ULTRA MAX®

NI-MH BATTERIES SPECIFICATIONS

(MODEL NO.): STIUMX-3D

(FILE NO.):

(CUSTOMER NO.):

(PREPARED BY):	Claudia
(CHECKED BY):	
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1. Preface

This specification describes the physical, functional and electrical characteristics of the D Ni-Cd High Temperature rechargeable battery.

2. Model

STIUMX-3D
Desc. Ni-Cd 3.6 V D 4000mAh High Temp

3. Appearance

There shall be no defects such as remarkable scratches, discoloration, electrolyte leakage or deformation.

4. Product Identification

Technical Specification of 3.6V/4000mAh Nickel Cadmium High Temperature Battery.

(1)	Model	:	STIUMX-3D
(2)	Dimension (mm)	:	L max.124.0 W max.32.7 (mm)
(3)	Nominal Capacity at 20±5℃	:	4000mAh
	Typical Capacity at 0.2C		4100mAh
(4)	Nominal Voltage	:	3.6V
(5)	Standard Charging at 20±5℃	:	400mA for 14h
(6)	Fast Charging at 20±5℃	:	8000mA for 6h
(7)	Continuous Charging at 55±2℃	:	200mA
(8)	Trickle Charging (after fast charge)	:	100mA
(9)	Standard Discharging	:	800mA– 3.0V
(10)	Max. Continuous Discharge Current	:	2000mA
(11)	Operation Temperature		
	Charge	:	0 ~ +50℃
	Fast Charge	:	+10 ~ +60℃
	Continuous Charge	:	0 ~ +60℃
	Trickle Charge (after fast charge)	:	0 ~ +60℃
	Discharge	:	0 ~ +60℃
	Storage	:	5 ~ +40℃
(12)	Optimum Storage Temperature	:	+ 5 ~ +25℃
(13)	Weight	:	Approx. 370g
(14)	Internal Impedance	:	≦ 80mΩ

5. Characteristics

Unless otherwise specified, the standard range of atmospheric conditions for marking and is as follows:

Ambient Temperature	:	20± 5℃
Relative Humidity	:	65± 20%
Atmospheric Pressure	:	960± 100mbar

Technical testing condition and specification - refer to ICEL 1001 and UL924 and National Standard GB/T11013-94.

5.1 Available Capacity

This table gives minimum capacities of the battery under various charge and discharge conditions. The temperature is 20℃± 5℃.Deviations depending on test conditions may be observed.
* Cut off voltage 1.0V per cell.

CHARGE	NORMAL	NORMAL
Rate	0.1C	0.2C
Current (mA)	400	800
Duration (hours)	14	6
DISCHARGE Rate	**CAPACITY(mAh)**	**CAPACITY(mAh)**
0.2C 800mA	>4000	>4000
0.5C 2000mA	>3800	>3800

5.2 Continuous Charging

The cell is designed to be continuous charged between +15 to + 60 with the above mentioned constant current (0.05C). Occasional temperatures of 0 to 70 degrees C are acceptable for short durations only (＜2 weeks). A" TRICKLE" Charge is designed to follow a " quick" charge. With low temperatures, below 0 ,charge voltage must be limited to 1.55 volts per cell. In case of charge current bi-regime, or pulse charge, cell must be charged at a minimum trickle charge rate of 0.033C between the pulses.

Charge	Rate	Current	Duration	Temperature
Standard	0.1C	400mA	14 h	+5℃ ~ + 60℃
Fast	0.2C	800mA	6 h	+10℃ ~ + 60℃
Trickle	0.025C	100mA	Continuous	0℃ ~ + 60℃

5.3 Temperature Characteristics

The following table gives the minimum available capacity of the cell under the charge conditions: Deviations depending on test conditions may be observed.

CHARGE	Temperature	PERMANENT	PERMANENT	PERMANENT
Rate		0.05C	0.05C	0.0875C
Current (mA)	+55℃	250	250	438
Duration (hours)		24	36	30
DISCHARGE Rate	**Temperature**	**CAPACITY(mAh)**	**CAPACITY(mAh)**	**CAPACITY(mAh)**
0.25C 1000mA	+55℃	≥3800	≥3800	≥3800

Remarks : The battery are able to meet UL924 standard in a sense that when it is used with a nominal constant current charger of 250mA for 30 hours and a 6 W Tungsten Halogen lamp load for discharge.

5.4 Charge Retention

After a 28 day storage at 20℃± 5℃ the cell shall retain typically 70% of its initial capacity, it being initially fully charged.

After a 7 day storage at 40℃± 5℃ cell shall retain typically 70% of its initial capacity, it being initially fully charged.

5.5 Storage

MAH recommends storing the open circuit battery in a discharged state with the temperature range of +5℃ to +25℃, and the relative humidity range of 60% to 70%.
An extended storage temperature range of -10℃ to +70℃ with 65%± 20% relative humidity is permitted for short periods or on an intermittent basis.

5.6 Overcharge

Cell shall be charged at a constant current of 0.1C for 28 days at an ambient temperature of 20± 5℃, the capacity at 0.2C discharge rate is typically 5000mAh.

5.7 Life Duration in Continuous charging

Life duration of cell depends mainly on its temperature and overcharge capacity. The end life is considered when its capacity reaches 60% of the initial capacity. Typical life is 4 years with the average use conditions defined as follows:

1) Working temperature is 55℃.
2) Continuous charging rate of 0.05C.
3) Discharge once per month at 0.25C.

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