

# Product Specification

Product Model: Nickel-Metal Hydride Battery

Product Type: J-AA2500

Draw up: Technical Department

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1、SCOPE

This specification governs the performance of the following **JJJ** Nickel-Metal Hydride cylindrical cell and its stack-up battery.

JJJ Model: AA2500

Cell Size: AA<sub>cusp</sub>(14.2±0.1×50.0±0.5)mm

2、DATA OF STACK UP BATTERIES

All data involve voltage and weight of stack-up batteries are equal to the value of unit cell multiplied by the number of unit cell which consisted in the stack-up batteries

Example : Stack-up batteries consisting three unit cells

Nominal voltage of unit cell=1.2V

Nominal voltage of stack-up batteries =1.2V×3=3.6V

3、RATINGS

| Description               | Unit   | Specification              | Condition   |
|---------------------------|--------|----------------------------|---|
| Nominal Voltage           | V/cell | 1.2                        | Unit cell or stack-up batteries   |
| Minimum Capacity          | mAh    | 2400                       | Standard Charge/Discharge   |
| Nominal Capacity          | mAh    | 2500                       | Standard Charge/Discharge   |
| Standard Charge           | mA     | 250 (0.1C)                 | T <sub>1</sub> =20±5°C (See Note 1)   |
|                           | hour   | 16                         |   |
| Fast Charge               | mA     | 1250 (0.5C)                | - ΔV=0~5mV/cell , Timer<br>Cutoff=105% nominal capacity ,<br>Temp.Cutoff=55°C, dT/dt=0.8°C/min,<br>T <sub>1</sub> =20±5°C |
|                           | hour   | 2.1 approx<br>(See Note 2) |   |
| Trickle Charge            | mA     | (0.03C)~(0.05C)            | T <sub>1</sub> =20±5°C  |
| Standard discharge        | mA     | 500 (0.2C)                 | T <sub>1</sub> = 20±5°C Humidity: Max.85%   |
| Discharge Cut-off Voltage | V/cell | 1.0                        |   |
| Storage Temperature       | °C     | -20~25                     | Within 1 year*  |
|                           |        | -20~35                     | Within 6 months   |
|                           |        | -20~45                     | Within 1 month  |
|                           |        | -20~55                     | Within 1 week   |
| Typical Weight            | Gram   | 30.0                       | unit cell   |

\*To keep the best performance for those not used for a long time, we recommend to charge the cells/batteries at least 30% after discharge entirely in every 6 months.

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**4、 PERFORMANCE**

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

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

Relative Humidity :  $65\pm 20\%$

Notes: Standard Charge/Discharge conditions:

Charge: 250 mA(0.1C)× 16 hours

Discharge: 500 mA(0.2C) to 1.0V/cell

| Test                      | Unit       | Specification   | Condition  | Remarks                       |
|---------------------------|------------|---|--|-------------------------------|
| Capacity                  | mAh        | $\geq 2400$   | Standard Charge/ Discharge   | up to 3 cycles are allowed    |
| Open Circuit Voltage(OCV) | V          | $\geq 1.25$   | Within 1 hour after standard charge  |                               |
| Internal Impedance        | m $\Omega$ | $\leq 35$   | Upon fully charged(1KHz)   |                               |
| High Rate Discharge(1C)   | min        | $\geq 51$   | Standard Charge, 1 hour rest before discharge by 1C to 1.0V/cell   | up to 3 cycles are allowed    |
| Charge Retention          | mAh        | $\geq 1500$ (60%)   | Standard Charge,Storage: 28 days<br>Standard Discharge   | $T_1=20\pm 5^{\circ}\text{C}$ |
| IEC Cycle Life            | Cycle      | $\geq 500$  | IEC61951-2(2003)7.4.1.1  | see Note 3                    |
| Leakage                   |            | No leakage nor deformation  | Fully charged at : 250 mA for 48 hrs   |                               |
| Vibration Resistance      |            | Change of voltage should be less than 0.02V/cell,Change of impedance should be less than 5 milli-ohm/cell | Charge the battery at 0.1C for 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 less than 0.02V/cell,change of impedance should be less than 5 milli-ohm/cell | Charge the battery at 0.1C for 14hrs,then leave for 24hrs,check battery before/after dropped,height 50 cm wooden board(thickness 30mm)direction not specified,3 times. |                               |

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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 or 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 cells/batteries may result.

[5]Do not incinerate or mutilate the cells/batteries.

[6]Do not solder directly to the cells/batteries.

[7]The expected life may be reduced if the cells/batteries are subjected to adverse conditions as:  
extreme temperature, deep cycling, excessive overcharge/ over-discharge.

[8]Store the cells/batteries in a cool dry place. Always discharge batteries before packing.

Notes:

[1]  $T_1$ : Ambient Temperature.

[2] Approximate charge time from discharged state, for reference only.

[3] IEC61951-2(2003)7.4.1.1 Cycle Life:

| Cycle No. | Charge                 | Rest | Discharge              |
|-----------|------------------------|------|------------------------|
| 1         | $0.1C \times 16h$      | None | $0.25C \times 2h20min$ |
| 2-48      | $0.25C \times 3h10min$ | None | $0.25C \times 2h20min$ |
| 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    |

Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3 h.

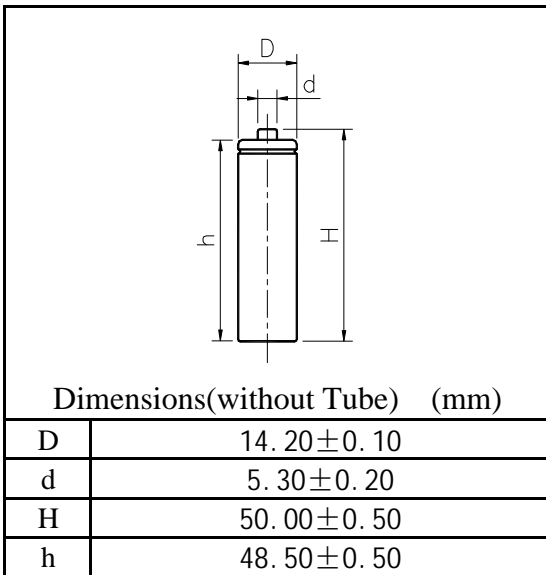
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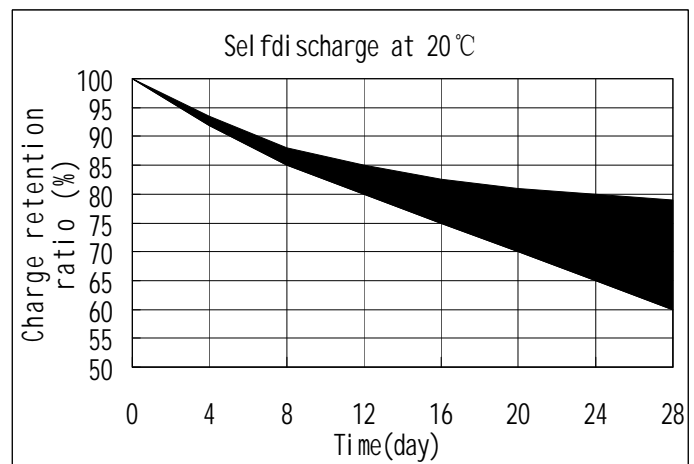
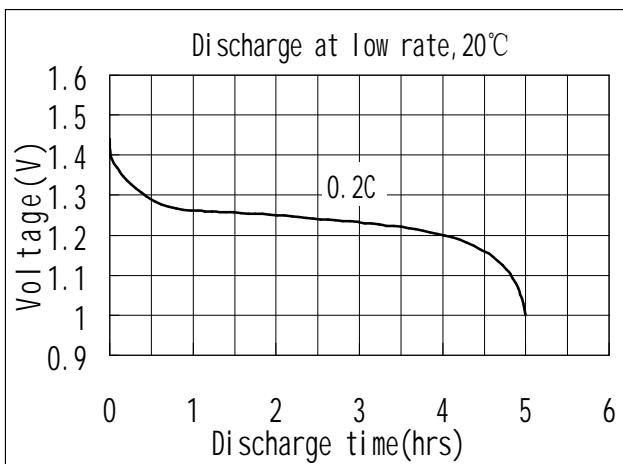
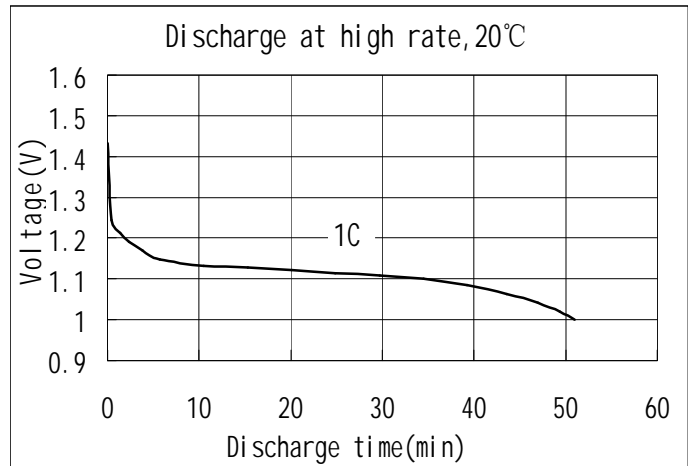
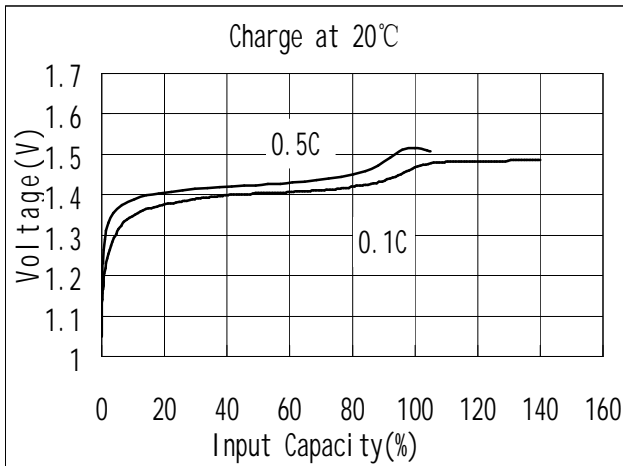
**MODEL No:** J-AA2500

**Description:** 2500 mAh SIZE NI-MH AA



## Specification

|  |           |                                       |
|--|-----------|---------------------------------------|
| Nominal Capacity                         |           | 2500 mAh                              |
| Nominal Voltage                          |           | 1.2 V                                 |
| Charge current                           | Standard  | 250 mA                                |
|  | Fast      | 1250 mA                               |
| Charge time                              | Standard  | 16 Hrs                                |
|  | Fast      | 2.1 Hrs                               |
| Ambient Temperature                      | Charge    | Standard: 0°C~45°C<br>Fast: 10°C~45°C |
|  | Discharge | -20°C~60°C                            |
|  | Storage   | -20°C~55°C                            |
| Internal Impedance(mΩ)<br>(After Charge) |           | ≤ 35                                  |
| Weight                                   |           | 30.0 g                                |



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