



Ni-MH Battery Specification

Project Name: Ni-MH battery

AMH0628 3.6V/800mAh

**Authorized Signature &
Company Chop**

Rev:A1

Prepared

Checked

Approved


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| | | REV : A/1 Date : 3 Jul 2015 |


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1. PREFACE

SCOPE (使用范围)

Name : Ni-MH battery
Model : AMH0628
Spec : 3.6V/800mAh
Edition: A/1

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| | | REV : A/1 Date : 3 Jul 2015 |

This product approval sheet has 9 pages (include the first page)

This product approval sheet includes technical features, testing method, external connection graph, packing and so on.

Amendment on this product approval sheet content must depend on below condition:

1. Customer's request or agreement.
2. Safety guarantee and no influence to machine which the battery used in

We can give mass production after the agreement of "battery approval sheet" and sample with the customer.

2. Technical Features 技术参数



| Item | Rated performance | Note |
|---------------------------------|--|--|
| 1.1 Rated Voltage | 3.6V | |
| 1.2 Discharge Cut-off Voltage | 2.4V | |
| 1.3 Rated Capacity | 800mAh | 0.2C Discharge |
| 1.6 Standard Charge Current | 160mA | 0.2C |
| 1.7 Quick Charge Current | 400mA | 0.5C |
| 1.8 Max Discharge Current | 800mA | -20°C - +55°C |
| 1.9 Initial Internal Resistance | ≤140 mΩ | AC 1kHz (AC Impedance) |
| 1.10 Weight Per Battery | ≤35.4g | Electronic scale (W/O Packing Materials) |
| 1.11 Battery Size | L=44.10 (+0/-0.50mm) W=21.20 (+0/-0.50mm) H=20.60 (+0/-0.50mm) | Calipers |
| 1.12 Operating Temperature | Charge | 0°C ~ +45°C Humidity 65±20% 65±20% |
| | Discharge | -20°C ~ +55°C Humidity 65±20% 65±20% |
| 1.13 Storage Temperature | Standing Storage (less than one year) | -20°C ~ +35°C Humidity 65±20% 65±20% |
| | Notes: 1. Period of storage is counted from shipping date | |



3. Test

3.1 Testing Environment:

3.1.1 Test time should be no more than one month after receive the battery

3.1.2 Testing Environment:

Temperature Relative : 15°C--25°C
Humidity : 45%--85%
Atmospheric Pressure : 76kPa--106kPa

3.2 Testing Instrument:

3.2.1 Voltage meter 0.5 grade or more regulated by IEC 51/IEC 485, more than 10K Ω /V
internal resistance
IEC 51/ 10K Ω /V

3.2.2 Current meter 0.5 grade or more regulated by IEC 51/IEC 485, include wire
resistance less than 0.01 Ω .

3.2.3 Calipers Definition 0.02mm
0.02mm

3.2.4 Internal Resistance Meter AC 1KHz 4 terminal measure setting.

3.2.5 Load Resistance Include external circuitry, allowed resistance figure
error is $\pm 5\%$.

3.2.6 Finished Battery Product Testing Machine



3.3 . Test method and request

| Item | | Test Method | Request |
|------|---------------------------------------|---|---|
| 1 | Appearance | By sight: 30CM vertically | Case appearance should be smooth w/o nick, burr and other mechanical damage. Exposed metallic part should not be Oxidized. Case should not be distorted. |
| 2 | Insulation Resistance | Test the external packing of battery and insulation between poles using insulation-meter | More than 10MΩ |
| 3 | Internal Resistance | AC testing method. In half capacity condition, using AC 1kHz testing method to measure the internal resistance figure between poles in battery connector. | ≅ 140mΩ |
| 4 | Discharging | 1) Use nominal capacity charging method full charge the battery. 2) 1C constant current discharge to 2.4V | Discharging time ≥ 35min |
| 5 | High temperature Resistant Capability | Put full-charged battery in 55°C ± 2°C thermostat for 2h, then use 1C discharge to 2.4V | 1) After test, 1C capacity should be ≥ 35min, internal resistance should be no more than 120% of internal resistance before test. 2) Case appearance should not be distorted and crack. |
| 6 | Low temperature Resistant Capability | 1) Use nominal capacity charging method full charge the battery. 2) Put full-charged battery in -25°C ± 2°C chest freezer for 24h, then use 0.2C discharge to 2.4V | 1) After test, 1C capacity should be no less than 70% of it before test, internal resistance should be no more than 150% of internal resistance before test. 2) Case appearance should not be distorted and crack. |
| 7 | Cycle Life | After 300 cycles of complete charge and discharge at 1C current, and record the capacity | Battery should not explode smoke, burn or burst. 1C charge and discharge cycle life should more than 300 times |



| | | | |
|----|--|---|---|
| 8 | Vibration Proof Capability | Set the vibration testing machine on F=20HZ, I=90%, T=30min. Record the discharging capacity after test. | <ol style="list-style-type: none"> 1) After test, 1C capacity should be no less than 85% of it before test Internal resistance discrepancy should be no more than 3mΩ. 2) Battery appearance should not be obvious nick, leak, smoke and burst. |
| 9 | Fall Proof Capability | <p>Hang the battery in one meter high in the air. Let the cells fall down by six sides (Anode and Cathode side, crosswise sides) 1 time each, all together 6 times.</p> | <ol style="list-style-type: none"> 1) Battery should not be leak, smoke and burst. 3) After test, 1C capacity should be no less than 95% of it before test. Internal resistance discrepancy should be no more than 3mΩ. |
| 10 | Capacity Retention | <ol style="list-style-type: none"> 1) In environmental temperature 20°C ± 5 °C condition, Use nominal capacity charging method full charge the battery 2) Lay the battery opened circuit 28D, then use 0.2C discharge it to cut off voltage | 0.2C discharging time should no less than 3.20H. |
| 11 | Constant Temperature and Humidity Proof Capability | Lay the battery in temperature 40±2°C and humidity 90% ~ 95% environmental chambers for 48h. Then lay the battery in environmental temperature 20±5°C condition for 2h. Later discharge it in 1C and record the capacity. | <ol style="list-style-type: none"> 1) Battery appearance should not be obvious nick, leak, smoke and burst. 2) 1C discharging capacity should no less than 36min. Internal resistance discrepancy should be no more than 3mΩ. |

3.4. Shipping Voltage (Inspection before shipment): ≥3.6V



4. Protection Capability Test Method and Request

| Item | Test Method | Request |
|------------------------------------|---|--|
| 1 Overcharge Test | Apply 2 times than rated battery voltage and a 2C charge current on the battery for 8hs. | Battery could not be burst, burn, leak and smoke |
| 2 Over discharge Test | Discharge the battery at 1C to cut off voltage, then discharge with loading 30 Ω for 24hs. | Battery could not be burst, burn, leak and smoke |
| 3 Pack Short-circuit Protection | 1) The battery is charged to rated capacity. 2) The battery is to be short-circuited by connecting the positive and negative terminals of the battery with thermocouple having a maximum resistance load of 0.3 Ω | Battery could not be burst, burn, leak and smoke After charging. |

5. Cell

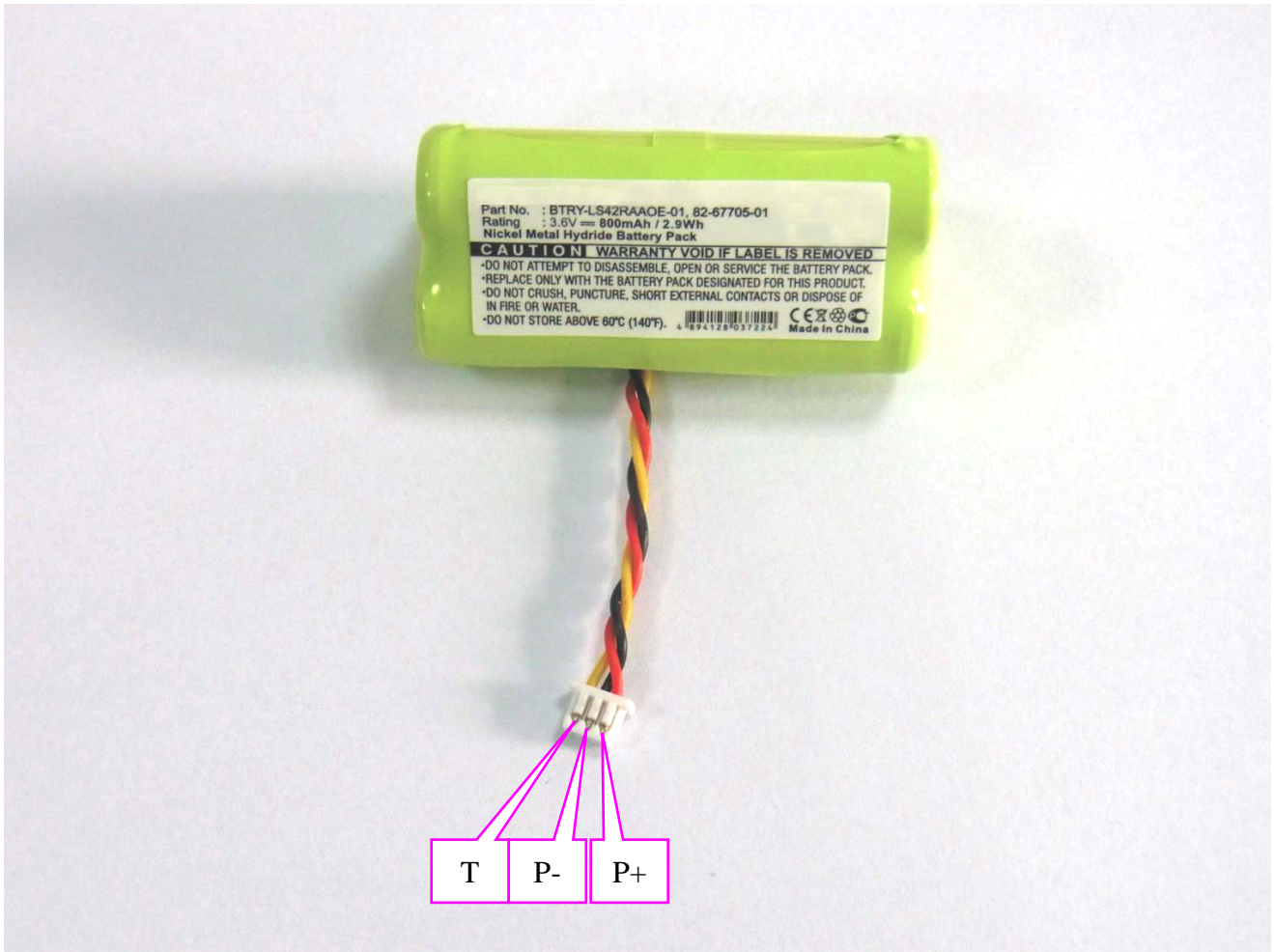
- 1) Chem : Ni-MH Cell
- 2) Spec :
 - : 43AAA*3/3.6V/800mAh (BFN)
 - : 43AAA*3/3.6V/800mAh (BFN)

6. OUTLINE

L=44.10 (+0/-0.50mm)

W=21.20 (+0/-0.50mm)

H=20.60 (+0/-0.50mm)



T 10K ± 0.5K

7. Packing

Packing method, as the customer required.