



CR123A (Artikel-Nr. 2002809)

PEOPL

SPECIFICATION	
Manganese dioxide Lithium Battery	
Ordering Code :	CR-123AL/BN
Model Code :	CR123A
Customer PN :	CO-AA14-002-0123
Approved by	
Division/Department	
Name	
Title	
Signature/date	

Approved	Checked	Drafted
 PT. Panasonic Gobel Energy Indonesia	 Jan 31 2017	

Date of Issued : Jan,31,2017

PT. Panasonic Gobel Energy Indonesia



Revision history



No	Date	Revision
1	Jan,31,2017	Issued
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1. Application Range

This specification applies to Manganese dioxide lithium batteries manufactured by PT. Panasonic Gobel Energy Indonesia (PEGI).

2. Nominal Specification

2-1 Model Number	CR123AL/B, /1BP (Bare cell: CR123A)
2-2 Nominal Voltage	3V
2-3 Nominal Capacity	1,400mAh (Nominal capacity is based on the standard discharge current and cut-off voltage 1.8V at 20°C.)
2-4 Standard Discharge Current	20mA
2-5 Maximum Continuous Discharge Current	1A at 20°C
2-6 Dimensions	See attached drawing
2-7 Mass	Approximately 17g
2-8 Appearance	No noticeable deformation
2-9 Temperature	Operation -40 to +70°C (Non condensing) Storage -40 to +70°C (Non condensing) (Note: Contact Panasonic in case continuous high-temperature over +60°C usage conditions.)
2-10 Recommendable Storage Condition	Temperature: 5°C to 35°C Humidity: Less than 70%RH
2-11 Battery Composition	Lithium primary battery composed of cathode from Manganese dioxide, anode from lithium, and electrolyte from organic solvent and lithium salt.

3. Characteristics

3-1 Open Circuit Voltage	
3-1-1 Initial	Between 3.0 and 3.5V (The measuring method described in item 5-4-1.)
3-1-2 After 1 year (storage at 25± 5°C)	Between 3.0 and 3.5V (The measuring method described in item 5-4-1.)
3-2 Impedance	
3-2-1 Initial	Between 0.1 and 1.0Ω (The measuring method described in item 5-4-2.)
3-2-2 After 1 year (storage at 25± 5°C)	Between 0.1 and 1.0Ω (The measuring method described in item 5-4-2.)
3-3 Duration (Pulse cycles)	
3-3-1 Initial	1500cycles MIN. (20±3°C) 700cycles MIN. (-20±3°C) (The measuring method described in item 5-4-3.)
3-3-2 After 1 year (storage at 25± 5°C)	1500cycles MIN. (20±3°C) 700cycles MIN. (-20±3°C) (The measuring method described in item 5-4-3.)



3-4 Vibration Resistance	Deterioration of performance (3-1) shall not occur after the test described in item 5-4-4.
3-5 High Temperature Storage	The battery shall not show leakage or salting after the high temperature storage described in item 5-4-5.

4. Test Condition

4-1 Test Condition	Unless otherwise specified the test shall be carried out at, Temperature : $20 \pm 15^{\circ}\text{C}$ Humidity : $65 \pm 20\%\text{RH}$
4-2 Test Timing	The test shall be started within a month from delivered day.
4-3 Measurement Instrument	
4-3-1 Voltage Meter	Input impedance : $\geq 10\text{M}\Omega$
4-3-2 Battery Impedance Meter	Measurement error : $\leq 0.5\%$ Sine-wave AC method (1kHz, 0.1mA) (As a general, Agilent Technologies LCR Meter [4338B] is recommended.)
4-3-3 Caliper	Class 1 of JIS B 7507:1993
4-3-4 Balance	Sensitivity : $\leq 100\text{mg}$

5. Measuring Method

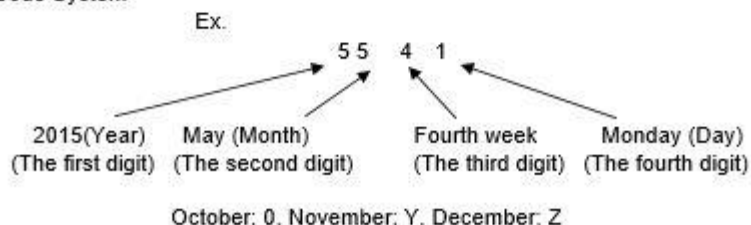
5-1 Dimensions	This shall be measured with the caliper described in item 4-3-3.
5-2 Mass	This shall be measured with the balance described in item 4-3-4.
5-3 Appearance	Deformation or tarnish shall be checked by visual observation method.
5-4 Characteristics	
5-4-1 Open Circuit Voltage	This shall be measured with the voltage meter described in item 4-3-1.
5-4-2 Impedance	This shall be measured with the impedance meter described in item 4-3-2.
5-4-3 Duration (Pulse cycles)	This shall be measured by pulse discharge method. The condition is Test temperature : $20 \pm 3^{\circ}\text{C}$ $-20 \pm 3^{\circ}\text{C}$ Pulse pattern : 0.9A 3secON \Leftrightarrow 27secOFF End voltage : 1.55V ($20 \pm 3^{\circ}\text{C}$) 1.20V ($-20 \pm 3^{\circ}\text{C}$)
5-4-4 Vibration Test	This test shall be carried out by the following condition according to UN Manual of Test and Criteria, Part III, sub-section 38.3.4.5, Amplitude: 0.8mm Frequency: 7 \Leftrightarrow 200Hz Directions: X, Y, Z Duration: 15 minutes, 12 times (each direction)
5-4-5 High Temperature Storage	The battery shall be stored at 60°C for 1 month. After the storage, the battery shall be kept in dry place at $25 \pm 5^{\circ}\text{C}$ during 4 hours, then leakage and appearance shall be checked by visual observation method.

6. Indication

6.1 Below items are indicated on the battery or its package. (Design of indication can be changed without notice.)

Model code	CR123A
Nominal voltage	3V
Manufacture or its brand	Panasonic
Production	Indonesia

6.2 Date Code System



6.3 UL Standard

This battery is certificated by UL and listed on the file number MH12210.



6.4 Production Site

PT. Panasonic Gobel Energy Indonesia (PEGI)
Jl. Teuku Umar Km. 44, Cikarang Barat Bekasi, Jawa Barat Indonesia

7. 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.

8. Important Notes (Warranty)

1) The batteries are warranted to conform to the description contained in this Specification for a period of twelve [12] months from the ex-factory date and any claims by the customer addressed on the cover page of this specification must be made within such period. During that warranty period, if the Batteries are proved to become defective, non-defective and conforming batteries will be supplied in due course at sole expense of PT. Panasonic Gobel Energy Indonesia ("PEGI") or PEGI credits our customers for battery at contract price upon return of such batteries upon PEGI's own determination that this is apparently caused by negligence of PEGI. Any further claims based on the delivery of defective Batteries shall be excluded. Such exclusion shall not affect the liability of PEGI based on product liability for grossly negligence or intentional behavior of PEGI.

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

3) PEGI shall not warrant or be responsible in any case where your fails 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 this Specifications, or other PEGI's reasonable instructions or advice.

4) PEGI shall not be held responsible for any issues caused by modifications to the battery taken place after that the battery is delivered to the customer end from PEGI.

5) In case of the battery is resold to any other parties through the customer addressed on the cover page of this specification, the customer shall take sole and full responsibility for its resale customers to comply with the cautions described in the section 10 below in order to prevent unsafe incidents, expanding, electrolyte leakage, explosion or catching fire by over-discharging, recharging, overheating. PEGI shall not be held any responsibilities for any incidents occurred in connection with the use of the battery by its resale customers not following cautions in the specification. Customer shall indemnify PEGI and their respective directors, officers, employees, agents, successors and assigns ("Indemnitee") and shall defend and hold all and each of the Indemnitees harmless from and against all claims, demands, suits, actions, liabilities, judgments, losses, damages or costs and expenses (including reasonable attorney's fees and costs of litigation) (collectively "Liabilities") arising from or in connection with the use of the battery by customer and its resale customers.

9. Others

1) CR123A is originally developed for Camera use. Strongly recommended replacing the battery within two years from first use if it's used for other usages, out of Camera.

2) This product specification will be validated assuming that it is accepted when it is not returned within six months from the date of issue.



- 3) The weight of lithium metal content in this battery is within the limit of dangerous goods in regulations of transportation such as IATA, IMO, or DOT.

This battery is certificated UN Recommendation on the Transport of Dangerous Goods.

- 4) This battery does not contain any toxic materials, such as mercury, cadmium or lead.

10. Precautions for use

- 1) Storage at less than 35°C is recommended. Storage at less than -20°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%RH.

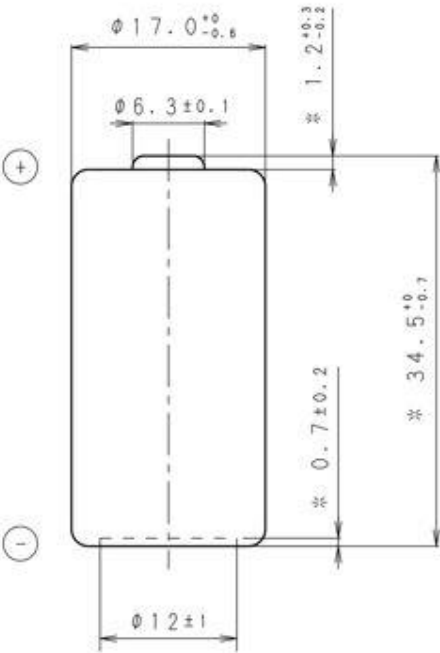
- 2) The battery has an explosion resistant construction. But the following cautions should be taken, because combustible materials such as lithium metal and organic electrolyte are contained in the battery.

- * Do not use except in applicable model or equipment.* Do not connect batteries in series more than two cells * 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 inadequacy modify and remodel for installation.* Insert the batteries in correct polarity position.

- 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 the possibility of swallowing by mistake.

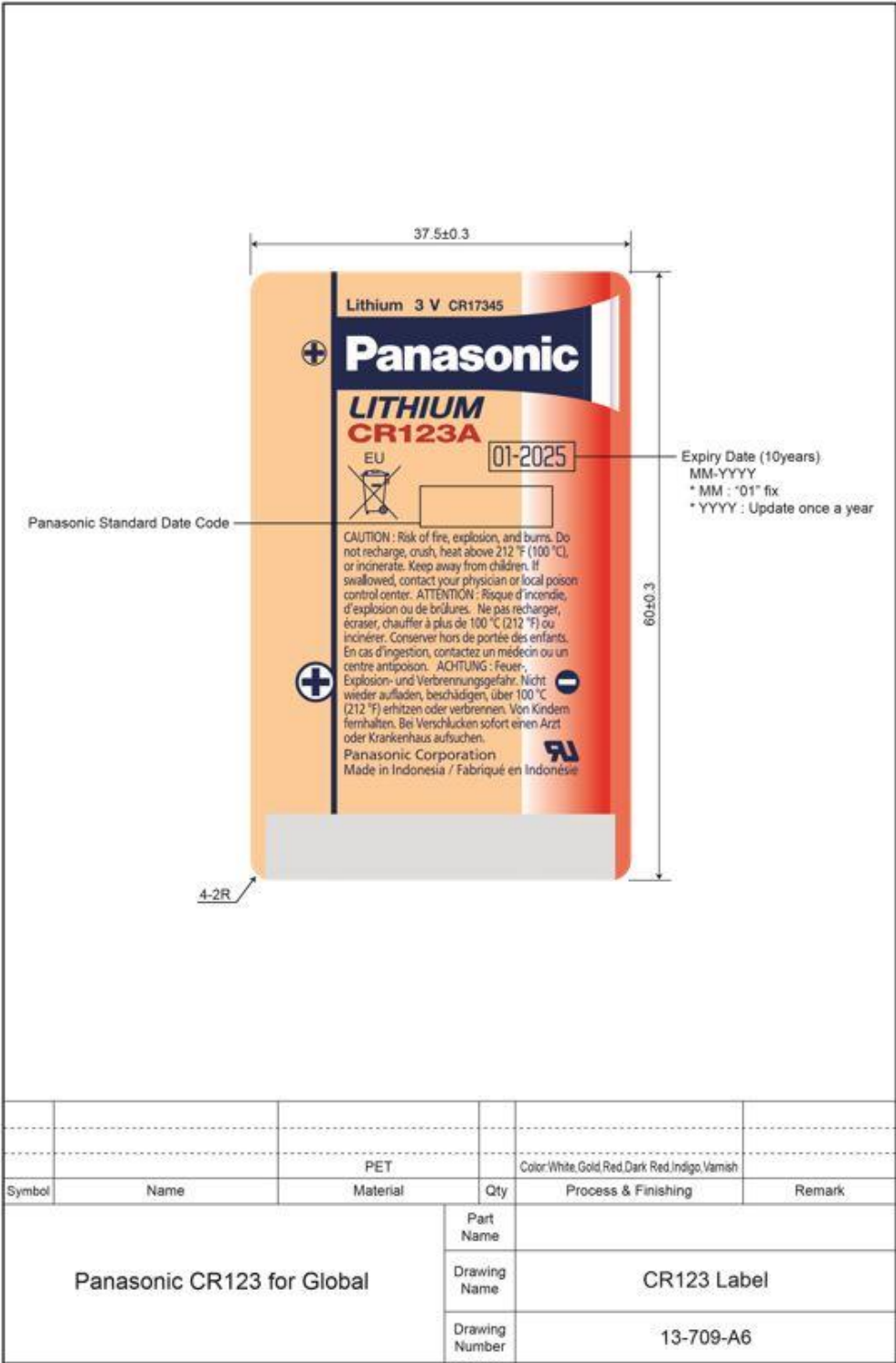





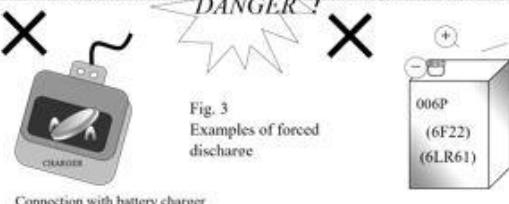
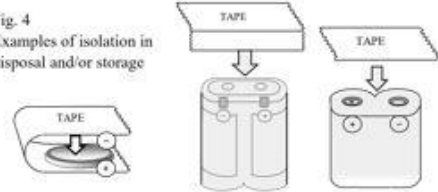
NOTE [注記]
1. *: DIMENSIONS DO NOT INCLUDE
DOUBLE SEAMS OF OUTER FILM LABEL.
[*: ラベルの合わせ目は除く寸法]
2. THE FOLLOWING ITEMS ARE INDICATED
ON BATTERIES. [電池に下記の表記を行う]
BATTERY NAME, BATTERY PN, NOMINAL
VOLTAGE, CAUTIONS AND etc.
[電池名称・電池品番・公称電圧及び注意事項等]

MODEL NO.	CR123A	SCALE	
		2 : 1	
DRAWING NO.	P_CR123A	REV.	
		0	
		UNIT:mm	

Panasonic Corporation

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Battery Safety Practices	
 Warning	Avoiding hazards in lithium battery handling
	<p>Mishandling batteries can cause battery leakage, heat generation, rupture, ignition etc., and to possible fire or injury.</p>
<p>1. Do not Short circuit</p> <p>and/or fire, production, heat generation, explosion such as necklaced</p>	<p>and cylinder type of lithium batteries contain flammable materials such as lithium, organic solvent and other chemical ingredients. Improper may result in heat generation, fire or explosion, with a risk of personal injury or damage. To prevent these accidents in battery handling, g precautions.</p> <p>plus(+) and minus(-) poles</p> <p>any batteries with metallic (</p> <p>Fig. 1 Short circuit</p>  <p>Fig. 2 stacked & jumble batteries</p>  <p>2. Do not stack and/or</p> <p>Refer fig.1) jumble batteries</p> <p>ed batteries may cause short discharge by the contact of may result in leakage, heat</p> <p>generation, explosion</p> <p>generation, explosion</p> <p>tion with the 006P(9V) type high risk of leakage, heat</p> <p>(Refer fig.2 & 3)</p> <p>3</p> <p>forced discharge</p> <p>external power source, the to negative and this cause ide of the battery. This may t generation, explosion (fig.3)</p> <p>explosion and/or</p> <p>fire, problems.</p> <p>Fig. 3 Examples of forced discharge</p>  <p>Connection with battery charger</p> <p>Fig. 4 Examples of isolation in disposal and/or storage</p>  <p>4</p> <p>* When using the stored battery, please remove the tape perfectly to avoid high contact resistance (Refer fig.4) . Do not dispose</p> <p>5. Do not heat batteries</p> <p>Heating batteries in fire is extremely dangerous with a risk of explosion and violent flaring.</p> <p>6. Do not solder</p> <p>°C (212°F) may damage the resin in crimping, separator and other parts, causing electrolyte leak, internal short circuit, fire explosion.</p> <p>7. Do not charge batteries</p> <p>batteries may damage the resin in crimping, separator and other parts, causing electrolyte leak, internal short circuit, fire and</p> <p>8. Do not disassemble batteries</p> <p>batteries may result internal gas generation, causing electrolyte leak, battery swelling, fire and explosion.</p> <p>is may cause gas generation that may irritate your throat. Lithium may also react with moisture to generate heat and fire.</p> <p>9. Do not deform batteries</p> <p>essure to batteries may cause deformation of the crimping and internal short circuit, causing electrolyte leak, battery swelling, fire and explosion.</p> <p>ferent type batteries</p>



10	is, mixing of different type batteries, or new and old batteries, can cause over discharge due to differences in voltage and discharge capacity of swelling and/or explosion.	
11	<p>batteries with opposite polarity</p> <p>ie, battery insertion with opposite polarity (reverse insertion of plus and minus) may result in leakage, heat generation, explosion and/or fire.</p> <p>the above precautions are strictly observed by related divisions including production departments, and external subcontractors. For additional details and information, please contact our sales s.</p>	