ATC Q-Bridge Thermal Conductor

ATC's new Q-Bridge Thermal Conductor is manufactured with the highest quality materials for reliable and repeatable performance providing a cost effective thermal management solution. These devices are constructed with Aluminum Nitride (AlN) or Beryllium Oxide (BeO) and are available in standard EIA form factors.

Q-Bridge provides the designer with the ability to manage thermal conditions by directing heat to a thermal ground plane, heat sink or any other specific thermal point of interest. The inherently low capacitance makes this device virtually transparent at RF / microwave frequencies. This device has the added benefit of offering additional layers of protection to adjacent components from hot spot thermal loads.

Q-Bridge provides the benefit of increased overall circuit reliability. ATC's Q-Bridge is manufactured using one-piece construction, providing a RoHS compliant SMT package that is fully compatible with high speed automated pick-and-place processing. It is available in 0402, 0603 and 0805 EIA case sizes. Custom configurations are also available.

Features:
- High Thermal Conductivity
- Low Thermal Resistance
- Low Capacitance
- Increases Circuit Reliability
- RoHS Compliant
- More efficient thermal management

Applications:
- GaN Power Amplifiers
- High RF Power Amplifiers
- Filters
- Synthesizers
- Industrial Computers
- Switch Mode Power Supplies
- Pin & Laser Diodes

Functional Applications:
- Between active device and adjacent ground planes
- Specific contact pad to case
- Contact pad to contact pad
- Direct component contact to via pad or trace
- Edges fully metalized

Termination Materials

<table>
<thead>
<tr>
<th>ATC Termination Code</th>
<th>Non-Magnetic Termination Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN</td>
<td>Tin over Non-Magnetic Barrier Termination</td>
</tr>
<tr>
<td>CA</td>
<td>Gold over Non-Magnetic Barrier Termination</td>
</tr>
<tr>
<td>WN</td>
<td>Tin/Lead, Solder over Non-Magnetic Nickel Barrier Termination</td>
</tr>
</tbody>
</table>
### ATC Q-BRIDGE THERMAL CONDUCTOR

**Mechanical Configurations**

![Mechanical Configuration Diagram]

**Dimensions**

<table>
<thead>
<tr>
<th>Size (EIA)</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Standard Thickness (T, mils)</th>
<th>Termination (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0402</td>
<td>0.040 ± 0.002 (1.02 ± 0.051)</td>
<td>0.020 ± 0.002 (0.51 ± 0.051)</td>
<td>20, 15</td>
<td>0.010 ± 0.002 (0.25 ± 0.051)</td>
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<tr>
<td>0603</td>
<td>0.060 ± 0.002 (1.52 ± 0.051)</td>
<td>0.030 ± 0.002 (0.76 ± 0.051)</td>
<td>25, 20</td>
<td>0.015 ± 0.002 (0.38 ± 0.051)</td>
</tr>
<tr>
<td>0805</td>
<td>0.080 ± 0.002 (2.03 ± 0.051)</td>
<td>0.050 ± 0.002 (1.27 ± 0.051)</td>
<td>40, 25</td>
<td>0.020 ± 0.002 (0.51 ± 0.051)</td>
</tr>
</tbody>
</table>

**Specifications**

<table>
<thead>
<tr>
<th>Case Size</th>
<th>Thermal Resistance (°C/W)</th>
<th>Thermal Conductivity (mW/°C)*</th>
<th>Capacitance Value (pF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIN</td>
<td>Thickness A</td>
<td>Thickness B</td>
<td>Thickness A</td>
</tr>
<tr>
<td></td>
<td>0402</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td></td>
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<td>50</td>
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<tr>
<td></td>
<td>0805</td>
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<tr>
<td></td>
<td>0805</td>
<td>7</td>
<td>153</td>
</tr>
</tbody>
</table>

* Note: Thermal conductivity is normalized to chip size. All values are approximate. Consult factory for extended thermal conductivity options.

**ATC Part Number Code**

- **QB 0603 A 25 W TN T**
  - Q-Bridge
  - Case Size
  - Substrate: A = AlN; B = BeO
  - Thickness (mils)
  - Packaging: T = Tape and Reel, std. 1000 pc., 7” Reel
  - Termination: TN, CA, WN
  - Style: W = Edge Wrap, E = No Wrap

The above part number refers to a Q-Bridge, Thickness 25 mils., (EIA case size 0603), Aluminum Nitride (AlN) substrate, Style W, T Termination, with Tape and Reel Packaging.

**For additional information and catalogs contact your ATC representative or call direct at +1-631-622-4700.**

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**ATC Part Number Code Explanation**

- **QB**
  - Q-Bridge
- **0603**
  - Case Size
- **A**
  - Substrate: A = AlN; B = BeO
- **25**
  - Thickness (mils)
- **W**
  - Termination
- **TN**
  - Termination
- **T**
  - Packaging: T = Tape and Reel, std. 1000 pc., 7” Reel

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