



PRODUCT SPECIFICATION

23A SIZE BATTERY

Type Designation: 23A

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1. Scope:

This specification is applicable to Pairdeer high voltage alkaline cell, 23A, distributed by ZHONGYIN (NINGBO) BATTERY CO., LTD.

2. Law & Regulation Compliances:

This product complies with EU's battery directive (2006/66/EC).

Packaging materials comply with EU's directive on packaging materials and waste (94/62/EC)

3. General:

3.1 Type designation

GP	23A
Duracell	MN21

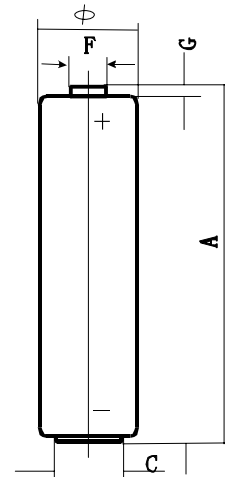
3.2 Chemical system: Zinc / Manganese Oxide

3.3 Nominal voltage: 12 V

3.4 Weight: Approximate 7.9g

3.5 Dimension (mm)

/	min	max
Φ	9.6	10.6
A	27.5	28.5
C	-	0.3
F	5.2	5.8
G	0.5	-



3.6 Capacity: Approximate 55mAh (20k Ω , 24h/d, 20°C, e.v.:6.0V)

4. Appearance

The battery visually inspected by unaided eye 30cm away from battery. The battery shall be free from dents, scratch, rust and extruded internal compounds, such as sealing compounds and etc, and serious displacement of artwork. Appearance defects shall not be observed that may adversely affect actual use or performance of batteries.

5. Electrical Characteristics

Unless otherwise stated, all measurements are to be performed at a **Standard Environment** of

20 ± 2°C
60 ± 15% RH.

All samples are normalized for 8 hours at least at the above environment prior to measurement. The digital voltmeter (DCM) is with the precision of 1mV (internal resistance not less than 1 Megohm). The load resistance of the total circuit is accurate within $\pm 0.5\%$ of the specified value.

5.1 Open circuit voltage and closed circuit voltage (Load resistance 400 Ω , 0.3S)

/	OCV(V)	CCV(V)
Initial	≥ 12.0	≥ 9.5

5.2 Service output

Load	10K Ω
Test mode	24h/d
end voltage	6.0V
Initial	≥ 54 h
the delayed discharge performance stored 12 months is above 90% of initial	

m: minute h: hour d: day

*The initial discharge test shall commence within 30 days of manufacture. During stored period, the cells shall be stored under room temperature conditions.

6. Leakage Resistance

6.1 High temperature leakage test

Samples: 60pcs

Test conditions: store 20 days under 60 $\pm 2^{\circ}\text{C}$ & RH 90 $\pm 5\%$, then store 4~24h under 20 $\pm 2^{\circ}\text{C}$ & RH 60 $\pm 15\%$.

Requirement: no visible leakage.

7. Expiry Date:

1 year

8. Expiry Date Marking:

8.1 Unless otherwise specified, each battery will carry a manufacturing date code followed by month and year of manufacturing for domestic and manufacturing date code followed by month and year of expiry for export. (Shelf life 1 year)

8.2 For private label, can mark according to customer's requirements..

9. Packaging Requirements

9.1 The total of heavy metal lead, cadmium, mercury, and hexavalent chromium concentration shall not exceed 100 ppm in Packaging materials and printing inks. Ozone depleting substances (ODS) shall not be used in the manufacturing of any packaging.



The printing on each cell label is legible and permanent. Label defects, if any, shall conform to mutually agreed upon limit samples.

9.2 Otherwise packaging for shipment and sales shall conform to the mutually agreed to Packaging Specification of the designated customers.

10. Material Safety Data Sheet

Composition /Information on Ingredients:

Chemical Nature: Alkaline zinc-manganese dioxide batteries

MATERIALS	APPROXIMATE PERCENT OF TOTAL WEIGHT (%)	MATERIALS	APPROXIMATE PERCENT OF TOTAL WEIGHT (%)
Manganese Dioxide (MnO ₂)	16.8	Hg	<0.2
Zinc Powder (Zn)	5.6	Pb	<0.0030
Sodium Hydroxide and Potassium Hydroxide mixture, 30-35% solution	6.0	Cd	<0.0003

Chart 1. Discharge diagram

