ULP, *Ultra Low-Profile*, Aluminum Electrolytic Capacitors

New Product Intro
Traditional methods of low-profile bulk storage consume valuable PCB space!

• A single ULP has the same bulk storage capacitance as dozens of solid tantalum chip caps, depending on values!

• About 70% less board space than ULP alternatives!

• Eliminates wasted space between components in bulk arrays
Smaller, more reliable circuits are possible with ULP, Ultra Low-Profile Capacitors.

- Lower in height than V-Chip SMT aluminum electrolytics and comparable height profile to solid tantalums with much greater bulk storage capability per unit area
- Provides high bulk storage capacitance in the least amount of space
- Overall size and weight of finished board is reduced
- Reduces component count, increases reliability
Keys to high performance and space savings

• Superior performance of an aluminum electrolytic in a low-profile package
  – 3,000 hr. life @ 85 °C
  – -40 to 85 °C at full-rated voltage

• Higher capacitance density due to unique packaging and seal system
  – Up to 0.4J/cc energy density

• Primary seal is a near-hermetic heat-sealed polymer. No rubber gaskets or grommets!

1. Case cover
2. Heat-sealed capacitor pouch
3. Bottom cover
Mechanical design characteristics.

- Available in two case thicknesses of 2.2 or 3.2 mm with a footprint of 62 x 42 mm
- Flex (FPC) Lead System allows on or off-board mounting
- Mating ZIF Connector
- Nickel-Silver outer case
  - Robust construction, 10g vibration rating
- Light weight
  - 2.2 mm (17 g)
  - 3.3 mm (22 g)
ULP Ultra Low-Profile series includes 16 values/voltage combinations.

Capacitance from 500µF to 24,000µF, 4 to 63 WVDC

<table>
<thead>
<tr>
<th>WV (v)</th>
<th>ULP (2mm)</th>
<th>ULP (3mm)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>85 °C Cap (µF)</td>
<td>85 °C Cap (µF)</td>
</tr>
<tr>
<td>4.0</td>
<td>7,800</td>
<td>24,000</td>
</tr>
<tr>
<td>6.3</td>
<td>6,600</td>
<td>20,000</td>
</tr>
<tr>
<td>10</td>
<td>5,200</td>
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<tr>
<td>16</td>
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<td>11,000</td>
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<tr>
<td>50</td>
<td>700</td>
<td>2,200</td>
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<tr>
<td>63</td>
<td>500</td>
<td>1,500</td>
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Designed for maximum capacitance in the smallest package.

ULP capacitors allows designers to “think thin,” while achieving higher end-product performance...

- Bulk storage in portable devices
- Compact power supplies
  - Consumer
  - Industrial
  - Mil/Aero
ULP Ultra Low-Profile Series Summary

• Ultra-thin package design: 2 or 3mm
• One ULP capacitor has the same bulk storage capacity as dozens of solid tantalum chips, depending on values.
  – Not an alternative to hybrid tantalums or high ripple current types
• Up to 0.4J/cc energy density, saves space
• Values from 500µF to 24,000µF; 4 to 63 WVDC
• Rated at 3,000 hours at 85 °C
• Reduce size, weight & cost
• Increases reliability – one device vs. many; fewer PCB connection points
Thank You!