

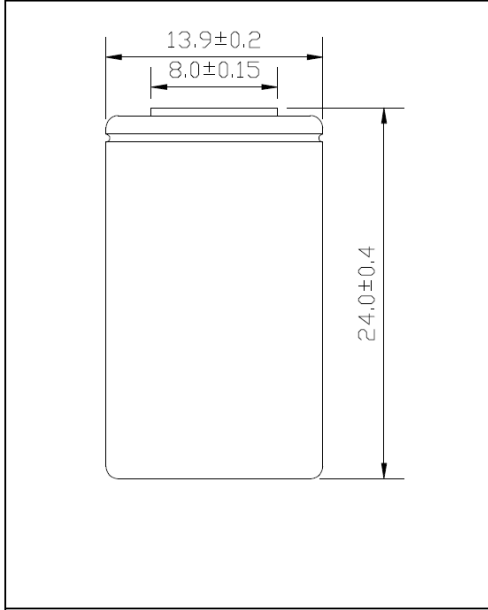


## SPECIFICATIONS

### Sealed Rechargeable Nickel Cadmium Ni-CD 300mAh 1/2AA

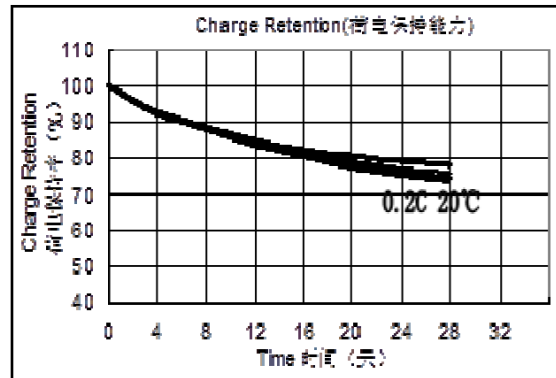
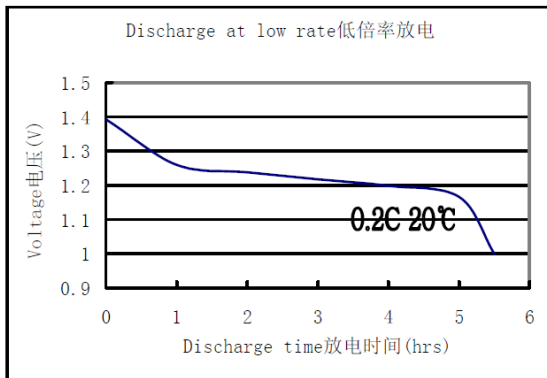
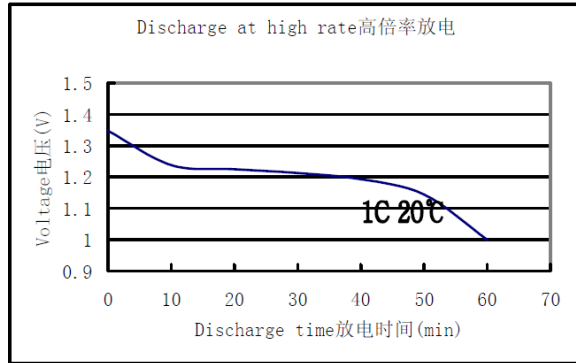
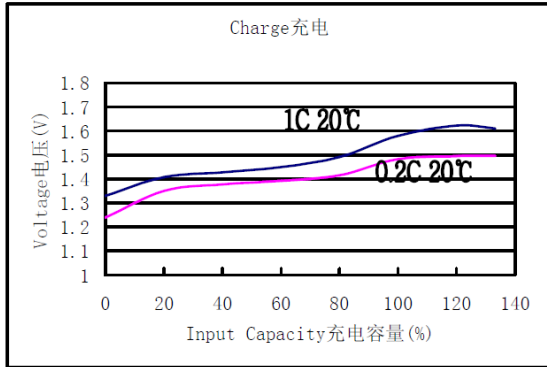
**MODEL No:** NC12AA300

**Description:** 300mAh 1/2AA SIZE Ni-Cd



**Specification**

Nominal Capacity		300 mAh	
Nominal Voltage		1.2V	
Charge current	Standard	30mA	
	Quick	90mA	
	Fast	300mA	
Charge time	Standard	14~16 Hrs	
	Quick	4.0 Hrs	
	Fast	1.3Hrs	
Ambient Temperature	Charge	Standard	0°C~35°C
		Quick	10°C~35°C
		Fast	10°C~35°C
	Discharge	-30°C~60°C	
Storage		-30°C~35°C	
Internal Impedance(mΩ) (Upon fully charge)		Max ≤45	
Weight		9.1g	





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#### 2. PERFORMANCE

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

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

Relative Humidity:  $65 \pm 20\%$

Test Item	Test Conditions				Requirements
(1) <b>Standard Charge</b>	Charge is conducted continuously for 16 hours at the constant current of 30mA (0.1C) after pre-discharge at the constant current of 60mA (0.2C) up to a cut-off voltage of 1.0V				
(2) <b>Open-circuit Voltage</b>	Voltage between terminals of the charged battery specified in item (1) is measured after rest for 1 hour				$\geq 1.25\text{V}$
(3) <b>Capacity (0.2C)</b>	Capacity of the charged battery specified in item (1) is measured at 60mA (0.2C) up to a cut-off voltage of 1.0V after rest for 15 minutes. If the discharge time doesn't reach the specified value, the test may be carried out further twice, up to three times in total.				$\geq 300\text{mAh}$
(4) <b>High rate discharge(1C)</b>	Discharge time of the charged battery specified in item (1) is measured at 300mA (1C) up to a cut-off voltage of 1.0V after rest for 15 minutes. If the discharge time doesn't reach the specified value, the test may be carried out further twice, up to three times in total.				$\geq 54\text{minutes}$
(5) <b>Fast charge (1C)</b>	Charge: 300mA(1C) $\times$ 1.3hours (charging Cut off $= -\Delta V = 5 \sim 10\text{mV}/\text{cell}$ or Temp.Cut off $= 50^{\circ}\text{C}$ )				
(6) <b>Trickle charge current</b>	9.9mA (0.033C)~15mA (0.05C)				
(6) <b>Charge retention</b>	Capacity of the charged battery specified in item (1) is measured at 60mA (0.2C) up to a cut-off voltage of 1.0V after rest for 28 days at $20^{\circ}\text{C}$ .				$\geq 70\%$
(7) <b>IEC Cycle life (IEC61951-1 (2003) 7.4.1.1)</b>	Cycle No	Charge	Rest	Discharge	$\geq 500$
	1	0.1C $\times$ 16h	None	0.25C $\times$ 140min	
	2-48	0.25C $\times$ 190min	None	0.25C $\times$ 140min	
	49	0.25C $\times$ 190min	None	0.25C to 1.0v	
	50	0.1C $\times$ 16h	1-4h	0.2C to 1.0v	
Cycles 1 to so shall be repeated until the discharge duration on any 50 <sup>th</sup> cycle becomes less than 3h					
(8) <b>Accelerated cycle life</b>	Charge: 300mA (1C) $\times$ 1.3 hours (charging Cut off $= -\Delta V = 5 \sim 10\text{mV}/\text{cell}$ or Temp.Cut off $= 50^{\circ}\text{C}$ ) ;Discharge: 300mA (1C) to 1.0V, end-of:70% nominal capacity				$\geq 400$
(9) <b>Safety valve operation</b>	Forced discharge is conducted for 60 minutes at a constant current of 300mA (1C) after pre-discharge at a constant current of 60mA (0.2C) up to 0V				Leakage, No explode or disrupt



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**Ni-CD 300mAh 1/2AA**

(10) <b>Leakage</b>	Fully charged at 150mA ( 0.5C ) for 2.4hour stand for 14 days	No leakage nor deformation
(12) <b>Vibration Resistance</b>	Charge the battery 0.1C 16hrs, then leave for 24hrs, check Battery before/after vibration, Amplitude 1.5mm Vibration 600 CPM Any direction for 60mins.	Change of voltage should be under 0.02V/cell, Change of impedance should be under 5 milli-ohm/cell
(13) <b>Impact Resistance</b>	Charge the battery 0.1C 16hrs Then leave for 24hrs, check bat-before/after dropped, Height 50cm Wooden board (thickness 30mm) Direction not specified, 3 times.	Change of voltage should be under 0.02V/cell Change of impedance should be under 5 milli-ohm/cell

### 3. EXTERNAL APPEARANCE

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

### 4. 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.