Solid Polymer Aluminum capacitors are now available with a +125°C temperature rating. CDE’s type ESRH capacitors are rated at +125°C for 1000 hours when operated at 3/4 of the 105°C rated voltage. Solid Polymer Aluminum electrolytic capacitors feature extremely low ESR which yields a capacitor with very low high frequency impedance and high ripple current capability. When low ESR is your requirement, one type ESRH capacitor can replace three or more tantalum or aluminum electrolytic capacitors. The solid electrolyte in a polymer aluminum capacitor results in a long (and ignition free) life, and the 7.3 x 4.3 footprint is compatible with “D” case solid tantalum capacitors.

**Specifications**

- **Operating Temperature Range:** -55 ºC to +105 ºC at rated voltage (+125 ºC at .75 x rated voltage)
- **Capacitance Tolerance:** ±20% at 120 Hz and +20 ºC
- **Dissipation Factor (DF):** ≤0.10 at 120 Hz and +20 ºC
- **Surge Voltage:** 1.25 x rated voltage
- **DC Leakage Current (after 2 minutes):** I ≤ .1 CV

**Markings**

- **Capacitance** ("R" = Decimal Point)
- **Polarity Stripe (Anode)**
- **W.V. Code**
  - D = 2.0V
  - E = 2.5V
  - F = 4.0V
  - J = 6.3V
  - K = 8.0V

**Ordering Information**

<table>
<thead>
<tr>
<th>ESRH</th>
<th>101</th>
<th>M</th>
<th>08</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDE Type</td>
<td>Capacitance Code</td>
<td>Capacitance Tolerance</td>
<td>WVDC Code</td>
<td></td>
</tr>
<tr>
<td>680 = 68 µF</td>
<td>M = ±20%</td>
<td>02 = 2.0 Vdc</td>
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<tr>
<td>101 = 100 µF</td>
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<td>06 = 6.3 Vdc</td>
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<td></td>
<td>0E = 2.5 Vdc</td>
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<td>08 = 8.0 Vdc</td>
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<td></td>
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<td>04 = 4.0 Vdc</td>
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</table>

**Packaging Code**
R = Tape & Reel 2000 pcs/reel
## Type ESRH Solid Polymer Aluminum SMT Capacitors

### Low E.S.R. and High Temperature

#### Outline Drawing

![Outline Drawing](image)

#### Ratings

<table>
<thead>
<tr>
<th>Capacitance (µF)</th>
<th>Rated Voltage WVDC</th>
<th>Catalog Part Number</th>
<th>E.S.R. at 100 kHz/20 ºC (Ω)</th>
<th>Maximum Ripple Current at 100 kHz to +125 ºC (A&lt;sub&gt; rms &lt;/sub&gt;)</th>
<th>H ±0.2 (mm)</th>
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<tr>
<td>180</td>
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<td>ESRH181M02R</td>
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<tr>
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<td>ESRH121M04R</td>
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<td>4.1</td>
</tr>
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</table>

*12mm wide tape — 13” diameter reel

#### Markings

![Markings](image)

#### Land Pattern

![Land Pattern](image)
Type ESRH Solid Polymer Aluminum SMT Capacitors

Specifications (continued)

Life Test:
Apply rated DC working voltage at 105 ºC (or 0.75 x WVDC at 125 ºC) for 1000 hours, and then stabilize them to +20 ºC. Capacitors will meet the following limits:
\[ \Delta C = \pm 10\% \text{ of the initial measured value} \]
\[ \text{DF & DCL} \leq \text{the initial specified value} \]

Shelf Life Test:
Shelf life is typically 42 months. Accelerated test: after 500 hours at 125 ºC, capacitors will meet the following limits after stabilization at 20 ºC:
\[ \Delta C = \pm 10\% \text{ of the initial measured value} \]
\[ \text{DF & DCL} \leq \text{the initial specified value} \]

Moisture Resistance:
After 500 hours storage at +60 ºC and 90% R.H. without load, the capacitor will meet the following limits:
\[ \Delta C = +70\%/-20\% \text{ of the initial measured value} \]
\[ \text{(2.0 & 2.5 Vdc)}, +60\%/-20\% \text{ of the initial measured value (4.0 Vdc)}, +50\%/-20\% \text{ of the initial measured value (6.3 Vdc)}, +40\%/-20\% \text{ of the initial measured value (8.0 Vdc).} \]
\[ \text{DF} \leq \text{two times the initial specified value} \]
\[ \text{DCL} \leq \text{the initial specified value} \]

Resistance to Soldering Heat:
Capacitors withstand being heated in an oven at 235 ºC for 200 seconds.

Soldering:
Solid Polymer Aluminum capacitors are designed for reflow soldering. Preheat the capacitors at 160 ºC for a maximum of 120 seconds. The time at or above 200 ºC on the surface of the capacitor should be per the fol

Typical Impedance & ESR
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