Ni-Cd Specification and Characteristics

Usage Instruction
Battery packs and cells should be delivered in discharged condition and be correctly charged according to the specifications before testing or using.
Never mix charged and discharged SBS batteries together. Rechargeable cells or battery packs should not be used with dry cells or other type of rechargeable batteries.
Avoid throwing cells into fire or disassembling them.
Avoid directly soldering onto cells.
Observe correct polarity.
Charge according to our specifications.
Use only within specified working temperature range.
Store in dry and cool place.

Standard Charging
Quasi-constant current charging
Quasi-constant current charge is effectively employed for SBS battery. By inserting rediting resistors between the DC power supply and the battery, an approximately constant current is produced and kept above the specified value at the end of charge time by adjusting the resistance of the resistor.

TEMPERATURE SENSOR RAPID CHARGE CIRCUIT
A sensor is attached to the cell, which will terminate the quick charge mode when the temperature exceeds the specified value. Combined with a simple charger as shown in the figure below, the fast charge SBS batteries controlled by temperature sensors are able to obtain a full charge within approximately one hour.

- ΔV SENSOR FAST CHARGE CIRCUIT
The charge voltage increases to a peak point at the end of charge period and then to fall. At the point where the voltage drops by Δv, charge is terminated automatically. With this system, 100% charge capacity (nominal) is maintained in a wide temperature range (0-45°C).

<table>
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<tr>
<th>Charge Method</th>
<th>Cycle(repeated) Use</th>
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<tr>
<td>Operations</td>
<td>Quasi-constant-current charge</td>
</tr>
<tr>
<td>V = Battery voltage</td>
<td>I = Charge current</td>
</tr>
<tr>
<td>Feature</td>
<td>Simple and economical charge method vastly used for long charge time with low charge current</td>
</tr>
<tr>
<td>No. of output terminals</td>
<td>2</td>
</tr>
<tr>
<td>Charge time</td>
<td>15 hours</td>
</tr>
<tr>
<td>Charge current</td>
<td>0.1 CmA</td>
</tr>
<tr>
<td>Charge level at charge control</td>
<td>approx. 120%</td>
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<td>Application examples</td>
<td>Cordless Phone, Shaver</td>
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</table>
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CHARGING CHARACTERISTICS

During charging, the voltage of SBS batteries increases as charging proceeds. It then decreases slightly in the final stage due to heat generation inside the cell, eventually reaches an equilibrium. The voltage also varies widely according to the ambient temperature.

DISCHARGING CHARACTERISTICS

It remains at approximately 1.2V for 85% of the discharge period, although the operating voltage of SBS batteries varies slightly depending on discharge current.

CYCLE CHARACTERISTICS

The life of SBS battery depends on the conditions of use. However, under normal operation standard batteries can withstand over 800 charge/discharge cycles.
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STORAGE CHARACTERISTICS

The self-discharge of SBS batteries accelerates as the temperature increases. However, SBS batteries have minimal deterioration in battery performance even after long-term storage. Moreover, the cell capacity that decreased through discharging during storage can be easily restored to its original level by recharging.

HIGH RATE DISCHARGE CHARACTERISTICS

APPLICABLE FOR POWER TOOLS

The performance of SBS battery remains satisfactory at a discharge rate as high as 10C, 20C, etc., which has made U power successful in this field.

HIGH TEMPERATURE CHARACTERISTICS

APPLICABLE FOR EMERGENCY LIGHTING

At 25°C the H-type SBS battery exhibits maximum capacity and maintains more than 90% capacity at a temperature of 60°C.