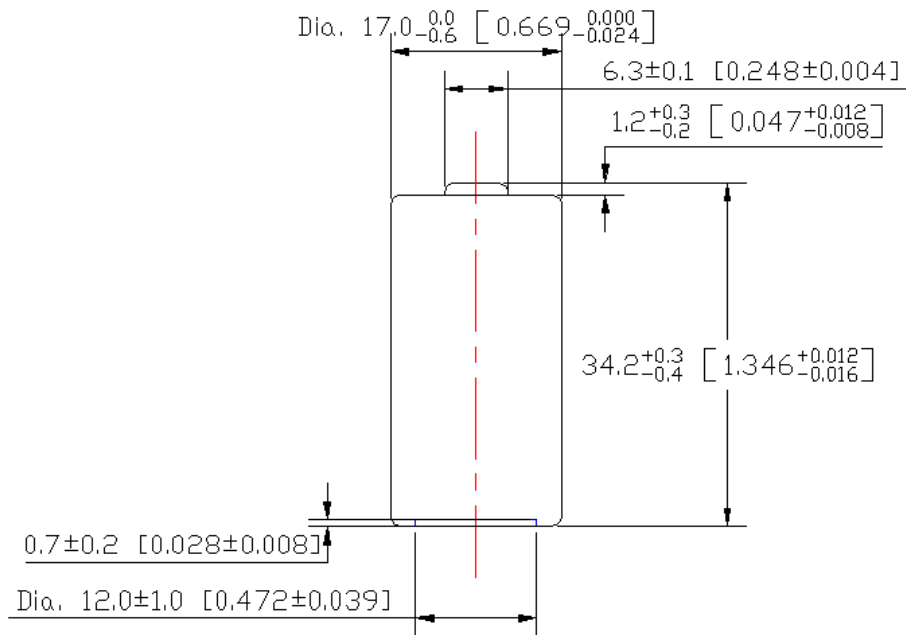
11. Others

- 1) This battery was developed for camera use. It is recommended that the batteries should be replaced within two years if it is used for an application other than camera use.
- 2) This battery has passed the T-Test requirements of the UN Transport of Dangerous Goods – Manual of Test and Criteria.
- 3) This battery does not contain any toxic materials such as mercury, cadmium, or lead.

12. Precautions for use

- 1) The battery shall not be stored at temperatures in excess of 45°C. Storage at less than 35° C is recommended. Storage at less than –20°C can deform the plastic parts and may cause leakage. To prevent self-discharge caused by corrosion or decrease of insulation, humidity during storage shall be less than 70%RH.
- 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 two cells in series.
 - Do not mix new (fresh) and old (end of life) batteries.
 - Do not force-discharge
 - 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 heat up more than 100°C.
 - Do not solder directly onto batteries.
 - Do not soak in water.
 - Do not deform.
 - Do not inadequately modify and remodel for installation.
 - Insert the batteries in correct polarity position.
 - Keep in original packaging until ready to use.
- 3) Keep away from heat source or flame.
- 4) The battery shall not be washed by ultrasonic wave washer.
- 5) Keep away from children and infants to prevent accidental swallowing.
- 6) Set up diodes for each battery in parallel to protect against over-discharge when more than three batteries are connected in series. Reason: If a diode is not set up for each battery in parallel, when one battery dies earlier than the others, the dead battery will over-discharge and there is a possibility that the over-discharged battery will rupture or catch fire. The battery pack manufacturer is responsible for selection of the diode.
- 7) Check battery pack voltage after the pack has been assembled.

CR123A Product Drawing



Product Type	:	Lithium battery
Voltage	:	3V
Terminals	:	Flat Contacts
Jacket	:	Resin Label
Unit	:	mm (inch)
Scale	:	none