GP Batteries

Product Specifications ***Model No.:GP15A***

1. APPLICABILITY

This specification is applicable to GP Super Alkaline Cell, GP15A(No mercury added).

2. GENERAL

2.1	Type designation	: LR6 (IEC/JIS), 15A (ANSI)
2.2	Nominal voltage	: 1.5V
2.3	Shape and dimension	: Refer to Drawing 1.
2.4	Typical weight	: 24g
2.5	Warranty period	: 36 months
2.6	Jacket	: Foil jacket

3. APPEARANCE

There shall be no dirt, scratch or deformation detrimental to practical service in appearance.

4. CELL VOLTAGE

4.1 Test method

Method of sampling	: MIL-STD-105E level II single sampling normal inspection.
Voltmeter	: Digital Voltmeter (DVM) with the precision of 1mV (internal resistance not less than 1 Megohm)
Test temperature	: 20±2°C

4.2 Off Load Voltage

At shipping	12 months after manufactured
1.50-1.65V	1.50-1.65V

4.3 On Load Voltage

Initial	12 months after manufactured
Above 1.40V	Above 1.35V

Load resistance : 3.9 ohm ± 0.5% (measure time : 0.3 seconds)

5. SERVICE OUTPUT

5.1 Test method

(1) The resistance of external discharge circuit shall be as specified plus or minus 0.5%.

(2) The duration of discharge time periods shall be as specified plus or minus 1%.

(3) Storage shall be at 20±2°C, 65±20%RH and discharge tests shall be at 20±2°C, 65±20%RH.

5.2 Service Life

	Test Mode	**Application**	**Standard**	**Initial (Nominal)**	**Initial (Minimum)**	**12 months storage at 20°C (Nominal)**
Service life at 20±2°C	43Ω 4H/D (EPV=0.9V)	Transistor radios	IEC/ANSI	90H	88H	89H
	3.9Ω 1H/D (EPV=0.8V)	Motor/toy	IEC/ANSI	7.2H	7.0H	7.0H
	10Ω 1H/D (EPV=0.9V)	Tape recorders	IEC/ANSI	19.2H	18.6H	18.6H
	24Ω 15s/M, 8h/D (EPV=0.9V)	Remote control	IEC	42H	40H	41H
	250mA 1H/D (EDV:0.9V)	Electronic Games, Compact Disks & Mini Disks	ANSI	6.4H	6.2H	6.0H
	1000mA 10s on, 50s off 1H/D (EPV=0.9V)	Photo flash	IEC/ANSI	420cycles	370cycles	320cycles
	1000mA 24H/D (EPV=1.0V)	Digital Camera	ANSI	30M	20M	24.7M
	10Ω continuous (EPV=0.9V)	Reference test		19.0H	18.2H	18.4H

s: second M: minute H: hour D: day EPV: end point voltage

*The initial discharge test shall commence within 30 days of manufacture. During this period, the cells shall be stored under room temperature conditions.
(20±2°C and 65±20% relative humidity)

5.3 Operating temperature: -20°C to 54°C (65±20%RH)

5.4 Storage temperature: -30°C to 45°C (65±20%RH)

6. ELECTROLYTE LEAKAGE

6.1 Leakage on arrival at warehouse.

Check with naked eye.

6.2 Leakage at room temperature

After storing for 12 months at 20±15°C, 65±20%RH, check with naked eye.

6.3 Leakage at high temperature

Within thirty days of manufacture, the cell shall be stored for 30 days at 45±2°C and below 70% relative humidity, check with naked eye.

6.4 Leakage of over discharge

After loading with 10 Ohm continuously down to 0.6V at 20±2°C, 65±20%RH, check with naked eye.

7. QUALITY ASSURANCE

DESCRIPTION	SAMPLING PLAN
Battery dimensions	0.65% (Note 5)
Appearance	1.0% (Note 5)
Off load voltage	0.65% (Note 5)
On load voltage	1.0% (Note 5)
Service output	Note 1 (Note 5)
Leakage 6.1	0.65% (Note 2 & 5)
6.2	Note 3
6.3	Note 4
6.4	Note 4

Note 1 : Acceptance / rejection in accordance with IEC publication 60086-1 (2007), Sub-clause 5.3.

1) Test nine batteries.
2) Calculate the average without the exclusion of any result.
3) If this average is equal to or greater than the specified figure and no more than one battery has a service output of less than 80% of the specified figure, the batteries are considered to conform for service output.
4) If this average is less than the specified figure and/or more than one battery has a service output of less than 80% of the specified figure, repeat the test on another sample of nine batteries and calculate the average as previously.
5) If the average of this second test is equal to or greater than the specified figure and no more than one battery has a service output of less than 80% of the specified figure, the batteries are considered to conform for service output.
6) If the average of second test is less than the specified figure and/or more than one battery has a service output of less than 80% of the specified figure, the batteries are considered not to conform and no further testing is permitted.

Note 2: Leakage on arrival at warehouse is within two months after shipping.

Note 3: Sample size : n=20
Judgement : Ac=1 Re=2
Note 4: Sample size :n=20
Judgement :Ac=0, Re=1
Note 5: AQL General Inspection level II, single sampling plan.

8. PACKAGING

Packaging shall be a form agreed by both parties.

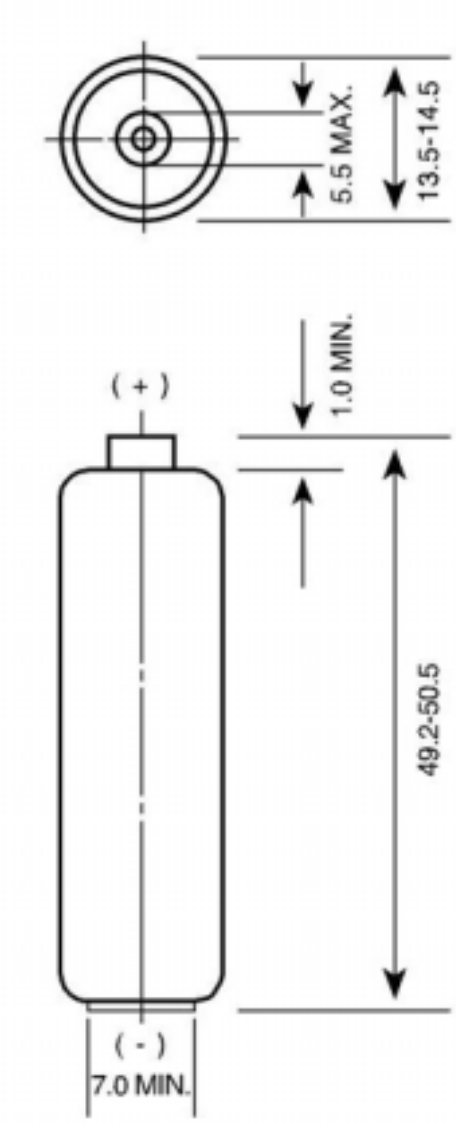
Precaution & Handling

1. Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated or fire may result. The alkaline electrolyte is harmful to eyes and skin, and it may damage clothing upon contact.
2. Keep away from children. If swallowed, contact a physician at once.
3. Do not mix GP batteries with other battery brands or batteries of a different chemistry such as alkaline and zinc carbon.
4. Do not short circuit batteries, permanent damage to batteries may result.
5. Do not incinerate or mutilate batteries, may burst or release toxic material.
6. Do not solder directly to cells or batteries.
7. Store batteries in a cool dry place.
8. If find any noise, excessive temperature or leakage from a battery, please stop its use.
9. When not using a battery, disconnect it from the device.
10. Do not mix new batteries in use with semi-used batteries.
11. When find battery power down during use, please switch off the device and take batteries out.
12. Never put a battery into water or seawater.
13. Do not recharge batteries.

Storage

1. Store in a cool, dry place before use.
2. Do not keep batteries at temperature of 45°C or above.
3. Do not keep batteries at relative humidity of 75% or above.

Drawing 1



Unit: mm