1. Scope

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

2. Model：1.2V 67AF4500mAh, standard industrial type, flat top.

3. Ratings

The data involving the nominal voltage and the approximate weight of the battery cell.

Description	Unit	Specification	Conditions
Nominal Voltage	V	1.20	Unit：cell
Nominal Capacity	mAh	4500	Standard charging / discharging
Rated Capacity	mAh	4300	Standard charging / discharging
Standard Charge	mA	450 (0.1C)	Ta =0~45℃（see note）
	hour	16	
Quick Charge	mA	2250(0.5C)With charge termination control	-△V=5~8mv/ cell Timer cutoff=120% input capacity Temp. cut off= 45~50℃, Ta= 0~40℃ dT / dt=0.5~1.0℃/ min
	minute	140 approx. (0.5C)	
Trickle Charge	mA	225(0.05C)	Ta =0~+40℃（see note）
Discharge Cut-Off Voltage	V	1.0	Less than1.0C discharge
		0.9	1.0~2.0C discharge
Maximum Discharging Current(mA)(continuous）	mA	9000(2C)	Ta= 0~+50℃
Storage Temperature (40-60% charged)	℃	-20~+40	Less than 30 days
		-20~+30	Less than 90 days
		-20~+25	Less than 180 days
	%	65±20RH	Relative humidity
Typical Weight	g	64.0	Approx.

The batteries must be standard discharged before charging.

Battery test information:

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥4300	Standard Charge / Discharge	Up to 3 cycles Allowed
Open Circuit Voltage	V	≥1.35	Within 1 hr after standard charge	Unit：cell
Internal Impedance	mΩ	≤25	Upon fully charge at 1Khz	Unit：cell
Rapid discharge(0.5C)	min	≥114	Standard charge, 30min rest before discharge at 0.5C to 1.0V/cell	Up to 3 cycles Allowed
Over charge test	N/A	No explosion Leakage may occur	Cell is discharged with 0.2C to1.0V, then 0.1C charged for 48 hours	
Over discharge test	N/A	No explosion	Cell is discharged with 0.2C to 0.00V, then with 1C forced discharged for 1 hour	
Charge Retention(20°C)	mAh	≥2700(60%)	Standard charge, storage for 28 days at 20°C, standard discharge	
	mAh	≥2700(60%)	After standard charged and storaged for 7 days at 40±2°C, standard discharged with 0.2C to battery cell 1.0V	
IEC cycle life test	cycle	≥500	IEC 61951-2 7.4.1.1	

Attention: The object of abuse test is single cell.

Append: IEC61951-2 Endurance in cycles

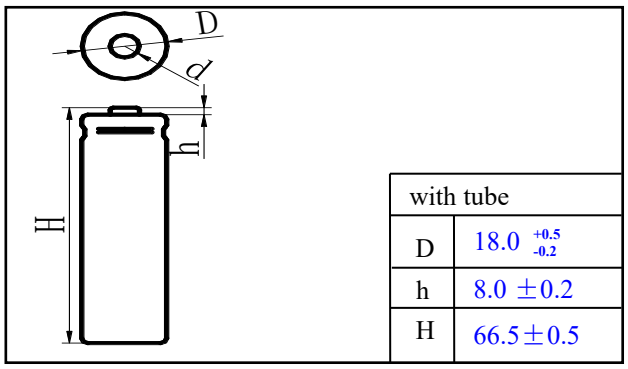
Standard Cycling Test:

Cycle No.	Charge	Rest	Discharge
1	0.1C × 16hrs	None	0.25C × 2hrs 20mins
2~48	0.25C × 3hrs 10mins	None	0.25C × 2hrs 20mins
49	0.25C × 3hrs 10mins	None	0.25C to 1.00V/cell
50	0.1C × 16hrs	1~4hrs	0.2C to 1.00V/cell
Cycle 1 to 50 shall be repeated until the discharge capacity less than 3hrs			

The endurance test is considered complete when two such successive cycles give a discharge duration less than 3 hours. The number of cycles obtained when the test is completed shall be not less than 500 times.

Specifications of single cell

Dimensions (mm)



with tube	
D	18.0 $^{+0.5}_{-0.2}$
h	8.0 ±0.2
H	66.5±0.5

Nominal Voltage: 1.2V

Capacity: 4500mAh

Minimum Capacity :4300mAh

Standard Charge: 450 mA, 16hours

Quick Charge: 2250mA, 140mins

Continuous Discharge: less than 9000mA

Discharge Cut-off Voltage: 0.90V

Weight: 64.0g (Approx)

Service Life: ≥ 500cycles

(According to IEC discharge characteristics standard)

Internal Impedance : ≤25mΩ (1KHz)

Ambient Temperature:

Standard charge: 0 ~+45℃

Quick charge: 0 ~+40℃

Standard discharge: -20 ~+ 50℃

Storage : 65+20% RH

Less than 30 days : -20 ~ +40℃

Less than 90 days:-20 ~ +30℃

Less than180 days:-20 ~+25℃

Note :

1.After 0.1C charge for 16hrs and discharge at 0.2C to 1.0V at 25℃。

2. Control required:

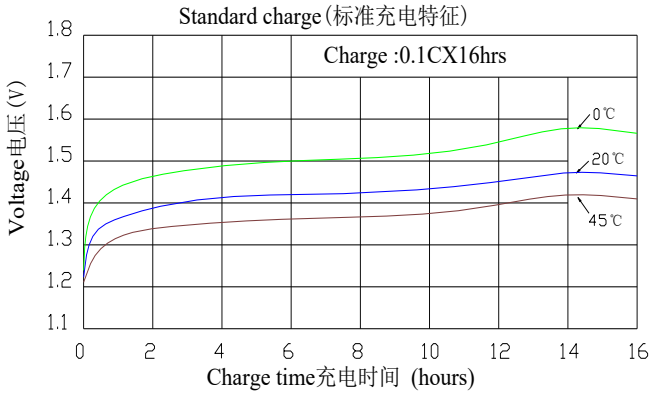
1) -ΔV:5~8 mV

2) dT/ dt: 0.5-1.0℃/ min

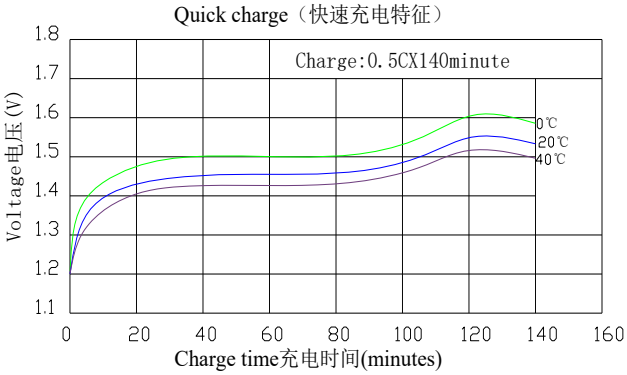
3) Tco: 40~ 50℃

Typical electrical performance

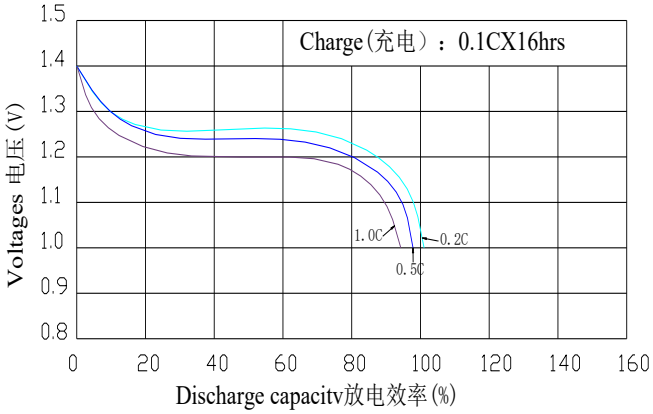
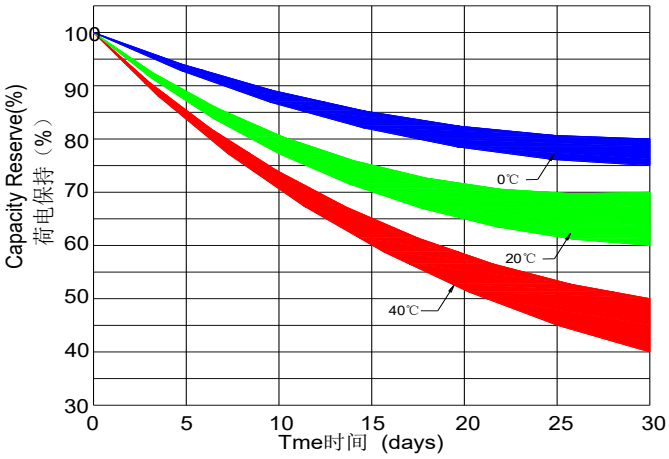
Standard charge（标准充电特征）



Quick charge（快速充电特征）



Discharge characteristics（放电特征）



Charge retention curves of Ni-MH cylindrical cell
AtvariousStorage remperature
Ni-MH圆柱型电池在不同温度荷电保持曲线图