

Data Sheet

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Version: A-0 (Trial version)

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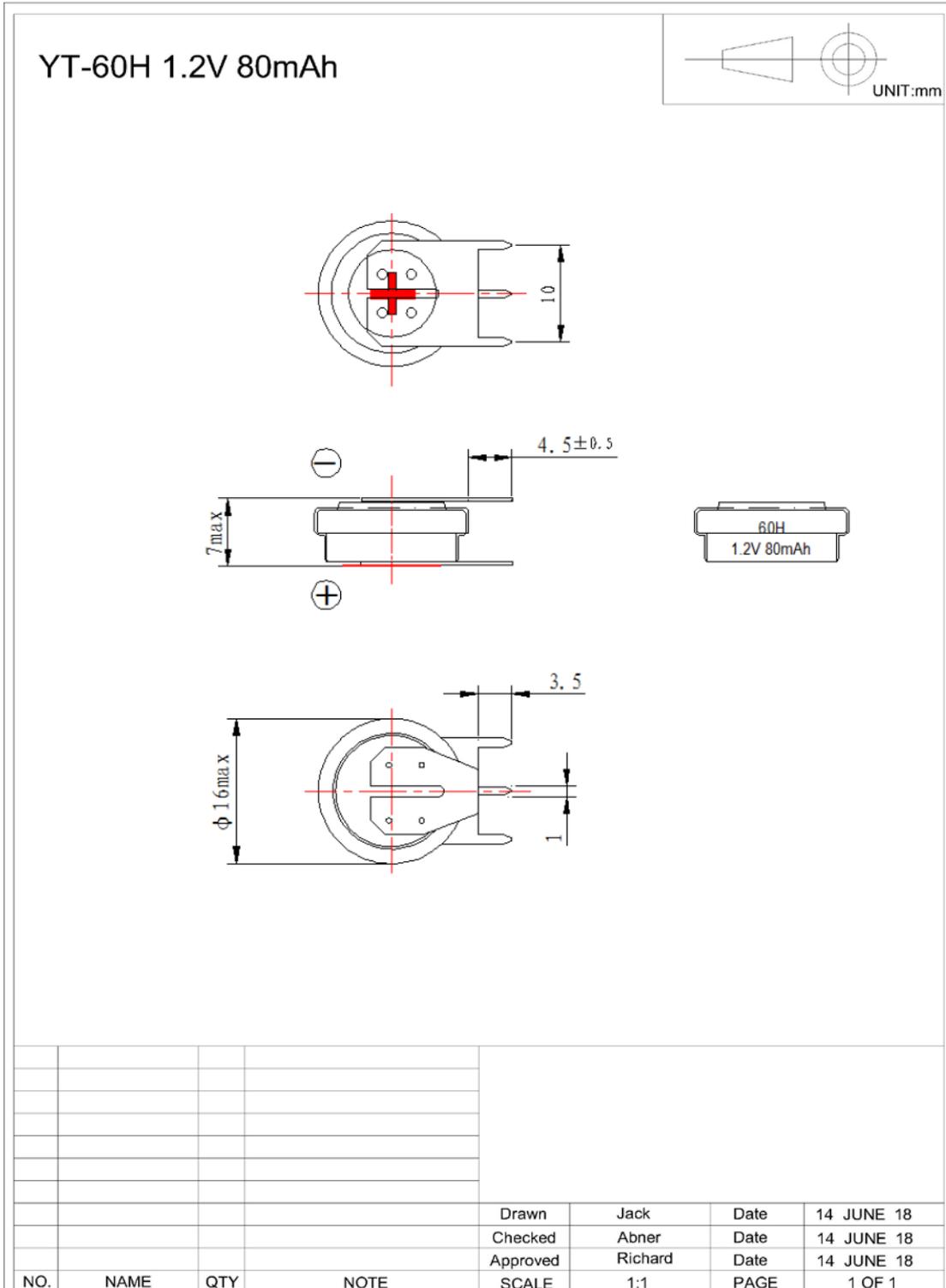
1.Preface

This document describes the product specification of the Nickel-Metal Hydride battery supplied by YUNTONG.

2.Battery configuration.

2.1 Model. : YT-60H 1.2V 80mAh

2.2 Assembly Drawing.



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3. Specification

NO.	Items	Standard	Remarks
1.	Typical capacity	80mAh	Discharge Current:0.2C Cut-off voltage:1.0V
2.	Minimum capacity	76mAh	
3.	Nominal voltage	1.2V	
4.	Discharge cut-off voltage	1.0V	
5	Standard Charge	0.1C CC(constant current) charge 16 hours	
6	Charge Current	4~16mA	
	Charging voltage	1.45~1.65V/CELL	
7	Rapid Charge	6.5 hours approx.(MAX 0.2C)	
8	Discharge current	Standard: 0.2C	1.0V/ cut off
		Max: 0.5C	
9	Internal Impedance	Max: 500 mΩ	(AC 1KHz after standard charge)
10	Energy	0.096Wh	
11	Weight	approx : /g	
13	Operating Temperature.	charge :0 ~ +45°C	Forbid to outrun provision scope a work.
		Discharge: -10 ~+45°C	
13	Storage Temperature	0 ~ +25°C	See the section 5 th

4. 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%RH

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Notes: Standard Charge/Discharge Condition:

Charge: 8mA(0.1C)×16hrs

Discharge: 16mA(0.2C) to 1.0V/cell

Description	Unit	Specification	Conditions	Remarks
Open circuit voltage	v	≥1.25	Standard Charge , 1hr rest	Unit cell
Internal impedance(Ri)	mΩ	≤500	Upon fully charge (1KHZ)	Unit cell
Low rate Discharge (0.2C)	minute	≥285	Standard Charge , 0.5hr rest before discharge	Allow to 5 cycles
Overcharge	N/A	No leakage, no explosion	Cell is discharged with 0.2C to1.0V,then 0.1C for 48 hours	
Charged Storage Characteristics	minute	≥150min	Standard charge Storage: 28 days Standard discharge (0.2C)	
IEC Cycles Test	Cycle	≥500	/	(see note 1)

5. Storage and Shipment Requirement

Item.	Requirement.
Storage temperature	0~+25°C
Humidity	60±15%RH

Please activate the battery once every 3 months according to the following method:

Charge at 0.1C for 15 hrs, rest 15 min, then discharge with 0.2C to 1.0V/cell, rest 15 min, then charge at 0.2C to 150min.

6. Scope:

All data involves voltage and weight to stack-up battery are equal to the value of unit cell time the number of unit cell which consisted in the stack-up batteries

Example: Stack-up batteries consisting E unit cells series

Nominal voltage of unit cell=1.2V

Nominal voltage of stack-up batteries =1.2V×1=1.2V

7. Warranty Time.

Warranty time is six (6) months from the date when the Nickel-Metal Hydride battery ship out from YUNTONG factory. But If the Nickel-Metal Hydride battery is found to have a problem due to use outside of YUNTONG recommended specification, YUNTONG will have no responsibility for the battery.

8. Others.

Any matters that this specification does not cover should be conferred between both parties.

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Notes:

1. Approximate charge time from discharged rate, for reference only IEC 61951-2 (2003)

IEC Cycle Life Test:

Cycle No.	Charge	Rest	Discharge
1	0.1 C, 16h	none	0.25C, 2h 20min
2—48	0.25C, 3h 10min	none	0.25C, 2h 20min
49	0.25C, 3h 10min	none	0.25C to 1.0V/cell
50	0.1C, 16h	1h-4h	0.2C to 1.0V/cell

Cycles 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3hrs. The number of cycles obtained when the test is completed shall be not less than 500 times.

2. EXTERNAL APPEARANCE

The cell / battery shall be free from cracks, scars, breakage, rust, discoloration, leakage and deformation

3. ELECTRICITY RETAINS:

Normal conditions with electricity retain 50%, if have special demands, confirm after negotiate

4. WARRANTY

One year limited warranty against workmanship and material defects.

5. WARRANTY

5.1 Do not reverse charge batteries

5.2 Do not short circuit batteries, permanent damage to batteries may result

5.3 Do not subject batteries to adverse condition such as extreme temperature, deep cycling and excessive

5.4 Store batteries in a cool dry place, Always discharge batteries before bulk storage or shipment.

5.5 Do not solder directly to cells or batteries.

5.6 If find any noise, excessive temperature or leakage from a battery, please stop its use.

5.7 Do not incinerate or mutilates batteries, may burst or release toxic material.

5.8 Do not mix new batteries in use with semi-used batteries, over-discharge may occur.

5.9 Do not remove the outer sleeve from a battery pack nor cut into its housing.

5.10 Never put a battery into water or seawater

6. CAUTION

6.1 Batteries should be charged prior to use

6.2 For charging methods please referred to our technical handbook

6.3 Use the correct charger for Ni-MH batteries

6.4 Avoid batteries being used in an airtight compartment. Ventilation should be provided inside the battery compartment, otherwise batteries may generate hydrogen gas, which could cause an explosion if exposed to an ignition source

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6.5 Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated or fire may result. The alkaline electrolyte is harmful to eyes and skin, and it may damage clothing upon contact

6.6 Keep away from children. If swallowed, contact a physician at once.

6.7 When using a new battery for the first time or after long term storage, please fully charge the battery before use

6.8 When using a new battery in use with semi-used batteries, over-discharge may occur.

6.9 When the battery is hot, please do not touch it and handle it, until it has cooled down.

6.10 When find battery power down during use, please switch off the device to avoid over discharge.

6.11 Unplug a battery by holding the connector itself and not by pulling at its cord.

6.12 After use, if the battery is hot. Before recharging it, allow it to cool in a well-ventilated place out of direct sunlight.

7、STORAGE

7.1 In order to ensure the battery to maintain the capacity level, We suggest Ni-MH battery and battery pack should be stored under the condition of 0 ~ 25 °C, low humidity, no corrosive gases .

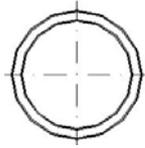
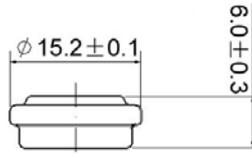
7.2 Ni-MH battery to avoid the high temperature or high humidity storage, otherwise it would lead to the battery leakage, rust, and the lower capacity

7.3 The long-term storage may lead to NIMH batteries and battery packs to reduce the capacity and need 1-3 charge / discharge cycles to reach the maximum discharge capacity.

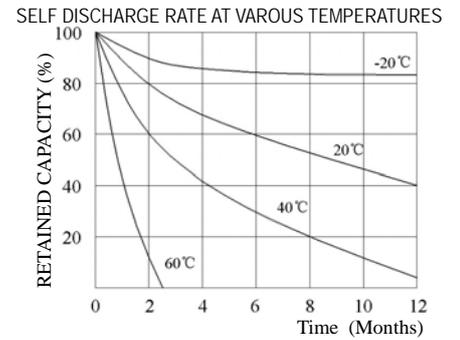
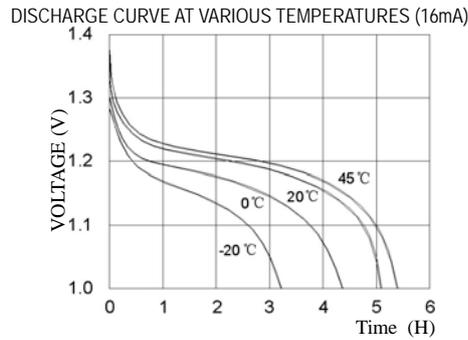
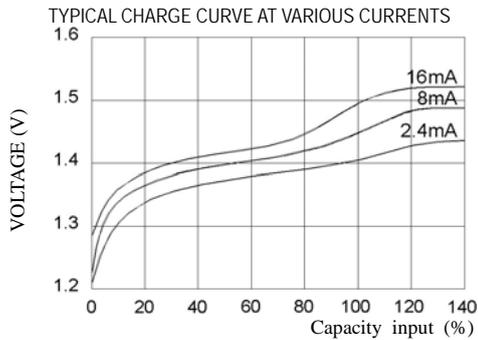
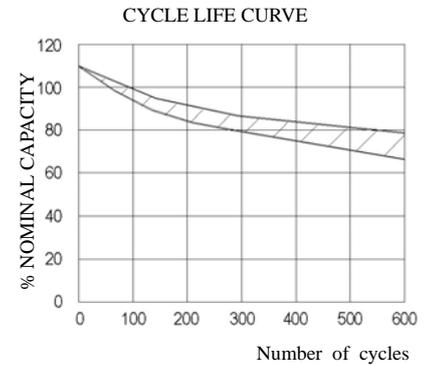
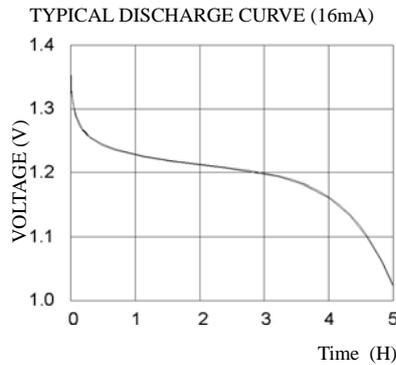
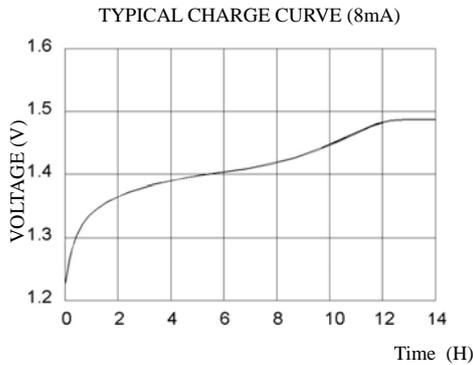
7.4 Three months after placing the battery need to be charge/discharge for one cycles.

Specification of 60H button NI-MH battery

一. BATTERY DRAWING



二. MAIN PERFORMANCE:



三. SPECIFICATION:

1. APPLICATION

This specification applies to the Ni-MH batteries

Model : 60H

2. CELL AND TYPE

2.1 Cell : Sealed Ni-MH Button Cell

2.2 Type : Button type

2.3 Size type : 1.2V

3. RATINGS

- 3.1 Nominal voltage : 1.2V
- 3.2 Nominal capacity : 80mAh/0.2CmA
- 3.3 Typical weight : 3.2g
- 3.4 Standard charge : 8mA × 14hours
- 3.5 Rapid charge : 16mA × 6hours
Trickle current : 2.4mA
- 3.6 Discharge cut-off voltage: 1.0V
- 3.7 Temperature range for operation (Humidity: Max.85%)
 - Standard charge 0~+45°C
 - Rapid charge +10~+45°C
 - Trickle charge 0~+45°C
 - Discharge -10~+45°C

- 3.8 Temperature range for storage (Humidity: Max.85%)
 - Within 2 years -20~+35°C
 - Within 6 months -20~+45°C
 - Within a month -20~+45°C
 - Within a week -20~+55°C

4. ASSEMBLY & DIMENSIONS

Per attached drawing

5. PERFORMANCE

5.1 TEST CONDITIONS

The test is carried out with new batteries (within a month after delivery)

ambient conditions

Temperature: +25 ± 5°C

Humidity: 60 ± 20%

Note 1

Standard charge : 8mA × 14hours

Standard discharge : 0.2C to 1.0V

5.2 TEST METHOD & PERFORMANCE

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥80	Standard Charge/discharge	Up to 3 cycles Are allowed
Open Circuit Voltage(OCV)	Voltage (V)	≥1.3	After 1 hour standard Charge	
Internal Impedance	m Ω /cell	≤900	Upon fully charge (1KHz)	
High rate Discharge(0.5C)	Minute	≥60	Standard charge Before discharge	
Discharge Current	mA	40	Maximum continuous Discharge current	
Over charge		No leakage Not explosion	2.4mA(0.03C) charge one year	
Charge Retention	mAh	64	Standard charge; Storage: 28 days; Standard discharge	
Cycle Life	Cycle	≥500	IEC285(1993)4.4.1	
Leakage		No leakage nor Deformation	Fully charge at 8mA, Stand 14 days	

Note 2 IEC285(1993)4.4.1 cycle life

Cycle number	Charge	Rest	Discharge
1-50	8mA for 14h		16mA for 5h

50 cycles of test as in the following table condition is repeated, The discharge time of the 100th,200th,400th,500th is more than 5 hours. (Ambient temperature is 20 ± 5°C)

5.3 Humidity

The battery shall not leak during the 14 days which it is submitted to the condition of a temperature of $33 \pm 3^{\circ}\text{C}$ and a relative humidity of $80 \pm 5\%$

6. OTHERS

6.1 We recommend you to set the cut-off voltage at 1.0V/cell

6.2 If the cut-off voltage is above 1.1V/cell, the battery may be underutilized resulting insufficient use of the available capacity

6.3 If it is below 1.0V/cell, the battery may have discharge or reverse charge to the cell

7. PRECAUTION

The cells shall be delivered in charged condition. Before testing or using, the cell shall be discharged at $20 \pm 5^{\circ}\text{C}$ at a constant current of 0.2CmA to a final voltage of 1.0V/cell.

7.1 Avoid throwing cells into a fire or attempting to disassemble them.

7.2 Avoid short circuiting the cells.

7.3 Avoid direct solidarity to cells.

7.4 Observe correct polarity when connecting.

7.5 Do not charge with more than our specified current.

7.6 Use cells only within the specified working temperature range.

7.7 Store cells in dry and cool place.