RF/Microwave Capacitors
RF/Microwave Multilayer Capacitors (MLC)
550L Series UBC™ Ultra-Broadband Capacitor

GENERAL DESCRIPTION
AVX’s new 550L Ultra-Broadband Capacitor is manufactured with highest quality materials to provide reliable and repeatable Ultra-Broadband performance from 16 KHz through 70+ GHz. It exhibits ultra-low insertion loss, flat frequency response and excellent return loss, and is ideal for D.C. Blocking, Coupling, Bypassing and Feedback applications requiring Ultra-Broadband performance.

The 550L is a one-piece orientation-insensitive 0402 SMT package, fully compatible with high speed automated pick-and-place manufacturing. It is designed to meet the most stringent requirements of Ultra-Broadband applications.

ADVANTAGES
• Ultra-Broadband performance
• Ultra-Low Insertion Loss
• Flat Frequency Response
• Excellent Return Loss
• Unit-to-Unit Performance Repeatability
• Rugged Ceramic Construction

TYPICAL CIRCUIT APPLICATIONS
• Optoelectronics/High Speed Data
• Transimpedance amplifiers
• Receive and Transmit Optical Sub-Assembly (ROSA/TOSA)
• Synchronous Optical Network (SONET)
• Broadband test equipment
• Broadband Microwave/Millimeter Wave

FEATURES
• 0402 Case Size
• Capacitance: 100 nF
• Operating Frequency: 16 KHz (-3 dB roll-off) to 70+ GHz*
• Insertion Loss: <0.5 dB typical
• Orientation-insensitive
• One Piece Construction
• Voltage Rating: 16 WVDC**
• RoHS Compliant Terminations
• Gold Termination Available

* 25°C, no bias applied
** Operating Temperature Dependent

ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Capacitance</td>
<td>100 nF</td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>16 WVDC from -55°C to +85°C</td>
</tr>
<tr>
<td></td>
<td>10 WVDC from -55°C to +125°C</td>
</tr>
<tr>
<td>Dielectric Withstanding Voltage</td>
<td>250% of rated WVDC for 5 secs.</td>
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<tr>
<td>Operating Temperature Range</td>
<td>-55°C to +125°C</td>
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<tr>
<td>Temperature Coefficient of Capacitance</td>
<td>±15% (-55°C to +85°C), 16 WVDC</td>
</tr>
<tr>
<td></td>
<td>±22% (-55°C to +125°C), 10 WVDC</td>
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<tr>
<td>Insulation Resistance</td>
<td>10Ω Q min. @ +25°C @ rated WVDC</td>
</tr>
<tr>
<td></td>
<td>10Ω Q min. @ +125°C @ rated WVDC</td>
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</tbody>
</table>

PACKAGING OPTIONS

MECHANICAL DIMENSIONS
RF/Microwave Capacitors
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550L Series UBC™ Ultra-Broadband Capacitor

HOW TO ORDER

<table>
<thead>
<tr>
<th>Series</th>
<th>550</th>
<th>Case Size</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacitance</td>
<td>EIA Capacitance Code in pF. First two digits = significant figures or “R” for decimal place. Third digit = number of zeros or after “R” significant figures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacitance Tolerance Code</td>
<td>Code</td>
<td>K</td>
<td>V</td>
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<tr>
<td>Tol.</td>
<td>±10%</td>
<td>+ 20% -10%</td>
<td></td>
</tr>
</tbody>
</table>

The above part number refers to a 550 Series (case size L) 100 nF capacitor, V Tolerance (+ 20% -10%), with T termination (Tin Plated over Nickel Barrier), tape and reel packaging.

PERFORMANCE DATA

**550L Series Insertion Loss (S21)**

**550L Series Return Loss (S11)**

AVX 550L Data Sheet Condition Description

The S-Parameter test was performed on Rogers RO4350B 10-mil thick substrate with a nominal impedance of 50 ohms. The board has a 10-mil gap at the center of a 22-mil wide ½ oz copper microstrip trace.