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

GENERAL DESCRIPTION
AVX’s new 550Z Ultra-Broadband Capacitor is manufactured with highest quality materials to provide reliable and repeatable Ultra-Broadband performance from 160 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 550Z is a one-piece orientation-insensitive 0201 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 & Transmit Optical Sub Assembly (ROSA/TOSA)
• Synchronous Optical Network (SONET)
• Broadband test equipment
• Broadband Microwave/Millimeter Wave

FEATURES
• 0201 Case Size
• Capacitance: 10 nF
• Operating Frequency: 160 KHz (-3 dB roll-off) to 70+ GHz*
• Insertion Loss: <0.4 dB typical
• Orientation-insensitive
• One Piece Construction
• Voltage Rating: 10 WVDC**
• RoHS Compliant Terminations
• Gold Termination Available
* 25°C, no bias applied
** Operating temperature dependent

ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacitance</td>
<td>10 nF min.</td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>6.3 WVDC from -55°C to +125°C</td>
</tr>
<tr>
<td></td>
<td>10 WVDC from -55°C to +85°C</td>
</tr>
<tr>
<td>Dielectric Withstanding Voltage</td>
<td>250% of rated WVDC for 5 secs.</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-55°C to +125°C</td>
</tr>
<tr>
<td>Temperature Coefficient of Capacitance</td>
<td>±22% (-55°C to +125°C)</td>
</tr>
<tr>
<td></td>
<td>±15% (-55°C to +85°C)</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>10Ω min. @ +25°C @ rated WVDC</td>
</tr>
<tr>
<td></td>
<td>10Ω min. @ +125°C @ rated WVDC</td>
</tr>
</tbody>
</table>

PACKAGING OPTIONS

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

HOW TO ORDER

Series
Case Size
See mechanical dimensions below

Capacitance
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

Capacitance Tolerance Code

<table>
<thead>
<tr>
<th>Code</th>
<th>P</th>
<th>Tol.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+100%, -0%</td>
<td></td>
</tr>
</tbody>
</table>

The above part number refers to a 550 Series (case size z) 10 nF capacitor, P tolerance, with T termination (Tin Plated over Nickel Barrier), tape and reel packaging.

PERFORMANCE DATA

550Z Series Insertion Loss (S21)

AVX 550Z Data Sheet Test Condition Description
All testing performed on 10-mil-thick Rogers RO3006 microstrip board, with the device under test subtending a 10 mil gap in a 13.4-mil-wide center trace (nominal 50-ohm characteristic impedance).

550Z Series Return Loss (S11)