PLCB-140220A

Rechargeable lithium-ceramic battery

High Safety
High Energy
Higher Space Usage Efficiency

Benefits
- Ultra-Safe and Good Heat-Dissipation.
- High Energy Density and Capacity.
  - By large foot-print battery cells and max. cell volume: 263% energy density of LMO.
- Modular cost decrease.
  - Save cooling system, thermal management and BMS.
- Operational Window -20°C~60°C.
- Higher Space Usage Efficiency. Able to be set in any possible place.

Key features
- Ultra-Safe.
  - No fire, no smoke and no leakage after physical impact.
  - Hazard Level 1~3 passed.
- High Energy Density.
  - 445Wh/L and 166Wh/Kg in 2016
  - 676Wh/L and 216Wh/Kg in 2019
- High Stability.
  - 98% recovery at 85°C after 14 days.
  - (Swelling ratio <10%) Great duration at -40°C in 3 month.
  - (No salting out)
- Already mass production
- Large Footprint

Main applications
- EV, ESS
- Large Energy Required Applications
- Great Safety Required Applications
- Large Foot-Print Required Applications

Transportation and storage:
- Store in a dry place at a temperature preferably not exceeding 30°C.
- For long-term storage, keep the battery within a (30 ± 15) % state of charge.

Electrical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal capacity</td>
<td>10250 mAh (when charged up to 4.4 V)</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>3.8 V</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>4.4~2.75V</td>
</tr>
</tbody>
</table>

Mechanical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (max)</td>
<td>3.2 mm</td>
</tr>
<tr>
<td>Width (max)</td>
<td>140 mm</td>
</tr>
<tr>
<td>Length (max)</td>
<td>220 mm</td>
</tr>
<tr>
<td>Typical weight</td>
<td>250 g</td>
</tr>
</tbody>
</table>

Operating conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Standard charge</th>
<th>Max charge current</th>
<th>Standard discharge</th>
<th>Max discharge current</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC-CV (Constant Current &amp; Constant Voltage)</td>
<td>Current 0.2CmA/ Voltage 4.4V</td>
<td>2C</td>
<td>CC (Constant Current)</td>
<td>Current 0.2CmA</td>
</tr>
<tr>
<td></td>
<td>Cut-off current: 0.05C</td>
<td></td>
<td>Cut-off voltage: 2.75V</td>
<td>2C</td>
</tr>
<tr>
<td></td>
<td>Operation window: – 20°C to + 60°C</td>
<td></td>
<td>Cycle Life (recommend)</td>
<td>SOCC80% (4.2V) to DOD95% (3.3V)</td>
</tr>
</tbody>
</table>

* Consult ProLogium for optimized charging below -20°C
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Technology
- Lithium cobalt oxide-based cathode.
- Graphite-based anode.
- Lithium-ceramic electrolyte.

When handling ProLogium batteries:
- Do not throw the battery into fire, nor heat.
- Do not disassemble nor modify.
- Do not leave in a place of ≥60°C.
- Prevent from water or moisture.
- Do not add strong shock, nor drop.
- Do not solder lead directly to battery body.
- Do not short + and – terminals with metal.
- Do not charge beyond the condition which described on the delivery specification.
- Do not inverse charge.

Typical characteristics:

Charge/Discharge Profile
- 0.2/0.5 CC/CV charge to 4.4V, cut off 0.05C
- 0.2C discharge from 4.4V to 2.79V

Cycle Life Test
- 0.5C CC/CV charge to 4.4V, cut off 0.05C, rest 15min
- 0.5C discharge to 3.0V, rest 15min