

# Product Specification

for Ni-MH Battery

Model Number: Ni-MH 2/3AA 1.2V 700mAh

| Prepared By | Verified By | Approved By |
|-------------|-------------|-------------|
|             |             |             |

## Amendment Records

| Revision | Description | Issued Date | Approved By |
|----------|-------------|-------------|-------------|
| A0       | New release | 2019-09-29  | Zhangjun    |
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## Contents

### 1. SCOPE

This specification governs the performance of the following Everwin Tech Co., Limited Nickel- Hydride cylindrical Cell and its stack-up batteries.

Model: Ni-MH 2/3AA 1.2V 700mAh

The data involving nominal voltage and the approximate weight of stake-up batteries shall be equal to the value of the unit cell multiplied by the number of unit cells in the battery.

Nominal voltage of unit cell = 1.2V

### 2. RATINGS

| Description               | Unit | Specification           | Conditions  |
|---------------------------|------|-------------------------|---|
| Nominal Voltag            | V    | 1.2V                    |   |
| Nominal Capacity          | mAh  | 700                     | Standard Charge/discharge   |
| Minimum Capacity          | mAh  | 685                     | Standard Charge/discharge   |
| Standard Charge           | mA   | 70(0.1C)                | Ta=0~45°C   |
|                           | hour | 14-16                   |   |
| Fast Charge               | mA   | 0.5C                    | '- Δ V=0~5mV/cell , Timer<br>Cutoff=120%nominal capacity ,<br>Temp.Cutoff=55°C,<br>dT/dt=0.8°C/min, T1=20±5°C |
|                           | hour | 2.4 approx              |   |
| Trickle Charge            | mA   | 0.03C ~ 0.05C           | Ta=0~70 °C  |
| Standard discharge        | mA   | 140(0.2C)               | T1= 20±5°C Humidity: Max85%   |
| Discharge Cut-off Voltage | V    | 1.0V                    |   |
| Storage Temperature       | °C   | -20~30(Within 1 year)   | Discharged state<br>Humidity: Max85%  |
|                           |      | -20~40(Within 6 months) |   |
|                           |      | -20~50(Within 1 month)  |   |
|                           |      | -20~60(Within 1 week)   |   |
| Typical Weight            | g    | 13                      | unit cell   |

### 3. PERFORMANCE

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

Ambient Temperature: Ta=20±5°C

Relative Humidity: 65±20%

Standard Charge/ Discharge Condition:

Charge: 70mA(0.1C)×16hrs

Discharge: 140mA(0.2C)to 1.0V/ cell

| Test                       | Unit  | Specification  | Conditions   | Remarks                    |
|----------------------------|-------|--|--|----------------------------|
| Capacity                   | mAh   | ≥685   | Standard Charge/Discharge  | Up to 3 cycles are allowed |
| Open Circuit Voltage (OCV) | V     | ≥1.25  | Within 1hr after standard charge   |                            |
| Internal Impedance (Ri)    | mΩ    | ≤35  | Upon fully charge(1kHz) (1kHz)   |                            |
| High Rate Discharge (1C)   | min   | ≥51  | Standard Charge, 1hr rest before discharge   |                            |
| Charge Retention           | mAh   | ≥420 (60%)   | Standard Charge, Storage: 1months, Standard Discharge  |                            |
| Leakage                    |       | No leakage nor deformation   | Fully charged at 60 mA 48 hrs  |                            |
| IEC Cycle Life             | Cycle | ≥500   | IEC61951-2(2003)7.4.1.1  | see Note 3                 |
| 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. |                            |

#### 4. CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

#### 5. EXTERNAL APPEARANCE

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

## 6. CAUTION

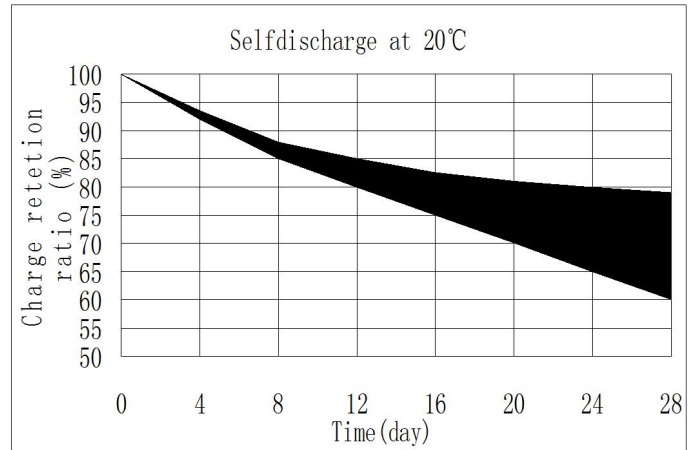
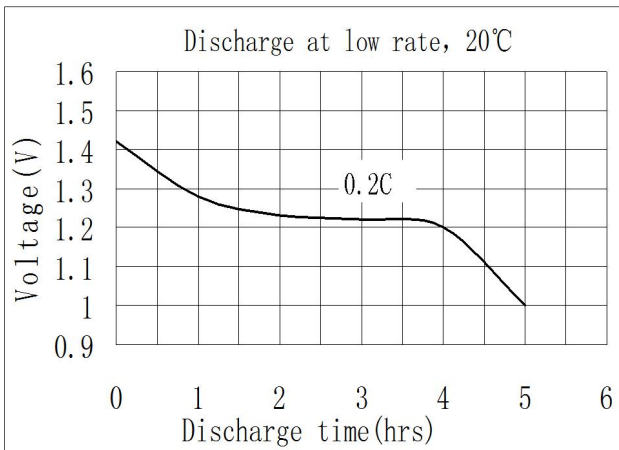
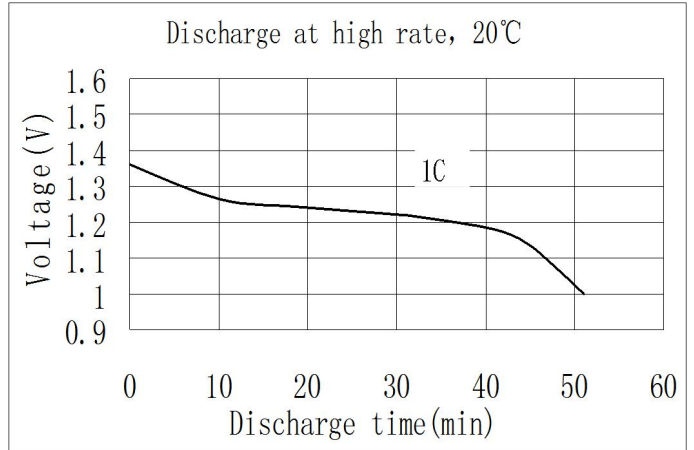
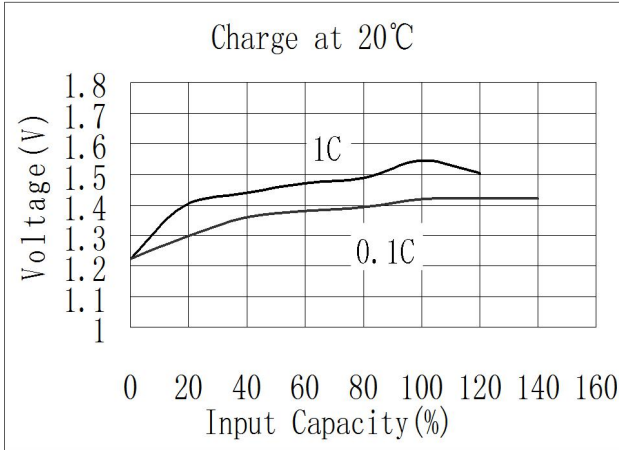
- [1] Reverse charging is not acceptable.
- [2] Charge before use. The cells/batteries are delivered in an uncharged state
- [3] Do not charge/discharge with more than our specified current.
- [4] Do not short circuit the cell/battery Permanent damage to the cells/batteries may result.
- [5] Do not incinerate 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:

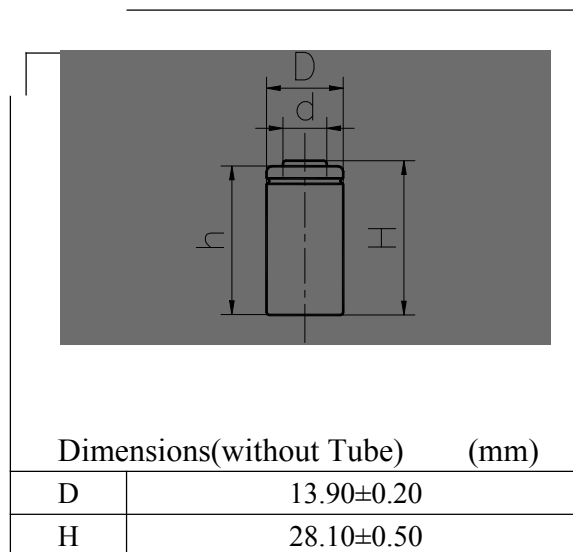
- [1] T1: Ambient Temperature.
- [2] Approximate charge time from discharged state, for reference only.
- [3] IEC61951-2(2003)7.4.1.1 Cycle Life:

| 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. |                 |      |                    |

**7. Specification**



**8. Draw**



**NOTICE: Any question you must apprise us in a week, or the standards will be accepted.**