

:

Product Specification

Product Model: Nickel-Metal Hydride Battery

Product Type: J-AA2000E

Draw up: Technical Department

Date: 2014-6-26



**1 、 SCOPE**

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

JJJ Model: AA2000E(50.2h)

Cell Size: AAcrew cut(14.2±0.1×50.2±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 | 1950 | Standard Charge/Discharge |
| Nominal Capacity | mAh | 2000 | Standard Charge/Discharge |
| Standard Charge | mA | 200 (0.1C) | T ₁ =20±5°C(See Note 1) |
| | hour | 16 | |
| Fast Charge | mA | 600 (0.3C) | - ΔV=0~5mV/cell , Timer Cutoff=120%nominal capacity , Temp.Cutoff=55°C, dT/dt=0.8°C/min, T ₁ =20±5°C |
| | hour | 4 approx (See Note 2) | |
| Trickle Charge | mA | (0.03C)~(0.05C) | T ₁ =20±5°C |
| Standard discharge | mA | 400 (0.2C) | T ₁ = 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 9 months |
| Typical Weight | Gram | 29.0 | unit cell |

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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: 200 mA(0.1C)× 16 hours

Discharge: 400 mA(0.2C) to 1.0V/cell

| Test | Unit | Specification | Condition | Remarks |
|---------------------------|-------|---|--|--|
| Capacity | mAh | ≥ 1950 | Standard Charge/ Discharge | up to 3 cycles are allowed |
| Open Circuit Voltage(OCV) | V | ≥ 1.25 | Within 1 hour after standard charge | |
| Internal Impedance | mΩ | ≤ 30 | Upon fully charged(1KHz) | |
| High Rate Discharge(1C) | min | ≥ 51 | Standard Charge, 1 hour rest before discharge by 1C to 1.0V/cell | up to 3 cycles are allowed |
| Charge Retention | mAh | ~ 1700 (85%) | Standard Charge,Storage: 6 months, Standard Discharge | $T_1=20\pm 5^{\circ}\text{C}$ (See Note 1) |
| | | ~ 1500 (75%) | Standard Charge,Storage: 12 months, Standard Discharge | |
| IEC Cycle Life | Cycle | ≥ 500 | IEC61951-2(2003)7.4.1.1 | see Note 3 |
| Leakage | | No leakage nor deformation | Fully charged at : 200 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×16h | None | 0.25C×2h20min |
| 2-48 | 0.25C×3h10min | None | 0.25C×2h20min |
| 49 | 0.25C×3h10min | None | 0.25C to 1.0V/cell |
| 50 | 0.1C×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.

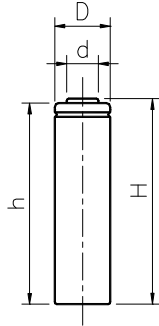
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MODEL No: J-AA2000E(50.2h)

Description: 2000 mAh SIZE NI-MH AA

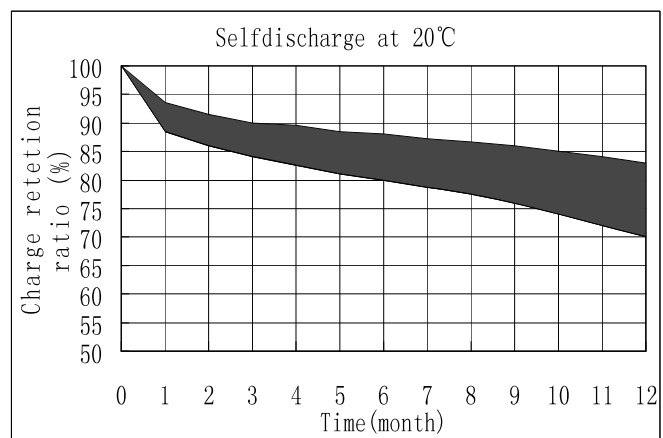
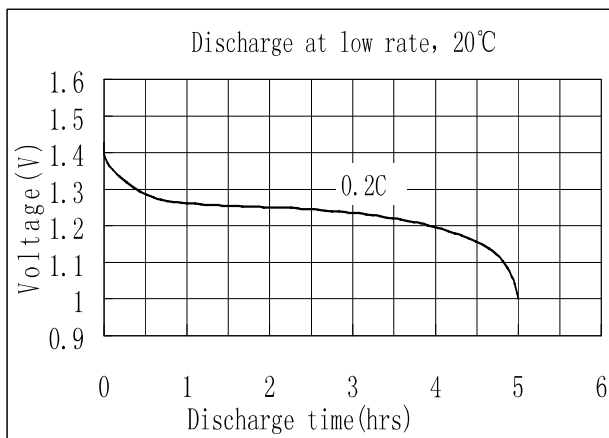
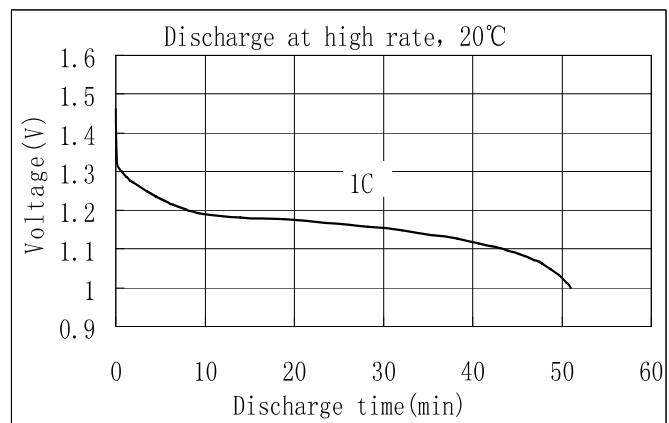
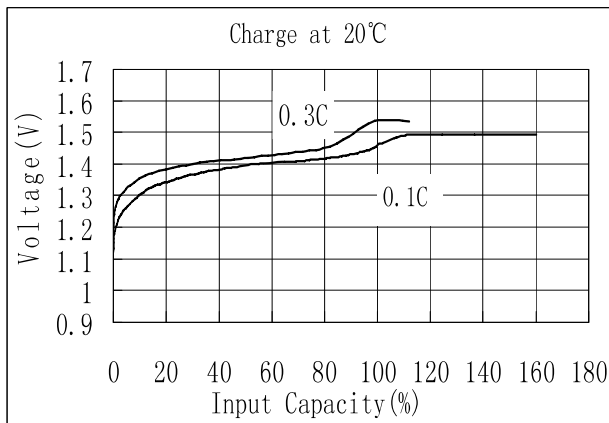


Dimensions(without Tube) (mm)

| | |
|---|------------|
| D | 14.20±0.10 |
| d | 6.60±0.08 |
| H | 50.20±0.50 |
| h | 49.70±0.50 |

Specification

| | | |
|--|-----------|---------------------------------------|
| Nominal Capacity | | 2000 mAh |
| Nominal Voltage | | 1.2 V |
| Charge current | Standard | 200 mA |
| | Fast | 600 mA |
| Charge time | Standard | 16 Hrs |
| | Fast | 4 Hrs |
| Ambient Temperature | Charge | Standard: 0°C~45°C Fast: 10°C~45°C |
| | Discharge | -20°C~60°C |
| | Storage | -20°C~35°C |
| Internal Impedance(mΩ) (After Charge) | | ≤ 30 |
| Weight | | 29.0 g |



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