# 2.7V 100F Ultracapacitor Cell

## Features and Benefits
- High performance product with low ESR
- Exceptional shock and vibration resistance
- Long lifetimes with up to 500,000 duty cycles*
- Compliant with UL, RoHS and REACH requirements

## Typical Applications
- Actuators
- Emergency Lighting
- Telematics
- Automotive
- Security Equipment
- Backup System
- UPS System

## Typical Characteristics

### Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Standard (-40°C to 65°C) at 2.7 V</th>
<th>Extended (-40°C to 85°C) at 2.3 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Voltage, $V_r$</td>
<td>2.7 VDC</td>
<td>2.7 VDC</td>
</tr>
<tr>
<td>Surge Voltage</td>
<td>2.85 VDC</td>
<td>2.85 VDC</td>
</tr>
<tr>
<td>Rated Capacitance, $C$</td>
<td>100 F</td>
<td>100 F</td>
</tr>
<tr>
<td>Min. / Max. Capacitance, Initial</td>
<td>100 F / 120 F</td>
<td>100 F / 120 F</td>
</tr>
<tr>
<td>Typical Capacitance, Initial</td>
<td>106 F</td>
<td>106 F</td>
</tr>
<tr>
<td>Rated (Max.) ESR, Initial</td>
<td>12 mΩ</td>
<td>12 mΩ</td>
</tr>
<tr>
<td>Typical ESR, Initial</td>
<td>8 mΩ</td>
<td>8 mΩ</td>
</tr>
<tr>
<td>Typical ESR, Initial, 5 sec</td>
<td>11 mΩ</td>
<td>11 mΩ</td>
</tr>
<tr>
<td>Maximum Leakage Current</td>
<td>0.26 mA</td>
<td>0.26 mA</td>
</tr>
<tr>
<td>Maximum Peak Current, Non-repetitive</td>
<td>61 A</td>
<td>61 A</td>
</tr>
</tbody>
</table>

### Physical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Mass</td>
<td>21.1 g</td>
</tr>
</tbody>
</table>

### Power & Energy

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temp. Range</td>
<td>Standard (-40°C to 65°C) at 2.7 V</td>
</tr>
<tr>
<td>Maximum Stored Energy, $E_{max}$</td>
<td>0.10 Wh</td>
</tr>
<tr>
<td>Gravimetric Specific Energy</td>
<td>4.8 Wh/kg</td>
</tr>
<tr>
<td>Usable Specific Power</td>
<td>3.4 kW/kg</td>
</tr>
<tr>
<td>Impedance Match Specific Power</td>
<td>7.2 kW/kg</td>
</tr>
</tbody>
</table>

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<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>Operating Temp. Range</td>
<td>Extended (-40°C to 85°C) at 2.3 V</td>
</tr>
<tr>
<td>Maximum Stored Energy, $E_{max}$</td>
<td>0.07 Wh</td>
</tr>
<tr>
<td>Gravimetric Specific Energy</td>
<td>3.4 Wh/kg</td>
</tr>
<tr>
<td>Usable Specific Power</td>
<td>2.5 kW/kg</td>
</tr>
<tr>
<td>Impedance Match Specific Power</td>
<td>5.2 kW/kg</td>
</tr>
</tbody>
</table>

### Safety

Certifications: RoHS, REACH, UL 810A

*Results may vary. Additional terms and conditions, including the limited warranty, apply at the time of purchase. See the warranty details for applicable operating and use requirements.*
1. Surge Voltage
   Absolute maximum voltage, non-repetitive. Duration not to exceed 1 second.
2. “Typical” values represent mean values of production sample.
3. Rated Capacity & ESR_CDC (measure method)
   • Capacitance: Constant current charge (10 mA/F) to V_cap; 5 min hold at V_cap; constant current discharge 10 mA/F to 0.1 V.
   e.g. in case of 2.7V 100F cell, 10 * 100 = 1,000 mA
   • ESR_CDC: Constant current charge (10 mA/F) to V_cap; 5 min hold at V_cap; constant current discharge (40 * C * V_cap[mA]) to 0.1 V.
   e.g. in case of 2.7V 100F cell, charge with 10 * 100 = 1,000 mA and discharge with 40 * 100 * 2.7 = 10,800 mA

   ![Diagram of Voltage and Time](image)

   \[ C = \frac{I_{\text{avg}}}{\Delta V} \]

   \[ ESR_{\text{CDC}} = \frac{\Delta V}{I} \]

   where C is the capacitance (F); I is the absolute value of the discharge current (A); V_cap is the rated voltage (V); tAvg is the measurement start voltage; 0.8×V_cap (V); tEnd is the time from start of discharge to reach V_cap (s); tESR is the DC-ESR (s); ΔV is the voltage drop during first 10ms of discharge (V).

4. Maximum Leakage Current
   • Current measured after 72 hrs at rated voltage and 25°C. Initial leakage current can be higher.
   • If applicable, module leakage current is the sum of cell and balancing circuit leakage currents.
5. Maximum Peak Current
   • Current needed to discharge cell/module from rated voltage to half-rated voltage in 1 second.

BCAP0100 P270 S07

When ordering, please reference the Maxwell Model Number below.

**Maxwell Model Number:** BCAP0100 P270 S07

**Maxwell Part Number:** 133522

**Alternate Model Number:** ESHSR-0100C0-002R7

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