



WAMA ELECTRONICS TECH CO.,LTD

1、Preface

This specification is suitable for the performance of the WAMA Ni-MH Low Self Discharge rechargeable battery.

2. Model: NiMH-AA 2000mah-LSD (Low Self Discharge)

3.Appearance

There shall be no such defects as deformation, flaw, stain, discoloration or electrolyte leakage.。

4.Nominal specification

Description		Specification	
Model		NiMH-AA 2000mah-LSD	
Size		AA	
Dimensions	Diameter(mm)	14.5+0/-0.7	
	Height(mm)	50.5+0/-1.5	
	Weight(g)	Approx. 26.0g	
Nominal Voltage (V)		1.2	
Nominal capacity (mAh)		2000	
Internal Impedance (full power to test) (mΩ)		≤35	
Discharge Cut-off Voltage		1.0V	
Ambient temperature	Charge	Standard	0℃ to 40℃
		Fast	10℃ to 40℃
	Discharge		-10℃ to 50℃
	Storage	<1 year	-10℃ to 30℃
		<3 months	-10℃ to 40℃
		The relative humidity should keep with in 65±20%	

5. Characteristics

Unless otherwise specified, test: should be done within one month of delivery under the following conditions;

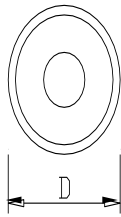
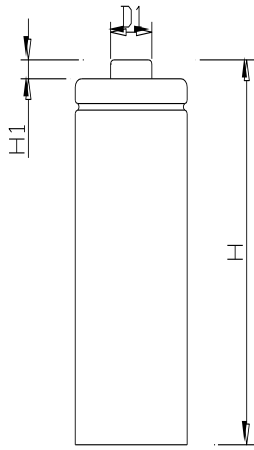
Ambient temperature 20±5℃

Relative humidity 65±20%

Atmospheric pressure 960±100mbar

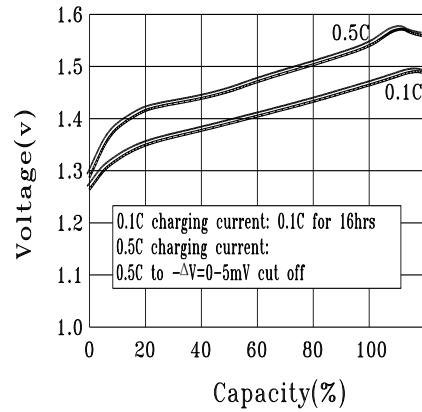
Test item		Condition	Specification
1. Charge	Standard	Charge at 0.1C for 16 hours	0°C to 40°C
	Fast	Charge at 0.5C to $-\Delta V=0-5mV$ 、	10°C to 40°C
	Trickle	(0.03C)-(0.05C)	0°C to 40°C
2. Discharge		At 0.2C to 1.0V	
3. Discharge cut-off voltage			1.0V
4.Capacity (mAh)	Minimum	Standard charge/discharge	1950
	Typical	Standard charge/discharge	2000
5. Internal resistance		After fully charge,rest 1 hour, measured at 1000Hz	$\leq 35m\Omega$
6. Self-Discharge		The charged battery is stored for 28 days at $20^{\circ}C \pm 5^{\circ}C$. And the discharge time is measured at standard discharge	≥ 180 minutes
7.High Rate Discharge	Standard charge 1hour rest Before Discharge by 0.5C to 1.0V		≥ 108 minutes
	Standard charge 1hour rest Before Discharge by 1C to 1.0V		≥ 48 minutes
8.Overcharge		0.1C charger 28 days,	No leakage
9.Charge Retention		Standard charge storage:360 days Standard Discharge	Capacity $\geq 75\%$

Recycle life	Charge	Rest	Discharge	Cycles 1 to 50 shall be repeated until the discharge duration on any 50 th cycle becomes Less than 3h
1	0.1C for 16h	0	0.25C for 2h20min	
2~48	0.25C for 3h10min	0	0.25C for 2h20min	
49	0.25C for 3h10min	0	0.2C to 1.0V	
50	0.1C for 16h	1~4h	0.2C to 1.0V	
10. Leakage Test		Standard charge stand for 14days		No leakage
12. High temperature test		Store at 40°C、50°C、60°C for 2 hours then charge/discharge		No leakage
13. Low temperature test		Store at 0°C for 2 hours then charge/discharge		No leakage
14. Short circuit test		Short circuit after fully charge		No explode
15. Drop test		Free fall on the concrete from 1 meters after fully charged		No leakage No short-circuit

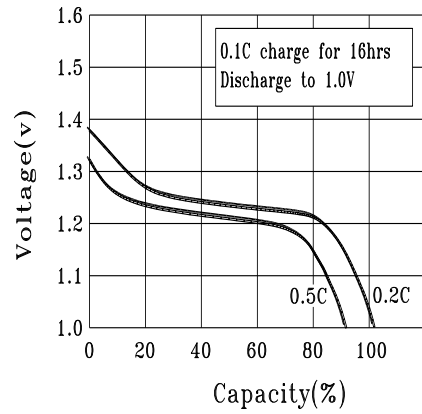


Project 项目	Description 类型	Dimension 尺寸(mm)
D1	Diameter 直径1	Max 5.5
D	Diameter 直径	14.5 ⁺⁰ _{-0.7}
H1	Height 高度1	≥1.0
H	Height 高度	50.5 ⁺⁰ _{-1.5}

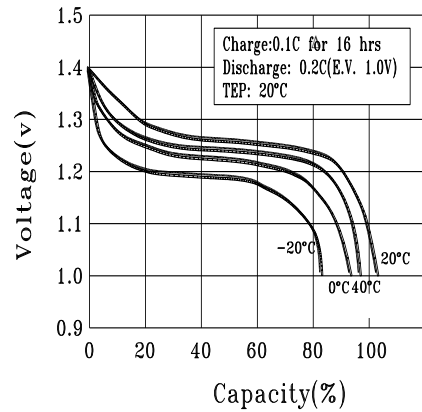
CHARGE CHARACTERISTICS



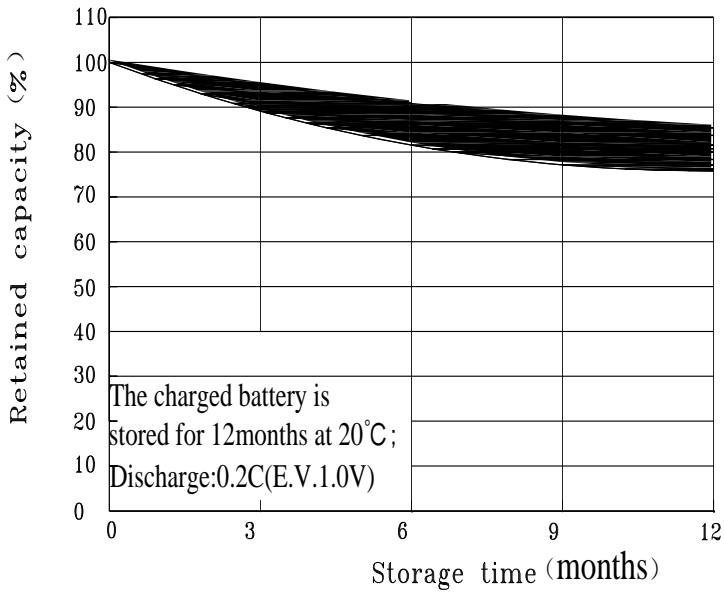
DISCHARGE CHARACTERISTICS



DISCHARGE CHARACTERISTICS AT DIFFERENT TEMPERATURE



SELF-DISCHARGE



7. Cautions in use

To ensure proper use of the battery please read the manual carefully before using it.

Handling

Do not expose to, dispose of the battery in fire.

Do not put the battery in a charger or equipment with wrong terminals connected.

Avoid shorting the battery.

Avoid excessive physical shock or vibration.

Do not disassemble or deform the battery.

Do not immerse in water.

Do not use the battery mixed with other different make, type, or model batteries.

Keep out of the reach of children.

Storage

Cycle(charge and discharge)the battery every 6-9month to maintain cell/battery performance ,When being stored for an extended period of time

Store the battery in a cool, dry and well-ventilated area.

Disposal

Regulations vary for different countries.

Dispose of in accordance with local regulations.

8. Note

Any other items which are not covered in this specification shall be agreed by both parties.