Tadiran Lithium Ion Rechargeable Battery
Model TLI-1520A

1. Scope

This specification apply to the 1520 size Lithium Ion Rechargeable battery supplied by Tadiran Batteries Ltd.

Notice: Charging circuit and application load profile have to be approved by Tadiran prior to the use of this cell.

2. Characteristics

2.1. Physical

2.1.1. Length: 20 mm Max.
2.1.2. Diameter: 14.8 ±0.3 mm.
2.1.3. Weight: 9 ±0.2 gr. Max.

2.2. Electrical / Charge

2.2.1. Charge Voltage: 4.1 V
2.2.2. Charge Current: 25 mA Max.
2.2.3. Charge Method: CCCV (Constant Current/Constant Voltage)
2.2.4. End of Charge: 5 mA Max. per cell
2.2.5. Charge Temp. Range: -20 to +50 °C

Charge temperature can be extended to -40 ÷ +85 °C provided that the max. charge current is limited to 5 mA.

2.3. Electrical / Discharge

2.3.1. Nominal Current: 50 mA
2.3.2. End of Discharge: 2.5 V @ Room Temperature
2.3.3. Discharge Temp. Range: -40 to +85 °C
2.3.4. Performance Characteristics:

<table>
<thead>
<tr>
<th>Item</th>
<th>Performance</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery Capacity</td>
<td>90 [mAh]</td>
<td>Discharge at 25 mA</td>
</tr>
<tr>
<td></td>
<td>85 [mAh]</td>
<td>Discharge at 250 mA</td>
</tr>
<tr>
<td>Charge Discharge Cycles</td>
<td>85 [mAh]</td>
<td>After 100 cycles Discharge at 50 mA</td>
</tr>
<tr>
<td>Temperature</td>
<td>80 [mAh]</td>
<td>Discharge at -20°C at 50 mA</td>
</tr>
<tr>
<td></td>
<td>90 [mAh]</td>
<td>Discharge at 60°C at 50 mA</td>
</tr>
<tr>
<td>Charge Retention</td>
<td>80 [mAh]</td>
<td>After 5 years at RT, Discharge at 50 mA</td>
</tr>
<tr>
<td>(reversible)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impedance</td>
<td>Less than 250 mohm</td>
<td>Impedance at 1 KHz</td>
</tr>
</tbody>
</table>
Discharge curves at Room Temperature

Discharge Curves at Several Temperatures, @ 0.5 A

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Charge/ Discharge Cycling Performance

2.4. Cell / Battery Protection (to be applied by the user)

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over charge protection</td>
<td>Cell voltage should not be higher than 4.2 V</td>
</tr>
<tr>
<td>Over discharge protection</td>
<td>Cell voltage should not be lower than 2.4 V</td>
</tr>
</tbody>
</table>

2.5. Safety Characteristics

The cells successfully passed the following safety tests:
- Short circuit at RT, 55 °C and 85 °C.
- Temperature test up to 170 °C.
- Crush.
- Impact.
- Nail penetration.
- Over charge up to 125 mA, 12 V.
- Over discharge (300%) up to 0.5 A.

2.6. Battery pack assembly and usage considerations

- For 2 cells or more in series, voltage shall be monitored on each cell.
- For more than 2 cells in parallel, maximum charge current shall be limited to 50 mA for the whole pack.

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