DiVolta®

Product Specifications Model No.: DN-3600SCP

1. APPLICABILITY

This specification is applicable to DiVolta rechargeable sealed NiMH cylindrical cell, DN-3600SCP.

2. GENERAL

2.01	Type designation	:	DN-3600SCP
2.02	Nominal voltage	:	1.2V
2.03	Shape and dimension	:	Refer to Drawing 1
2.04	Typical weight	:	65g
2.05	Typical Capacity	:	3650mAh after standard charge and 0,2C discharge
2.06	Nominal Capacity	:	3600mAh
2.07	Standard charge	:	0.1C for 14hrs. to 16 hrs.
2.08	Fast charge	:	Up to 3600mA -delta V controlled: 5mV/cell dT/dt controlled: 1°C per min.
2.09	Operating Temperature	:	Charging: Standard: 0°C to 45°C Fast: 10°C to 45°C Discharging: -10°C to 65°C
2.10	Storage Temperature	:	< 1 year: -20°C to 35°C < 3 months: -20°C to 45°C
2.11	Maximum dischargecurrent	:	66A
2.12	Discharge cut-off Voltage	:	0.8V/cell

3. APPEARANCE

There shall be no dirt, scratch or deformation detrimental to practical service in appearance.

4. TEST METHOD

4.1 Electrical

Method of sampling : MIL-STD-105E level II single sampling normal inspection.
Voltmeter : Digital Voltmeter with the precision of 1mV
(internal resistance not less than 1 Meg ohm)
Test temperature : 20 ± 5 °C
Relative Humidity : 65 ± 20 %

5. Performance

5.1 Standard Charge
Discharge cell to 1.0V at 0.2C the charge at 0.1C for 16hrs. or at 0.2C for 8hrs.

5.2 Capacity
The initial capacity is the discharge capacity of the cell measured with a discharging current of 0.2C within one hour after the standard charge. Up to three cycles are allowed in order to reach the minimum capacity.

5.3 Open circuit Voltage
The open circuit Voltage is above 1.25V within one hour after standard charge.

5.4 Initial Impedance
The initial internal resistance is measured at 1KHz an 20°C within one hour after standard charge (<4.1mOhm)

5.5 High rate capacity
after standard charge

Discharge Rate	Discharge Current (mA)	Final Voltage (V)	Minimum Capacity (mAh)	Minimum Discharge Duration (min.)
0.2C	720	1.00	3420	283
1C	3300	0.97	3300	55
3C	10800	0.95	3135	18
10C	30000	0.90	3000	6
20C	60000	0.80	2500	2.5

5.6 Charge retention
After standard charge and a storage time of 28 days at ambient temperature, the capacity is measured using standard discharge.
Capacity > 2340mAh

5.7 IEC cycle life
According IEC285 (1993) 4.4.1, the cycle life is 500 cycles.

5.8 Leakage
After charging at 1C and storage for 14 days at room temperature,
no leakage nor deformation.

5.9 Short Circuit
Test must be carried out in protective chamber, with extreme caution.
After standard charge, the cell is short circuited for one hour with the following wire:
max. resistant of wire: 0.1Ohm
Leakage and deformation may occur, however, no explosion is allowed.

5.10 Vibration Test This means the endurance of the cell against vibrations

Conditions:	Amplitude:	4.0mm
	Vibration:	1000CPM
	Time:	60min.

Criteria:No major mechanical damage nor functional loss.
Minor OCT changes (<20mV) are acceptable

5.11 Drop Test

This means the endurance of the cell against drop

Conditions:	Height:	1m
	Direction:	Not specified
	Surface:	Oak board 5 cm thick
	Number of tests:	Three times

Criteria:No major mechanical damage nor functional loss.
Minor OCT changes (<20mV) are acceptable

5.12 Overcharging

After charging at 0.1C for 48 hrs, no leakage or deformation.
Then discharge at 0.2C to 1.0V, capacity >3600mAh

5.13 Abusive Charge

Test MUST be carried out in a protective chamber, with extreme caution!
Charge at 1C for 1hr.
Leakage and deformation may occur, however no explosion is allowed

5.14 Over Discharge

Test must be carried out in protective chamber, with extreme caution.
The cell is forced to be discharged at 0.2C to 0.2V then at 1.0C for at least 1 hr.
Leakage and deformation may occur, however no explosion is allowed

5.15 Reverse charging

Reverse charging is not allowed.

6. Warranty

As long as the cell is treated in accordance with this product specification, one yaer limited warranty against workmanship and material defects is given.

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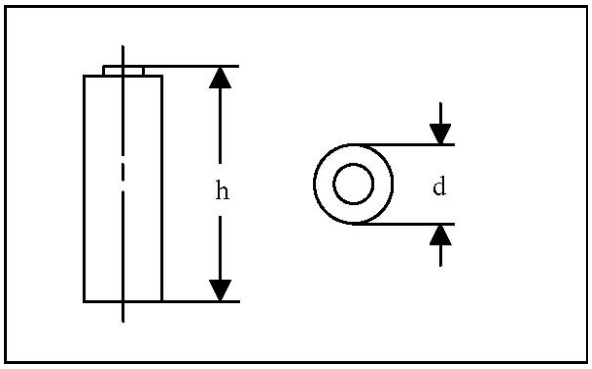
7. Drawings and Dimensions

DN-3600SCP Cell

Sealed rechargeable Ni-MH cylindrical cell

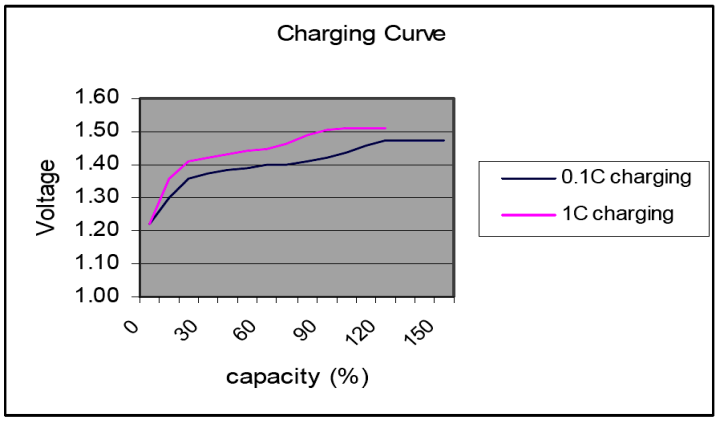
Cell dimensions (with shrink sleeve)

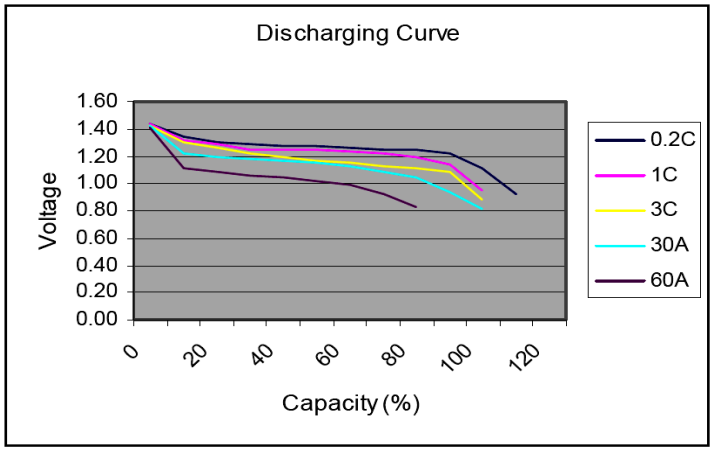
Diameter	22.7 – 0.4mm
Height	43.5 – 0.4mm
Approximate Weight	65g



Specifications

Nominal Voltage			1.2V
0.2C Discharge Capacity*	Typical**		3650mAh
	Nominal		3600mAh
Typical Internal Impedance At 1kHz, fully charged, RT			4mOhm(max)
Charge	Standard		360mA for 14 to 16hrs.
	Fast***		Up to 3600mA - delta V or dT/dt controlled
Life Expectancy	500 cycles		
Operating Temperature	Charge	Standard	0ºC to 45ºC
		Fast***	10ºC to 40ºC
	Discharge		-10ºC to 65ºC
	Storage	< 1 year	-20ºC to 35ºC
		< 3 months	-20ºC to 45ºC





* After charging for 14 to 16 hrs. with 0.1 C
** Average capacity
*** 5mV or 1°C per min.

8. PACKAGING

Packaging shall be a form agreed by both parties.

PRECAUTION & HANDLING

(1 Do not disassemble or short-circuit batteries.
(2) Do not deform cells by applying pressure.
(3) Do not dispose of batteries in fire.
(4) Do not allow metal objects to contact the battery terminals.
(5) Do not mix with used or other battery type (such as alkaline with carbon zinc or Ni-Cd).
(6) Do not solder the batteries directly. If soldering or welding connection to the battery is required, consult our engineer for proper methods.
(7) Do not over-discharge batteries. Force discharging batteries by external power source in a series may cause explosion.
(8) To install or remove batteries, follow the equipment manufacturer's instructions.
(9) Keep battery away from small children. If swallowed, consult a physician at once.
(10) Remove batteries from device when it is not in use.