



1. Designation:

Ni-MH MR 2200AA

2. Chemical System:

Nickel-Metal hydride Cylindrical cell

3. Nominal Voltage:

1.2 V

4. Approximate Weight:

37.0 g

5. Dimensions & Structure :

Dimensions & structure of the battery are shown in the attached Fig. 1.

6. Jacket :

PVC Jacket

7. Characteristics:

Characteristics of the battery are shown in the following table.

◇ T₁: Ambient Temperature.

Description	Unit	Specification	Conditions
Nominal Voltage	V/Cell	1.2	Unit cell or stack-up batteries
Nominal Capacity	mAh	2200	Standard Charge/Discharge
Standard Charge	mA	220 (0.1C)	T ₁ =0~45 (see Note1)
	Hour	14~16	
Fast Charge	mA	1100 (0.5C)	- V=0~5mV/cell or Timer Cut off=110% nominal capacity or Temp. Cut off=55 ,T ₁ =10~45
	Hour	4 approx	
Trickle Charge	mA	(0.05C)~(0.1C)	T ₁ =0~45
Standard discharge	mA	440 (0.2C)	T ₁ = -30~60 Humidity : Max.85%
Discharge Cut-off Voltage	V/cell	1.0	
Storage Temperature		-20~40	Discharged state、Humidity、Max.85%
Typical Weight	Gram	28.2	



8. Performance

Unless otherwise stated, tests should be done within one month of delivery under the following conditions :

Ambient Temperature, T_1 : 20 ± 5

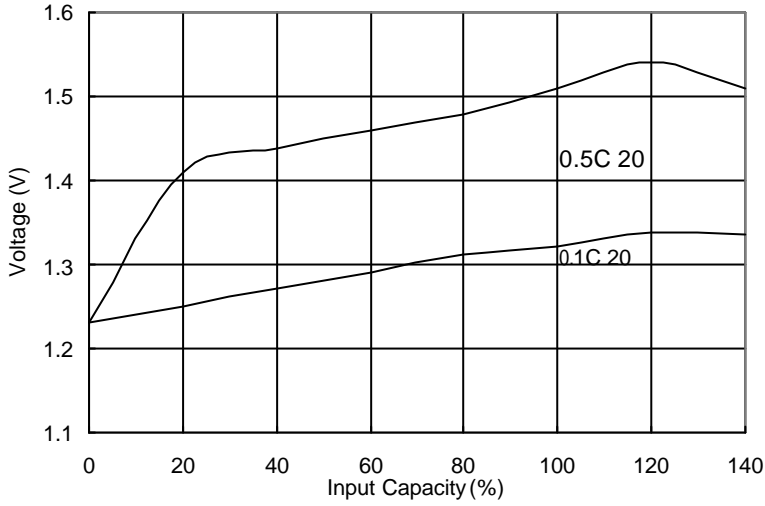
Relative Humidity : $65 \pm 20\%$

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	2200	Standard Charge Discharge	Up to 3 cycles are allowed
Open Circuit Voltage (OCV)	V/cell	1.25	Within 1 hour after standard Charge	
Internal Impedance	m /cell	30	Upon fully charge (1KHz)	
High Rate Discharge (1C)	Minute	54	Standard Charge, 1 hour rest Before discharge by 2200Ma (1C) to 1.0V/cell	Up to 3 cycles are allowed
Overcharge	/	No leakage nor explosion	220mA(0.1C) Charge 28 days	
Charge Retention	mAh	1540(70%)	Standard Charge, Storage : 28 days, Standard Discharge	
IEC Cycle Life	Cycle	500	IEC285 (1993) 4.4.1	(See Note 3)
Accelerated Cycle Life	Cycle	400	Charge: 660mA(1C) Discharge: 660mA(1C) To 1.0V/cell, End-of: 60% nominal Capacity	Cycling charging cut-off condition : - V=0~5mV/cell and Timer cut -off=110% Nominal capacity Input and Temp. cut off=55
Leakage		No leakage nor deformation	Fully charged at: 660mA(1C) for 1.2 hrs Stand for 14 days	
Vibration Resistance		Change of voltage should be under 0.02V/cell, Change of impedance should be under 5 m /cell	Charge the battery 0.1C 14hrs, then leave for 24hrs, check Battery before/after vibration, Amplitude 1.5mm Vibration 3000 CPM Any direction for 60mins.	
Impact Resistance		Change of voltage should be under 0.02V/cell Change of impedance should be under 5 m /cell	Charge the battery 0.1C 14hrs Then leave for 24hrs, check bat-before/after dropped, Height 50cm Wooden board (thickness 30mm) Direction not specified, 3 times.	

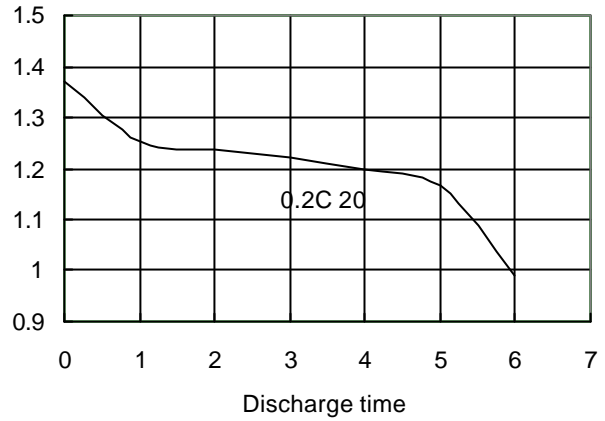


9. Discharge Curve :

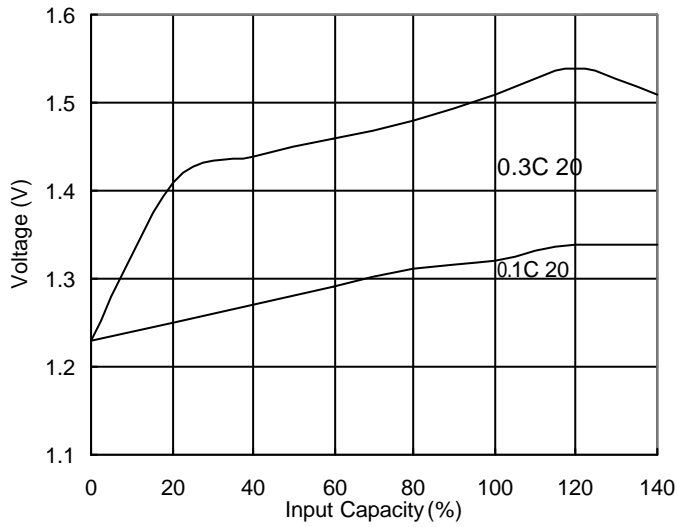
Charge



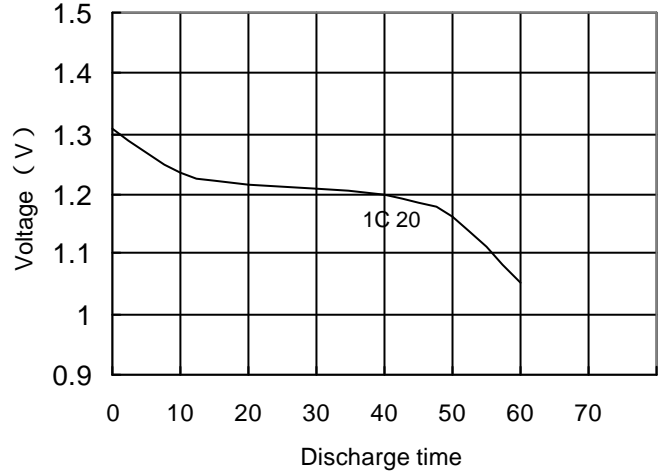
Discharge at low rate



Charge



Discharge at high rate



10. Markings on Product :

- (1) MR 2200AA
- (2) Brand: Novacell
- (3) Polarity: "+" and "-"
- (4) Other specified markings

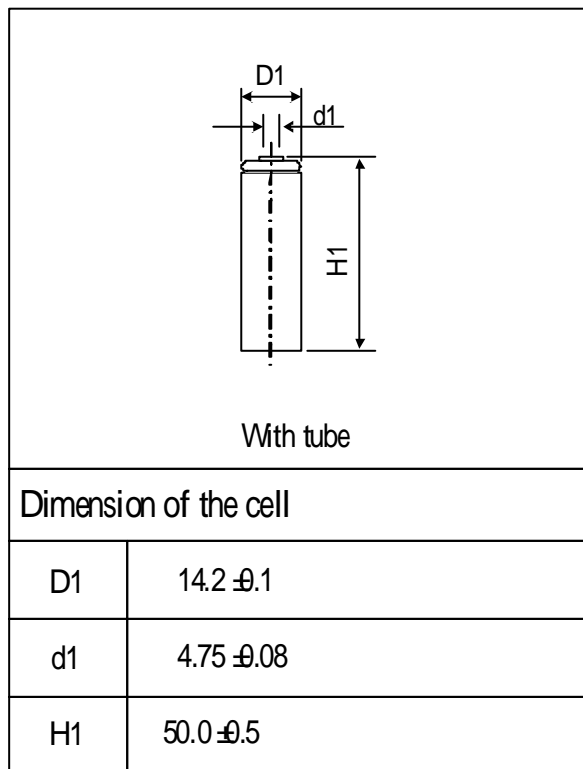


11. Caution for Use :

1. Reverse charging is not acceptable.
2. Charge before use. The cells/batteries are delivered in an uncharged state.
3. Do not charge/discharge with more than our specified current.
4. Do not short circuit the cell/battery Permanent damage to the cell/battery may result.
5. Do not incinerate or mutilate the cell/battery.
6. Do not solder directly to the cell/battery.
7. The life expectancy may be reduced if the cell/battery is subjected adverse conditions like: extreme temperature, deep cycling, and excessive overcharge/ over-discharge.
8. Store the cell/battery uncharged in a cool dry place. Always discharge batteries before bulk storage or shipment.

12. Warranty : 12 months shelf life after delivery.

Fig. 1





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TECHNICAL SPECIFICATION

Nickel-Metal Hydride Cylindrical Cell

Ni-MH MR 2200AA

Date FEB. 01, 2006

Sign GLOSO CO., LTD