CHEAPE TECHNOLOGY INTL LTD

1、SCOPE

This specification governs the performance of the following Nickel-Metal hydride Cylindrical cell and its stack-up battery。

Model： AAA700

Cell Size： AAA 平 ($\phi 10.1^{\pm 0.2} \times 43.6^{\pm 0.5}$)

2、 DATA OF STACK UP BATTERIES

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 three unit cells

Nominal voltage of unit cell=1.2V

Nominal voltage of stack-up batteries =1.2V×3=3.6V

3、 RATINGS

Description	Unit	Specification	Conditions
Nominal Voltage	V/Cell	1.2	Unit cell
Nominal Capacity	mAh	700	Standard Charge/Discharge
Standard Charge	mA	70 (0.1C)	T_1=0~45℃(see Note1)
	Hour	14~16	
Fast Charge	mA	350(0.5C)	-ΔV=0~5mV/cell or Timer Cutoff=120% nominal capacity or Temp.Cutoff=55℃, T_1=10~45℃
	hour	2.4approx (see Note 2)	
Trickle Charge	mA	(0.03C)~(0.05C)	T_1=0~45℃
Standard discharge	mA	140 (0.2C)	T_1= -30~60℃ Humidity：Max.85%
Discharge Cut-off Voltage	V/cell	1.0	
Storage Temperature	℃	-30~65	Discharged state、Humidity、Max.85%
Typical Weight (unit cell)	Gram	14	

4、 PERFORMANCE

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

Ambient Temperature ： 20±5℃

Relative Humidity ： 65±20%

Notes： Standard Charge/Discharge Conditions：

Charge： 70mA(0.1C)× 14 hours

Discharge：140 mA(0.2C) to 1.0V/cell

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥700	Standard Charge Discharge	up to 3 cycles are allowed
Open Circuit Voltage (OCV)	V/cell	≥1.25	Within l hour after standard Charge	
Internal Impedance	mΩ/cell	32	Upon fully charge(kHz)	
High Rate Discharge (1C)	Minute	≥54	Standard Charge, l hour rest Before discharge by 700mA (1C) to 1.0V/cell	up to 3 cycles are allowed
Overcharge	/	No leakage nor explosion	65mA(0.1C) Charge 28 days	
Charge Retention	mAh	≥490(70%)	Standard Charge, Storage：28 days, Standard Discharge	
IEC Cycle Life	Cycle	≥500	IEC285 (1993) 4.4.1	(See Note 3)
Accelerated Cycle Life	Cycle	≥400	Charge: 350mA(0.5C) Discharge: 700mA(1C) To 1.0V/cell, End-of: 80% nominal Capacity	Cycling charging cut-off condition：-△V=0~5mV/cell and Timer cut –off=110% Nominal capacity Input and Temp.cutoff=55℃
Leakage		No leakage nor deformation	Fully charged at: 350mA(0.5C) for 2.4hrs Stand for 14 days	
Vibration Resistance		Change of voltage should be under 0.02V/cell, Change of impedance should be under 5 milli-ohm/cell	Charge the battery 0.1C 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 under 0.02V/cell Change of impedance should be under 5 mille-ohm/cell	Charge the battery 0.1C 14hrs Then leave for 24hrs,check bat-before/after dropped, Height 50cm Wooden board (thickness 30mm) Direction not specified, 3 times.	

5、CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

6、EXTERNAL APPEARANCE

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

7、WARRANTY

One year limited warranty against workmanship and material defects.

8、CAUTION

⑴Reverse charging is not acceptable.

⑵Charge before use. The cells/batteries are delivered in an uncharged state.

⑶Do not charge/discharge with more than our specified current.

⑷Do not short circuit the cell/battery Permanent damage to the cell/battery may result.

⑸Do not incinerate or mutilate the cell/battery.

⑹Do not solder directly to the cell/battery.

⑺the life expectancy may be reduced if the cell/battery is subjected adverse conditions like: extreme temperature, deep cycling, excessive overcharge/ over-discharge.

⑻store the cell/battery uncharged in a cool dry place. Always discharge batteries before bulk storage or shipment.

Notes：

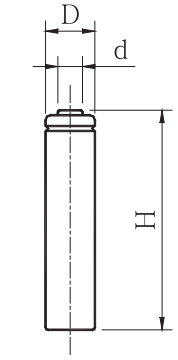
⑴ T_1: Ambient Temperature.

⑵ Approximate charge time from discharged state, for reference only.

⑶ IEC285(1993)4.4.1 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
Cycles l to so shall be repeated until the discharge duration on any 50th Cycle becomes less than 3 h.			

MODEL No: AAA700 **Description:** 700mAh AAA SIZE Ni-MH



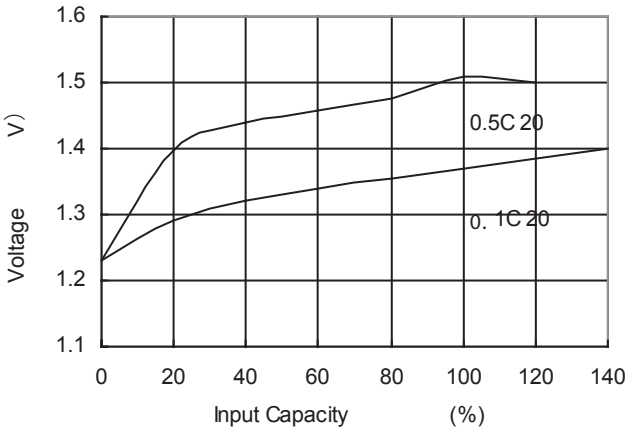
With tube

Dimension of the cell	
D	Φ 10.1± 0.2
d	Φ 5.1± 0.05
H	43.6± 0.5

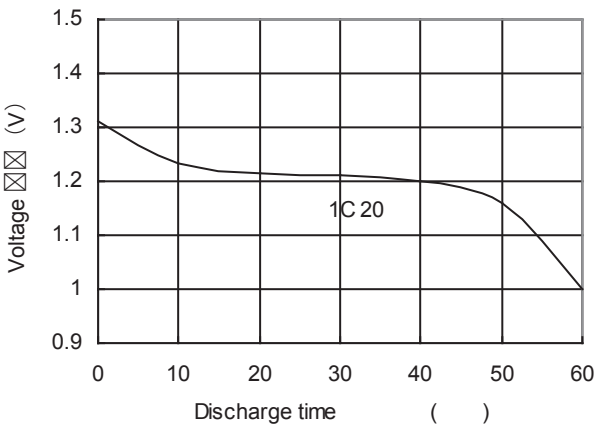
Specification

Nominal Capacity			700 mAh
Nominal Voltage			1.2 V
Charge current		Standard	70mA
		Quick	210mA
		Fast	350mAh
Charge time		Standard	14~16 Hrs
		Quick	4.0 Hrs
		Fast	2.4Hrs
Ambient Temperature	Charge	Standard	0 ~45
		Quick	10 ~45
		Fast	10 ~45
	Discharge		-30 ~60
	Storage		-30 ~65
Internal Impedance(mΩ) (After Charge)			32
Weight			14g

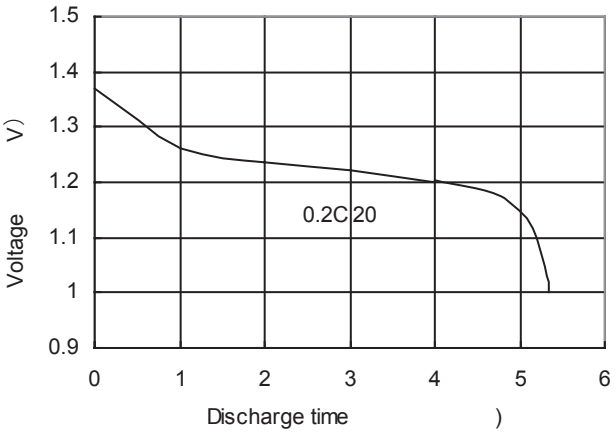
Charge( )



Discharge at high rate( )



Discharge at low rate( )



Charge Retention( )