ATC 504L Series UBR™
Ultra-Broadband Resistors

Features:
• Frequency Range: DC to 20 GHz
• EIA 0402 Case Size
• Power Rating: 125 mW
• Operating Temperature: -40°C to +125°C
• 100% Laser Trimming for Tight Tolerances
• RoHS Compliant

ATC//AVX Thin Film Technologies is pleased to introduce the 504L Series next generation of surface mount Ultra-Broadband Resistors. This product was designed with our proprietary Glass Sandwich Flexiterm® Technology, (GSFT). The Flexiterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flexure during installation.

The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

Applications:
• Optical Transceiver Modules
• Broadband Receiver
• TOSA / ROSA
• Wideband Test Equipment
• Low Noise Amplifier
• MMIC Amplifiers
• Mixers
• Directional Couplers
• Ultra-Broadband Splitters and Combiners

Markets:
• Opto-electronics
• Automotive
• Telecom
• Broadband Jamming for EW
• Satellite Communication

Specifications

<table>
<thead>
<tr>
<th>Resistor</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outline</td>
<td>EIA 0402</td>
</tr>
<tr>
<td>Package</td>
<td>Glass wafer sandwich</td>
</tr>
<tr>
<td>Standard Resistance Values (Ω)</td>
<td>25Ω, 50Ω, 100Ω, 200Ω</td>
</tr>
<tr>
<td>Resistance Value Range</td>
<td>From 25Ω to 400Ω</td>
</tr>
<tr>
<td>Termination</td>
<td>Flexiterm® (Ag/Epoxy), NiSn plated</td>
</tr>
<tr>
<td>Power Rating</td>
<td>125 mW</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-40°C to +125°C</td>
</tr>
<tr>
<td>Tolerance</td>
<td>1%</td>
</tr>
<tr>
<td>Cold Storage</td>
<td>-65°C</td>
</tr>
</tbody>
</table>

Modeled with HFSS using Rogers 3003 substrate, with a thickness of 10 mils and a line width of 24 mils, representing data for 100 Ohms.

Patent Pending
ATC ULTRA-BROADBAND RESISTIVE PRODUCTS

Resistor Material Properties

<table>
<thead>
<tr>
<th>Resistor Material (TaN): Properties</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet Resistance (Ohms per Square)</td>
<td>TCR ppm/°C</td>
</tr>
<tr>
<td>30 to 100</td>
<td>50 to -150</td>
</tr>
</tbody>
</table>

Mechanical Dimensions

<table>
<thead>
<tr>
<th>Size (EIA)</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Thickness (T)</th>
<th>Terminal (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0402</td>
<td>0.039 ± 0.004</td>
<td>0.200 ± 0.004</td>
<td>0.020 ± 0.004</td>
<td>0.010 ± 0.006</td>
</tr>
<tr>
<td></td>
<td>(1.00 ± 0.10)</td>
<td>(0.50 ± 0.10)</td>
<td>(0.50 ± 0.10)</td>
<td>(0.25 ± 0.15)</td>
</tr>
</tbody>
</table>

ATC Part Number Code

The above part number refers to a 504 Series (case size L), 100 Ohms, F tolerance (1%), NiSn Plated Non-Compensated, with a TCR of -50 to -150 ppm/°C, with Tape and Reel Packaging.

ATC accepts orders for our parts using designations with or without the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either in specifying or procuring parts from American Technical Ceramics.

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