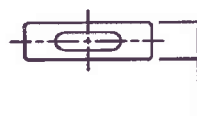
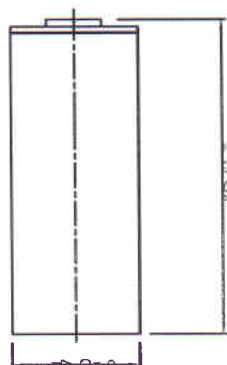


1.SPECIFICATIONS:

Type	Sealed Ni-MH Prismatic Battery cell
Size	7/5F6
Model	F6(HF 18/07/68)
Nominal Voltage	1.2V
Nominal Capacity	1400mAh
Typical Internal Impedance(at 1 kHz) (fully charged at 20°C Max)	35mΩ
Average Weight	26.5g
Dimensions(including PVC tube)	
Height(h)	67.0 ^{-1.0} mm
Width(w):	17.0 ^{-1.0} mm
Thickness(t):	6.1 ^{-0.7} mm
Capacity (20°C,Standard Charge,0.2 I _t A discharge to 1.0V)	
Typical Capacity:	1450mAh
Minimum Capacity	1350mAh
Charging Method:(20°C)	
Standard Charge:	Charge with 0.1 I _t A (140mA) for 12~14 h
Quick Charge	Charge with 0.3 I _t A (420mA) for 4.5 h
Fast Charge:	Charge with 0.5 I _t A (700mA) for 132 min (Under -ΔV controlled 10mV)
Max Overcharge Current	0.1 I _t A (140mA)(No longer than 100 h)
Trickle Current	42~70mA
Operating Temperature(reference only):	
Storage	-20°C ~+35°C
Discharge:	-20°C ~+60°C
Standard Charge	0°C ~+45°C
Fast Charge	+10°C ~+45°C



Approved by:

Documented by:

Date: 2008-Aug-4

2.Performance

Testing Item	Testing Conditions	Standard
Standard Testing Condition	If not specially described, Temperature $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Relative Humidity: $65 \pm 20\%$ 。 Parament measuring instruments: $\pm 1\%$ for voltage/current/capacity; $\pm 2^{\circ}\text{C}$ for temperature; $\pm 0.1\%$ for time.	
(1)Standard Charge	$0.2 I_t$ A discharge to 1.0V,then $0.1 I_t$ A charge for 12-14 h(Constant Current)	
(2)Fast Charge	$0.2 I_t$ A discharge to 1.0V,then $0.5 I_t$ A charge for 132 min(Under $-\Delta V$ controlled 10mV)	
(3)Open Circuit Voltage	Test within 14 days after standard charge	$\geq 1.25\text{V}$
(4)Nominal Capacity	Have 1-4 hours of rest after standard charge, Then $0.2 I_t$ A ischarge to 1.0V 3 cycles permitted	≥ 290 min
(5)High Rate Discharging Capacity	Have 1-4 hours of rest after fast charge, Then $0.5I_t$ A discharge to 1.0V,3 cycles permitted	≥ 108 min
(6)Cycle Life	※for IEC61951-2: 2003(7.4.1.1)	≥ 500 th cycle
(7)Overcharge	After(4) testing, The cell shall be charge ,in an ambient temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$,at a constant current of $0.1 I_t$ A for 48h,After this charging operation ,the cell shall be stored , in an ambient temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$,for not less then 1 h and not more then 4 h. The cell shall then be discharge ,at $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ at a constant current of $0.2 I_t$ A to a final votage of 1.0V.	≥ 300 min.
(8)Over-Discharge Safety device operation	The cell shall undergo aforced discharge in an ambient temperature $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$,at a constant current of $0.2 I_t$ A, to a final volatge of 0V. The current shall then be increased to $1.0 I_t$ A and the forced discharge continued in the same ambient temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$,for 60min.	The cell shall not disrupt or burst, Leakage of electrolyte and deformation of the cell are acceptable
(9)Temperature	Fast charged as (2) under $20 \pm 5^{\circ}\text{C}$,stored 3 hours, under following temperatures,then $0.5 I_t$ A discharge to 1.0V: a) Discharging Temperature: 0°C b)Discharging Temperature: 20°C c)Discharging Temperature: 40°C	Discharging Time 90 min 100 min 90 min
(10)Charge(capacity) retention(Self-discharge)	After standard charge, stored for 28 days under $20 \pm 5^{\circ}\text{C}$,then $0.2 I_t$ A discharged to 1.0V	Discharging Time ≥ 210 min
(11)Storage	Standard Charged as (1) condition and stored for 12 months under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$,then tested as (4) condition	Discharging Time ≥ 240 min

(12)Mechanical test : bump test	1)The battery shall be subjected to drop from the height of 1 m to an oak board more than 1 cm thick,the test should be carried for 3 times at each direction of the battery axis.	Battery maintain electrical performance, allowing a mechanical deformation or injury
	2) The ability of the cell to withstand mechanical Shock shall be checked by means of bump test carried out in accordance with IEC 60068-2-29. After standard charge, The bump test shall be changed carried out in an ambient temperature of $20\pm 5^{\circ}\text{C}$, under the following conditions: -peak acceleration(A) 98m/s ² (10gn) -corresponding duration to pulse(D) 16ms -corresponding velocity charge 1,00ms -number of bumps 1000 \pm 10 When the bump test has been completed,each cell shall be stored for not less then 1 h and not more then 4 h in an ambient temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$,It shall then be discharge in the same ambient temperature with a constant current of 0.2 I _t A to a final volatge of 1.0V	≥ 300 min.

3. Note:

- 1).Do not dispose of cell into fire or be dismantled under any condition.
- 2).Do not mix different cell types and capacities in the same battery assembly.
- 3).Charge and discharge under specified ambient temperature recommended to specification.
- 4).Short circuit leading to cell venting must be avoided .
- 5).Never solder onto cell directly.
- 6).Cell reversal should be avoided.
- 7).Use batteries in extreme condition may affect the service life, such as:extreme temperature, deep cycle,extreme overhcharge and over discharge.
- 8).Batteries should be stored in a cool dry place.
- 9).Once problems be found,stop using,send batteries to local dealer.

4,Storage

- 1).It is strongly recommended to store Ni-MH batteries and cells in the temperature range from -20to 25°C ,and in low humidity and no corrosive gas environment,to maintain a reasonably high capacity recovery level.
- 2). Avoid storage higher (e.g. 35°C),lower temperature than -20°C ,or higher humidity which would result in deterioration or damage to the cells and batteries such as follows:

5, Permanent capacity loss

Electrolyte leakage resulted from the expansion or shrinkage of organic material inside the cells

6, Rust of metal parts.

7. Up to three full cycles of charge /discharge after long-termed storage may need to obtain highest capacity.

8. Quality assurance period: 12 months.

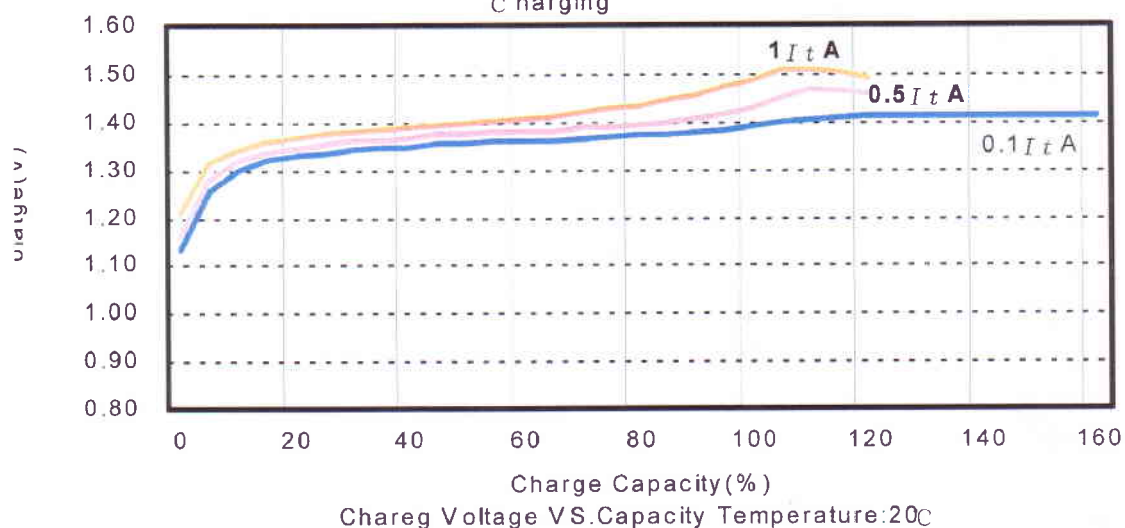
※IEC61951-2: 2003(7.4.1.1) Endurance in cycles

Cycle number	Charge	Stand in charged condition	Discharge
1	0.1 I_t A (140mA) for 16h	none	0.25 I_t A (350 mA) for 2 h 20 min
2-48	0.25 I_t A (350 mA) for 3h 10 min	none	0.25 I_t A (350 mA) for 2 h 20 min
49	0.25 I_t A (350 mA) for 3h 10 min	none	0.25 I_t A (350 mA) to 1.0 V
50	0.1 I_t A (140 mA) for 16h	1 h to 4 h	0.2 I_t A (280 mA) to 1.0 V

Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes Less than 3 h. At this stage, a repeat capacity measurement as specified for cycle 50 shall be carried out.

The endurance test is considered complete when two such successive capacity cycle gives a discharge duration of less than 3 h. The total number of cycles obtained when the test is completed shall be not less than 500.

Effect Different Current On Ni-MH Prismatic battery Cell Charge Curve
C charging



Effect Different Current On Ni-MH Prismatic battery Cell
Discharge Curve

