Ni-MH Battery Specification

Model ： H300-2/3AAA

Nominal Voltage: 1.2V

Capacity: 300mAh

Draft	Checking	Approved	Customer Confirmation
Dora	Peter		

1. Scope

This specification governs the performance of the following Nickel-Metal Hydride cylindrical battery.

2. Model：H300-2/3AAA

3. External Appearance

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

4. Ratings

The data involving the nominal voltage and the approximate weight of the battery pack。

Description	Unit	Specification	Conditions
Nominal Voltage	**V**	1.2V	
Rated Capacity	**mAh**	300	Standard charging / discharging
Minimum Capacity	**mAh**	300	Standard charging / discharging
Standard Charge	**mA**	30(0.1C)	Ta=0~45˚C (see note)
	hour	16	
Fast Charge	**mA**	150With charge termination control	-ΔV=5mv/ PCS Timer cutoff=110% input capacity Temp. cutoff= 40~50˚C, Ta= 0~40˚C dT / dt=0.6˚C/ min
	hour	2.4	
Trickle Charge	**mA**	9(0.03C)	Ta=0~45˚C (see note)
Discharge Cut-Off Voltage	**V**	1.0	Less than1.0C discharge
Maximum Continuous Discharge Current	**mA**	900(3C)	Ta= -10~50˚C
Storage Temperature (Percent 40-60 charged state)	**˚C**	-20-50	Less than 30 days
		-20-40	Less than 90 days
		-20-30	Less than 360 days
	%	65± 20	Relative humidity
Typical Weight	**g**	6.0	Approx.

5. Performance

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

Relative humidity ：65± 20% RH。
Ambient Temperature (Ta) : 25± 5°C。
***Notes: Standard charge / discharge condition
Charge : 30mA (0.1C) x 16 hrs, 30min rest
Discharge : 60mA (0.2C) to 1.0V
***The batteries must be standard discharged before charging

***Battery test vide infra:

Test	Unit	Specification	Conditions	Remarks
Capacity	**mAh**	≥ 300	Standard charge /0.2C Discharging	Up to 3 cycles Allowed
Open Circuit Voltage (OCV)	**V**	≥ 1.25	Within 7 days after standard charge	Unit：pcs
Internal Impedance (Ri)	**mΩ**	**≤ 50**	Upon fully charge (1Khz)	Unit：pcs
Discharge (0.2C)	**min**	≥ 300	standard charge, 30min rest before discharge at 0.2C to 1.0V	Up to 3 cycles Allowed
Over charge	**N/A**	No leakage nor explosion	0.1C charge for 48H	
Charged retention	**mAh**	**≥ 225 (75%)**	Standard charge, storage for 28 days, standard discharge at 20°C	
	mAh	**≥ 195(65%)**	Standard charge, storage for 7 days, standard discharge	
IEC Cycles Test	**cycle**	≥ 500	IEC 61951-2(2003) 7.4.1.1	
Short Circuit	**N/A**	Deformation & leakage may occur but no explosion	After standard charge, short circuit for 1 hr (lead wire =1.5mm^2 x 20mm)	
Vibration Test	**N/A**	Δ V<0.10V	Charge at 0.1C for 16 hrs, then leave for 24 hrs. Check battery before/after vibration. Amplitude: 1.5mm,	

			Vibration: 3000CPM any direction for 60 mins
Drop Test	**N/A**	Δ V<0.10V	Charge at 0.1C for 16 hrs, then leave for 24 hrs. Check battery before / after drop on the wooden board of Thickness: 30 mm Height: 50 cm Direction is not specified test for 3 times.

6. Warranty

One year limited warranty against workmanship and material defect。

7. Cautions

1. Reverse charging is not acceptable。
2. Charge before use, use the correct charger for Ni-MH batteries。
3. Do not charge / discharge with more than the specified current。
4. Do not short circuit the cell / battery。
5. Do not incinerate or mutilate the cell/battery。
6. Do not solder directly to the cell / battery。
7. The life expectancy may be reduced if the cell / battery is subjected to adverse conditions, like extreme temperature, deep cycling, excessive overcharge /over-discharge。
8. Store the cell / battery in a cool dry place。
9. For charging methods please reference to our technical handbook。
10. When find battery power down during use,please switch off the device to avoid over discharge。
11. When not using a battery, disconnect it from the device。
12. Well-ventilated place out of direct sunlight。
13. During long term storage, battery should be charged and discharged once every half a year。
14. When the battery is hot, please do not touch it and handle it, until it has cooled down。

15. Do not mix batteries with other battery brands or batteries of a different chemistry such as alkaline and zinc carbon batteries。

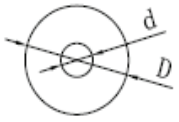
16. Do not mix new batteries in use with semi-used batteries, battery may be over-discharged。

17. Do not mix new batteries in use with semi-used batteries, battery may be over-discharged。

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

8.Specifications of single cell

Dimensions (mm)



h	
D	10.5± 0.3
d	5.0 ± 0.3
H	28.5± 0.5

Nominal Voltage ： 1.2V

Rated Capacity ：300mAh

Minimal Capacity ：300mAh

Standard Charge ：30mA,16hrs

Rapid Charge ：150 mA,2.4 hrs (control required)

Continuous Discharge ：less than 900mA

Final Discharge Voltage ：1.0V

Weight:6.0g (Approx)

Service Life：(>500 cycles)

(according to IEC discharge characteristics standard)

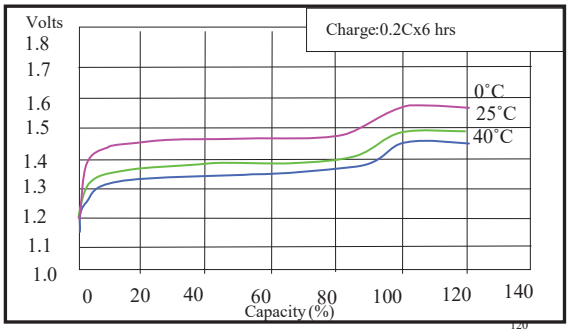
Internal Resistance：≤50mΩ

Ambient Temperature：

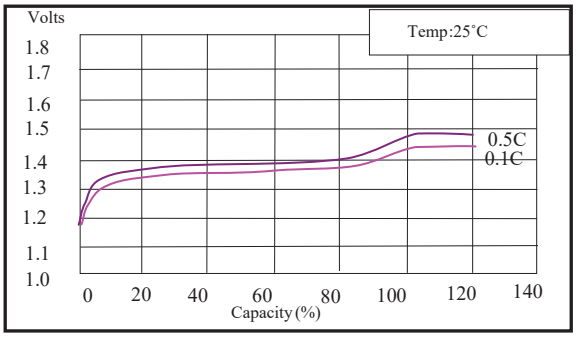
Standard charge： 0 ~45℃

Rapid charge：0 ~40℃

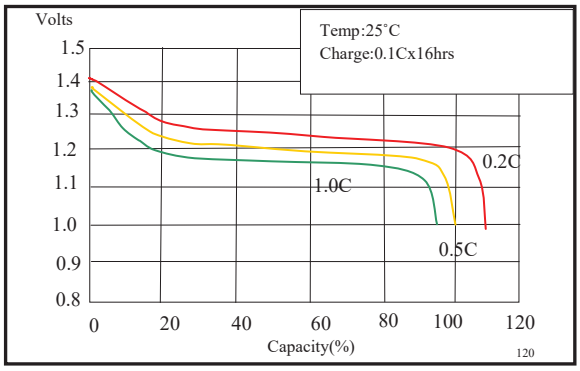
Discharge ：-20 ~ 50℃



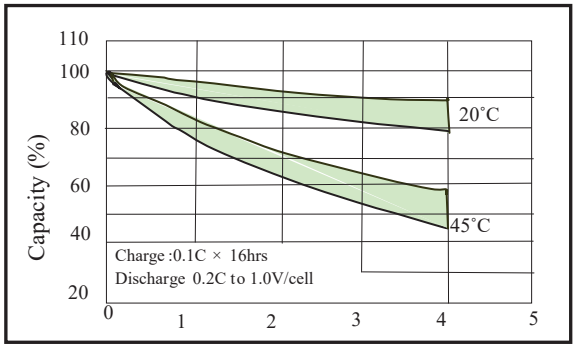
0.2C Rate Charging Curves



0.1C/0.2C Rate Charging Curves



0.1C/0.5C/1.0CRate Discharging Curves



Storage & self discharge Curves

Store: (65+20% RH)

Less than 30 days : -20 ~50℃

Less than 90 days : -20 ~40℃

Less than360 days: -20 ~30℃

Note:

1.After charge at 0.1C for 16hrs and discharge at

0.2C to 1.0V at 25℃) 。

2. Control required**:**

1) -Δ V: 0~5mV 2) dT/ dt: 0.6℃/ min 3) Tco: 45~ 50℃

9.Notes: 1. T_a: Ambient Temperature

2. Approximate charge times from discharged state, for reference only.

3. IEC 61951-2 (2003) Cycle Life Test

Cycle No.	Charge	Rest	Discharge
1	0.1C×16hrs	None	0.25C×2hs20mins
2-48	0.25C×3hrs10mins	None	0.25C×2hs20mins
49	0.25C×3hrs10mins	None	0.25C to1.0V/cell
50	0.1C×16hrs	1-4hr(s)	0.2C to1.0V/cell
Cycles 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3hrs			