



1. BATTERY TYPE AND RATINGS:

NOVACELL R03P NV-UM4E SIZE AAA

2. CHEMICAL SYSTEM:

MnO₂ (positive)

Zinc shell (negative)

ZnCl₂ (electrolyte)

3. Nominal Voltage:

1.5V

4. Average weight:

9.5 g.

5. Nominal Capacity:

165mA/h (Discharge continuously with 3.9 Ω at 20 ± 2 °C, the Cut-off voltage is 0.9V) .

6. Electrical Features :

(Conditions : load resistance 3.9 Ω ,with a type 0.5 current voltmeter whose accuracy is 0.25% and internal resistance 1M Ω ,measuring time 0.3 sec) .

Item	Open Circuit Voltage (V)	Load Voltage (V)	Flashy Current (A)
New battery	1.63	1.45	2.5
Battery stored for 12 months at normal temperature	1.55	1.40	2

7 . Discharge characteristics: (measuring temperature : 20 ± 2 °C)

Condition	3.9 Ω continuous discharge; cut-off voltage 0.9V	10 Ω continuous discharge; cut-off voltage 0.9V	10 Ω intermittent discharge 60 minutes a day; cut-off voltage 0.9V
New Battery	35 minutes	150 minutes	160 minutes
Battery stored for 12 months at normal temperature	30 minutes	130 minutes	140 minutes



8. Tests for leak proof performance

Item	Condition	Period	Features
When over discharged	3.9 continuous discharge Temperature: 20 ± 2 Relative humidity: $60 \pm 15\%$	After reaching cut-off voltage, discharge continuously to 0.35V	Deformation not larger than the size shown in Fig.1. No leakage.
When stored	Temperature: 45 ± 2 Relative humidity: $60 \pm 15\%$	20 days	
	Temperature: 57 ± 2 Relative humidity: $60 \pm 15\%$	7 days	

9 . Safety features

- ✧ When a battery is discharged 12 hours continuously with 20 resistance, there is no expansion and explosion.
- ✧ When a battery is put in a place at the temperature of 57 ± 2 and the relative humidity of $60 \pm 15\%$, there is no leakage and explosion within 7 days.

10 . Marks on the batteries

- ✧ Type: SIZE AAA/R03P/1.5V 單 4 型
- ✧ Brand: NOVACELL
- ✧ Manufacturer : GLOSO CO., LTD.
- ✧ Nominal Voltage : 1.5V
- ✧ Polarity : Positive (+) Negative (-)
- ✧ Warning: Charge or thrown into the fire may cause leakage or explosion.

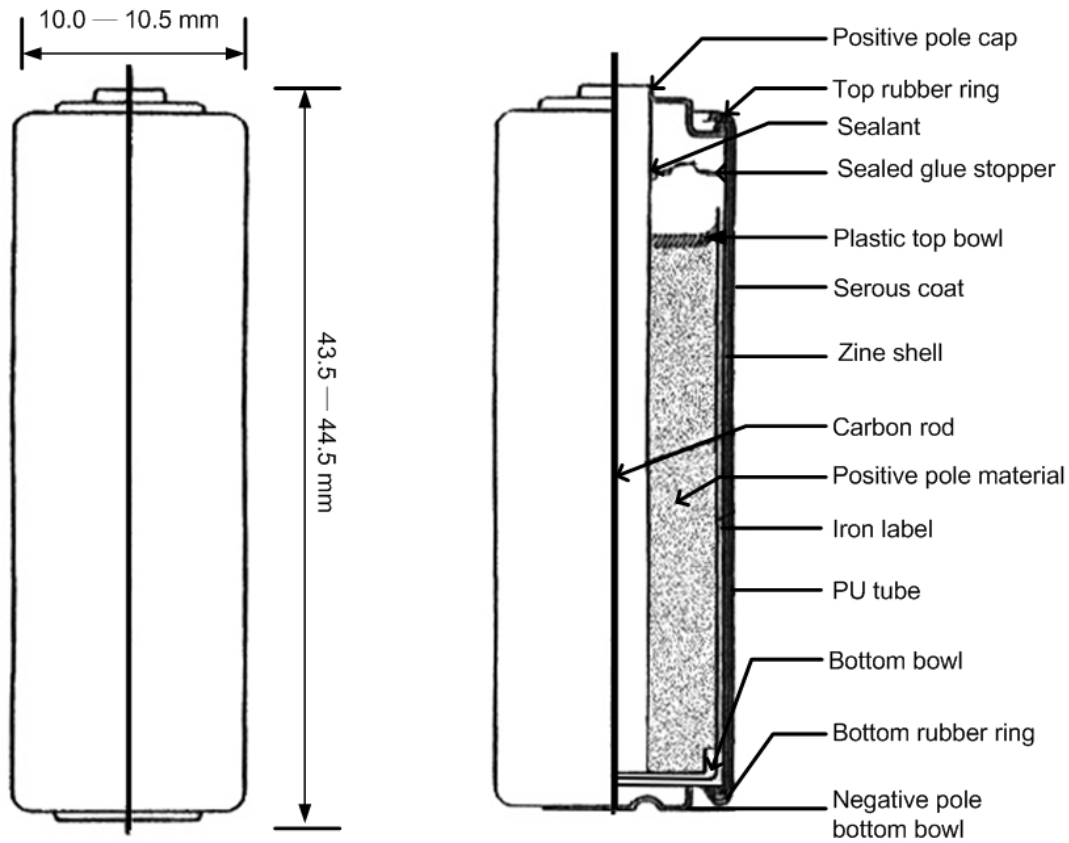
11 . Warning :

- ✧ Don't charge the battery or it may cause leakage or explosion.
- ✧ The positive and negative poles must be put in the proper direction.
- ✧ No short circuit, heating, putting the battery into fire or breaking up of the battery.



12 . Time of guarantee : 2 years.

13 . Diagram of the battery size and the battery structure



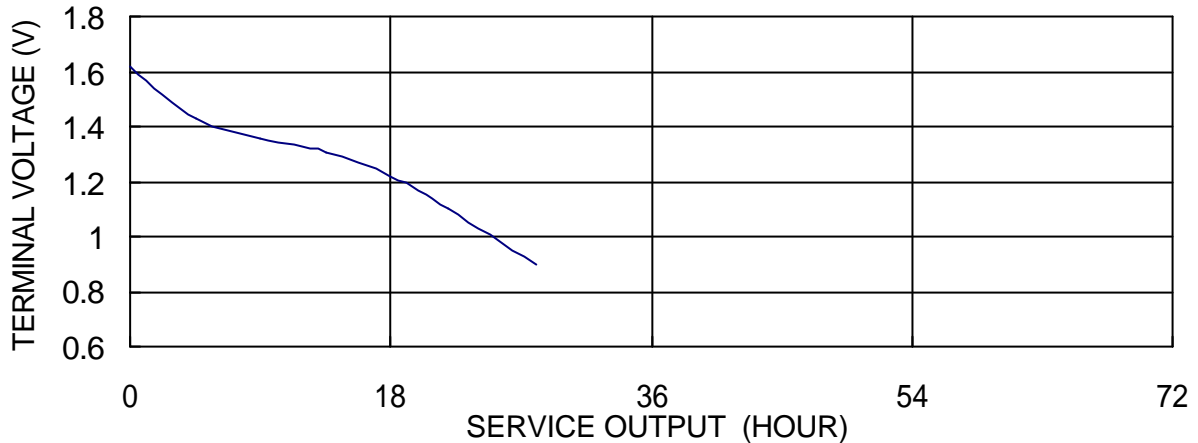
14 . Packing information

TYPE	Standard packing			Carton		
	Shrink pack	Inner box	Carton	N.W. (kg)	G.W. (kg)	Measure (cm)
AA	2	60	2400	20	21	28 x 27 x 21



NV-UM4E DISCHARGE CURVE

NOMINAL VOLTAGE: 1.5V
DISCHARGE METHOD: 75
STOCK: INITIAL
TEMPERATURE: 20 ± 2



15 . Safety Precaution of Zinc-Manganese Batteries

Please follow the warnings and precautions listed below to avoid possible hazards from the improper use of Carbon Zinc Batteries and to ensure correct and safe use of them.

The following notes should be put in an appropriate and effective location in each end-use product and its instruction manual.

Failure to observe the following instructions may cause battery leakage, heat generation, explosion, injury or damage of appliance.

Warning

- ✧ Keep the battery out of reach of babies or small children .If the battery is swallowed, consult a doctor immediately.
- ✧ If any liquid from the battery comes out and contacts with eyes, flush out with clean water immediately and consult a doctor.
- ✧ If any liquid from the battery is licked, gargle immediately and consult a doctor. Do not short-circuit, disassemble, heat or put the battery into a fire.
- ✧ Charging of Zinc-Manganese Battery may cause electrolyte leakage or damage, because this type of battery is not designed as rechargeable battery.



Caution

- ◇ Do not reverse the positive (+) and negative (-) terminals when a battery is installed.
- ◇ If liquid solution from the battery comes out and contacts with skin or clothes, flush out with clean water.
- ◇ Do not use the batteries mixed with new battery, old battery or different type battery.
- ◇ The appliance must be sure closed the power supply after used, the used batteries must be taken out.
- ◇ Do not expose the battery to the rain or at moisture situation. It is a mistake to put the battery besides the heating or in the sunlight.
- ◇ When not in use for a long time, take out the battery from the appliance and store in a cool dry place.
- ◇ In case of storage or throw away the battery, insulate a terminal of the battery with a tape.
- ◇ Do not drop, give a strong shock or deform the battery.
- ◇ Do not solder the battery directly.
- ◇ Do not leave the batteries in an atmosphere over the temperature of 30 °C or over the humidity of 95% below the humidity of 40% for a long time.



GLOSO CO., LTD. 瑞璟實業有限公司

5F-3 NO. 103. Rui-Hu Street, Nei-Hu District, TAIPEI, TAIWAN. R. O. C

台北市內湖區瑞湖街 103 號 5 樓之 3

Tel: (02)26275799

Fax: (02)26272511

E-Mail : sales@novacell.com.tw

Home Page : <http://www.novacell.com.tw>

TECHNICAL SPECIFICATION

DRY BATTERY

MODEL: NV-UM4E (R03P)

SUPER HEAVY DUTY

[MERCURY FREE]

Date FEB. 1, 2006

Sign GLOSO CO., LTD