比亚迪股份有限公司
BYD COMPANY LIMITED

SEALED METAL HYDRIDE

RECHARGEABLE CELLS & BATTERIES

APPROVAL SHEET

TO : _____

BYD MODEL NO : H-AA1800B

CUSTOMER APPROVED P/N : _____

DATE OF SUBMISSION : 08-Oct-11

ATTACHMENT : SPECIFICATION

TOTAL NO. OF PAGES : **5**

SPECIFICATION NO : S-HAA1800B01

VERSION NO : **1.0**

Drawn	***CUI-MIAO***	
Approved	**Customer Dept.** Ⅰ	*GUOQINGLI*
	Technology Dept. Ⅰ	*ZHENGYI-HUANG*
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(*with company chop)*
Please sign and return one copy to us

BYD COMPANY LIMITED

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1. APPLICATION

This specification applies to the Ni-MH batteries.

Model : H-AA1800B

2. CELL AND TYPE

2.1 Cell : Sealed Ni-MH Cylindrical Cell.

2.2 Type : H-AA1800B

2.3 Size type: AA

2.4 IEC type: HR15/49

3. RATINGS

3.1 Nominal voltage : 1.2 V

3.2 Nominal capacity : 1800 mAh/0.2CmA (Note 1)

3.3 Typical weight : 26 g (unit cell)*

"*":Battery weight is only for reference.

3.4 Standard charge : 180 mA×15hours

3.5 Rapid charge : 1800mA×1.2hours(Max.)

(with-ΔV, Time, Temperature control system)

Trickle current : 54～90 mA

3.6 Discharge cut-off voltage 1 V (0.2CmA)

3.7 Temperature range for operation (Humidity: Max. 85%)

Standard charge	0～ +45℃
Rapid charge	+10～ +40℃
Trickle charge	0～ +45℃
Discharge	－5～+ 65℃

3.8 Temperature range for storage (Humidity: Max. 85%)

Within 1 years (Note 2)	－2 0～ +25℃
Within 6 months	－2 0～ +35℃
Within a months	－2 0～ +45℃
Within a week	－2 0～ +55℃

Note 1: Rated capacity figures are based on single cell performance.

Note 2: We recommend cells or batteries are charged after one cycle every 6 months.

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 : +20±5℃ Humidity : 65±20%

Standard charge : 180mA(0.1C)×15hrs

Standard discharge : 0.2C to 1.0V

5.2 TEST METHOD & PERFORMANCE

Test	Unit	Specification		Conditions	Remarks
Capacity	mAh	Typical	1800	Standard charge/discharge	up to 3 cycles are allowed
		Minimum	1700		
Open Circuit Voltage(OCV)	Voltage (V)	≥1.25		After 1 hour standard charge	
Internal impedance	mΩ/cell	≤30		Upon fully charge (1KHz)	
High rate discharge(1C)	minute	≥48(1440mAh)		Standard charge before discharge	End Voltage is 1.0V/Cell
Overcharge		no leakage nor explosion		180 mA(0.1C) charge for 28 days	
Charge Retention	mAh	≥1170		standard charge; storage: 28 days Standard discharge	
Cycle Life	cycle	⩾500		IEC61951-2	see note 3
Leakage		no leakage nor deformation		Fully charge at 1800 mA(1C), then storage 14 days	

Note 3 IEC61951-2 cycle life

Cycle number	Charge	Rest	Discharge
1	0.1CmA for 16h	none	0.25CmA for 2.33h
2~48	0.25CmA for 3.17h	none	0.25CmA for 2.33h
49	0.25CmA for 3.17h	none	0.25CmA to 1.0V/cell
50	0.1CmA for 16h	1~4h	0.20CmA to 1.0V/cell

50-cycle test as per above table is repeated . The discharge time of the 100th, 200th, 300th, 400th, 500th should be more than 3 hours respectively. (Ambient temperature is 20±5)℃

5.3 Humidity

The cells shall not leak during the 14 days when it is submitted to the condition of a temperature of 33±3℃ and a relative humidity of 80±5% (salting is allowed).

5.4 Vibration

Cells shall be mechanically and electrically normal after vibration which has an amplitude of 4mm(0.1575 inches) a frequency of 1000 cycles per minute, which should be continued in any directions during 60 minutes

5.5 Shock

Cells shall be mechanically and electrically normal after being subjected to a drop from a height of 450mm (17.716inches) onto an oak board in a voluntary axis respectively 3 times.

5.6 Short

Cells shall not explode after 1 hour short-circuit test.

5.7 Incorrect polarity charging

Cells shall not explode after 5 hour of incorrect polarity charing at 1 CmA.

6. PRECAUTION

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

6.2 If it is below 1.0V/cell, cells may have over-discharged or reverse charged.

6.3 Do not detect -△V for first 5 minutes of charging.

6.4 The cells shall be delivered in charged condition, Before testing or using, the cells shall be correctly charged in accordance with this specifications.

7. WARNING

7.1 Avoid direct soldering onto cells.

7.2 Observe correct polarity when connecting.

7.3 Do not charge with more than our specified current.

7.4 Use only within the specified working temperature range.

7.5 Do not subject cells or batteries to mechanical shock.

7.6 Do not mix cells of different manufacture,capacity,size or type within a battery.

7.7 Seek medical advice immediately if a cell or battery has been swallowed.

7.8 When disposing of secondary cells or batteries ,keep cells or batteries of different electro-chemical systems separate from each oter.

7.9 Do not maintain secondary cells and batteries on charge when not in use.

8. DANGER!

8.1 Avoid throwing cells into a fire or attempting to disassemble them. As the electrolyte inside is strong alkaline and can damage skin and clothes.

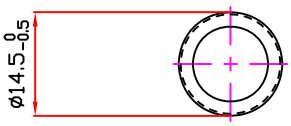
8.2 Avoid short circuiting. It may be leakage.

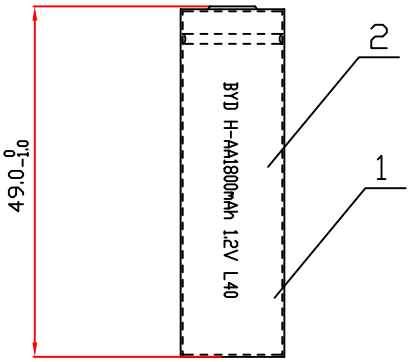
8.3 Not to be used in sealed conditions for Ni-MH cells.

9. HSF (Hazardous Substance Free)

9.1 The product can meet the HSF requirement.

PART NO.:H-AA1800B SAMPLE NO.:





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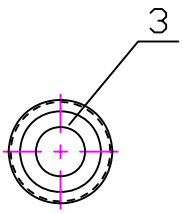

NO.	NAME	SIZE	QTY	NOTE	SAP NO
3	WASHER	AA	1	WHITE	416309
2	PVC	23X54	1	GREEN U	433885
1	CELL	AA	1	NI-MH	

比亚迪股份有限公司
BYD COMPANY LIMITED

DRAWN	CUI-MIAO	DATE	2011/10/08
CHECKD	GUOQING-LI	DATE	2011/10/08
APPROVED	JIANGUO-TANG	DATE	2011/10/08
SCALE		UNIT	MM