

# GP Batteries

## Product Specifications

Model No.:GPCR1/3N

Document Number: CR00011

Revision:02

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## 1. APPLICABILITY

This specification is applicable to GP Manganese Dioxide Lithium Primary Cell GPCR1/3N.

## 2. GENERAL

2.1	Type designation	: CR1/3N(IEC/JIS)
2.2	Nominal voltage	: 3V
2.3	Typical capacity	: 160mAh
2.4	Shape and dimension	: Refer to Drawing 1.
2.5	Typical weight	: 3.3g
2.6	Shelf life	: 5 years

## 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
Above 3V	Above 3V

### 4.3 On Load Voltage

Initial	12 months after manufactured
Above 2.9V	Above 2.9V

Load resistance : 1k ohm ± 0.5% (measure time : 0.3 seconds)

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## 5. Service Life

	Test Mode	Initial (Nominal)	Initial (Minimum)	12 months storage at 20°C (Nominal)
Service life at 20±2°C	1kΩ24H/D (EPV=2.0V)	60H	55H	50H

H: hour    D: day    EPV: end point voltage

Note:

- Initial test: A test commencing within one month after delivery.
- Storage test: A test conducted after 12 months storage under the specified conditions after delivery.

## 6. ELECTROLYTE LEAKAGE

### 6.1 Leakage on arrival at warehouse.

Leakage shall be checked with naked eye. No leakage shall be observed with the naked eye; and no bulging exceeding the maximum dimensions shall result.

### 6.2 Leakage at room temperature

After storing for 12 months at 20 ±15°C, 65±20%RH, no leakage shall be observed with the naked eye; and no bulging exceeding the maximum dimensions shall result.

### 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, no leakage shall be observed with the naked eye; and no bulging exceeding the maximum dimensions shall result.

### 6.4 Leakage of discharge

After loading with 1kΩ continuously down to 2.0V at 20±2°C, 65±20%RH, no leakage shall be observed with the naked eye; and no bulging exceeding the maximum dimensions shall result.

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## 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.

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## Precaution & Handling

- 1) Do not disassemble or short-circuit batteries.
- 2) Do not recharge batteries.
- 3) Do not dispose of batteries in fire.
- 4) Do not allow metal objects to contact the battery terminals.
- 5) Do not mix with used or other battery type (such as alkaline with carbon zinc).
- 6) Do not solder the batteries directly. If soldering or welding connection to the battery is required, consult our engineer for proper methods.
- 7) Do not over-discharge batteries. Force discharging batteries by external power source in a series may cause explosion.
- 8) To install or remove batteries, follow the equipment manufacturer's instructions.
- 9) Keep battery away from small children. If swallowed, consult a physician at once.
- 10) Remove batteries from device when it is not in use.

## 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.

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Drawing 1

