

## 1、SCOPE

This specification governs the performance of the following Nickel-Cadmium Cylindrical cell and its stack-up batteries.

Model: CD-AA1000

Cell Size: AA ( $\phi 14.1^{+0.2} \times 50.0^{+0.5}$ )

## 2、DATA OF STACK UP BATTERIES

All data involves voltage and weight to stack-up battery are equal to the value of unit cell times the number of unit cell which consisted in the stack-up batteries

Example: Stack-up battery consisting three unit cells

Nominal voltage of unit cell=1.2V

Nominal voltage of stack-up batteries=1.2V  $\times$  3=3.6V

## 3、RATINGS

Description	Unit	Specification	Conditions
Nominal Voltage	V/Cell	1.2	Unit cell
Nominal Capacity	mAh	1000	Standard Charge/Discharge
Standard Charge	mA	100(0.1C)	T <sub>1</sub> = 0~50°C (see Note1)
	Hour	14~16	
Quick Charge	mA	300(0.3C)	- $\Delta V=0-5mV/Cell$ or Timer CutOff=120 % nominal capacity or Temp.Cutoff=55°C, T <sub>1</sub> = 10~50°C
	hour	4.0hrs approx. (see Note 2)	
Trickle Charge	mA	(0.05C)~(0.1C)	T <sub>1</sub> = 0~50°C
Standard discharge	mA	200(0.2C)	T <sub>1</sub> = -30~60°C Humidity: Max.85%
Discharge Cut-off Voltage	V/Cell	1.0	
Storage Temperature	°C	-30~65	Discharged state、Humidity、Max.85%
Typical Weight	Gram	25	

## 4、PERFORMANCE

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

Ambient Temperature,  $T_1$ :  $20 \pm 5^\circ\text{C}$

Relative Humidity:  $65 \pm 20\%$

Notes: Standard Charge/Discharge Conditions:

Charge: 100mA (0.1C) × 14 hours

Discharge: 200mA(0.2C) to 1.0V/Cell

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	$\geq 1000$	Standard Charge /Discharge	up to 3 cycles are allowed
Open Circuit Voltage(OCV)	V/ Cell	$\geq 1.25$	Within 1 hour after standard Charge	
Internal Impedance	m $\Omega$ / Cell	Max $\leq 25$	Upon fully charge(1KHz)	
High Rate Discharge(1C)	Minute	$\geq 54$	Standard Charge, 1 hour rest Before discharge by 1000mA (1C)to 1.0V/cell	up to 3 cycles are allowed
Charge Retention	mAh	$\geq 700(70\%)$	Standard Charge, Storage: 28 days, Standard Discharge	
IEC Cycle Life	Cycle	$\geq 500$	IEC285(1993)4.4.1	(see Note 3)
Accelerated Cycle Life	Cycle	$\geq 400$	Charge:300mA(0.3C) Discharge:1000mA(1C) To 1.0V/Cell, end-of:80% nominal capacity	Cycling charging cut-off condition : - $\Delta$ V=0~5mV/cell or Timer cut-off=110% Nominal capacity input or Temp.cutoff=55 $^\circ\text{C}$
Leakage		No leakage nor deformation	Fully charged at 300mA(0.3C) For 4.0 hrs Stand for 14 days	
Vibration Resistance		Change of voltage should be under 0.02V/ Cell, Change of impedance should be under 5 m $\Omega$ / Cell	Charge the cell 0.1C 14hrs,then leave for 24hrs,check Cell before/after vibration, Amplitude 1.5mm Vibration 3000 CPM Any direction for 60mins.	
Impact Resistance		Change of voltage sho-uld be under 0.02V/ Cell Change of impedance should be under 5 m $\Omega$ / Cell	Charge the cell 0.1C 14hrs Then leave for 24hrs,check bat-before/after dropped, Height 80cm Wooden board(thickness 30mm) Direction not specified,3 times.	

## 5、 CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

## 6、 EXTERNAL APPEARANCE

The cell/battery shall be free from cracks, scars, breakage, rust, discoloration, leakage nor deformation.

## 7、 WARRANTY

One year limited warranty against workmanship and material defects.

## 8、 CAUTION

- (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, excessive overcharge/ over-discharge.
  - (8)store the cell/battery uncharged in a cool dry place. Always discharge batteries before bulk storage or shipment.
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### Notes:

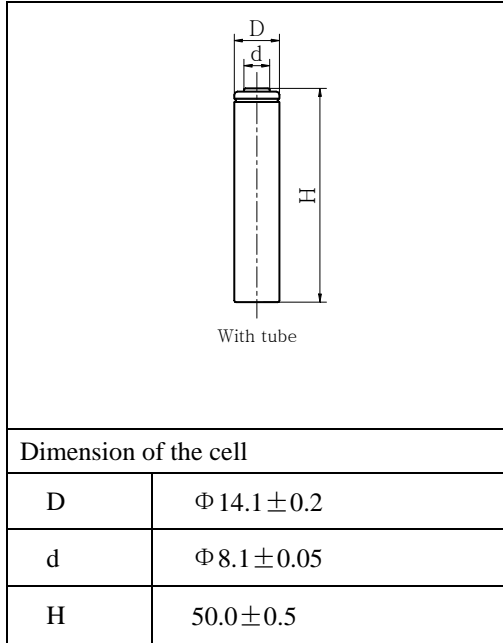
- (1)  $T_1$ : Ambient Temperature.
- (2) Approximate charge time from discharged state, for reference only.
- (3) IEC285(1993)4.4.1 Cycle Life:

Cycle No.	Charge	Rest	Discharge
1	$0.1C \times 16h$	None	$0.25C \times 2h20min$
2-48	$0.25C \times 3h10min$	None	$0.25 \times 2h20min$
49	$0.25C \times 3h10min$	None	0.25C to 1.0V/ cell
50	$0.1C \times 16h$	1-4h	0.2C to 1.0V/ cell
Cycles 1 to so shall be repeated until the discharge duration on any 50th Cycle becomes less than 3 h.			

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**MODEL No:** CD-AA1000(H=50)  
Ni-Cd

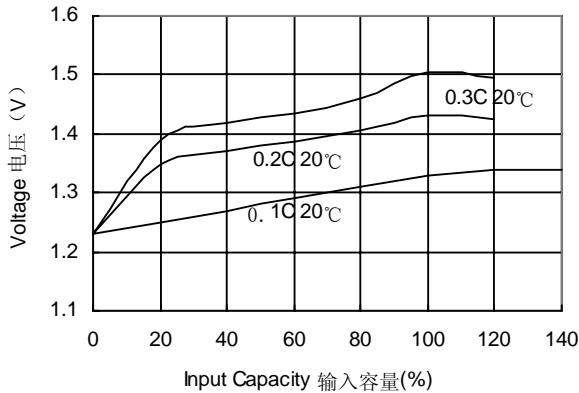
**Description:**1000mAh AA SIZE



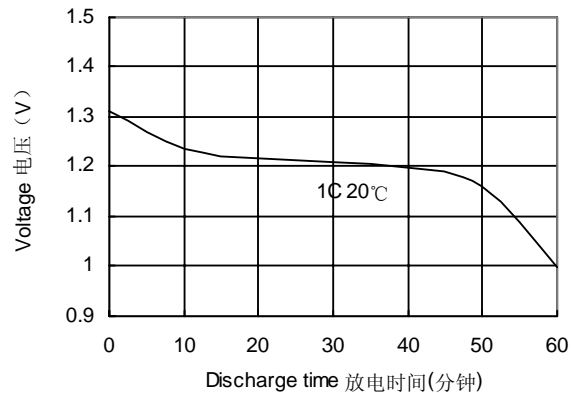
## Specification

Nominal Capacity 额定容量	1000 mAh		
Nominal Voltage 额定电压	1.2 V		
Charge current 充电电流	Standard 标准	100mA	
	Quick 快充	300mA	
Charge time 充电时间	Standard 标准	14~16 Hrs	
	Quick 快充	4.0hrs	
Ambient Temperature 使用温度	Charge 充电	Standard 标准	0°C~50°C
		Quick 快充	10°C~50°C
	Discharge 放电		-30°C~60°C
Storage 储存		-30°C~65°C	
Internal Impedance(AC) (After Charge) 充电后内阻		Max $\leq 25$	
Weight 重量		25g	

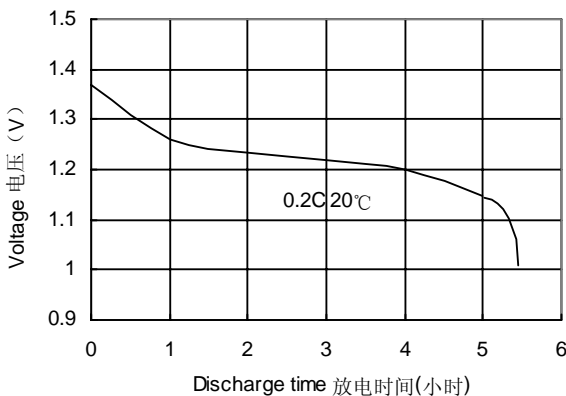
Charge (充电)



Discharge at high rate(高倍率放电)



Discharge at low rate(低倍率放电)



Charge Retention(荷电保持能力)

