

ATC Q-BRIDGE THERMAL CONDUCTOR

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 various 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

Termination Materials

| ATC Termination Code | Termination Materials | |
|----------------------|---|---|
| T | Tin plated over Nickel over Silver Platinum |  |
| Y | Silver Platinum Non-Magnetic Termination |  |
| S | Silver over Magnetic Termination |  |

Note: Non-edge wrapped style in all case sizes is supplied with S termination

Edge wrapped style in case sizes 0302 through 1111 is supplied with Y termination

Edge wrapped style in case sizes 2010 through 3737 are supplied with S termination



Applications:

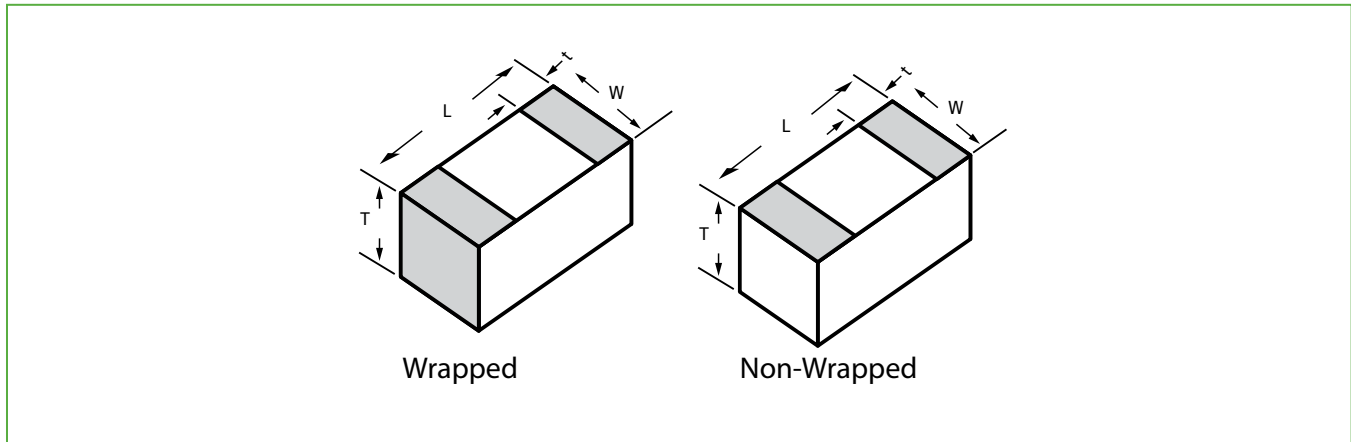
- GaN Power Amplifiers
- High RF Power Amplifiers
- Filters
- Synthesizers
- Industrial Computers
- Switch Mode Power Supplies
- Pin & Laser Diodes

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

ATC Q-BRIDGE THERMAL CONDUCTOR

Mechanical Configurations



Typical Characteristics

| Case Size | Length (L) | Width (W) | Thickness (T) | Terminal (t) | Thermal Resistance ($^{\circ}\text{C}/\text{W}$) | | Thermal Conductivity ($\text{mW}/^{\circ}\text{C}$) | | Available Configurations | |
|-----------|----------------------------|----------------------------|-------------------|--------------|--|-----|---|-----|--------------------------|-------------|
| | | | | | AlN | BeO | AlN | BeO | Style | Termination |
| 0302 | .030 ±.002 (.77 ±.051) | .020 ±.002 (0.51 ±.051) | 20 (0.51 ±.05) | 10 (0.25) | 19 | 12 | 53 | 81 | W | Y, T |
| | | | | | | | | | E | S |
| 0402 | .040 ±.002 (1.02 ±.051) | .020 ±.002 (0.51 ±.051) | 20 (0.51 ±.05) | 10 (0.25) | 25 | 16 | 40 | 61 | W | Y, T |
| | | | | | | | | | E | S |
| 0505 | .050 ±.002 (1.27 ±.051) | .050 ±.002 (1.27 ±.051) | 25 (0.64 ±.05) | 15 (0.38) | 10 | 7 | 100 | 153 | W | Y, T |
| | | | | | | | | | E | S |
| 0603 | .060 ±.002 (1.52 ±.051) | .030 ±.002 (.76 ±.051) | 25 (0.64 ±.05) | 15 (0.38) | 20 | 13 | 50 | 76 | W | Y, T |
| | | | | | | | | | E | S |
| 0805 | .080 ±.002 (2.03 ±.051) | .050 ±.002 (1.27 ±.051) | 40 (1.02 ±.05) | 20 (0.51) | 10 | 7 | 100 | 153 | W | Y, T |
| | | | | | | | | | E | S |
| 1005 | .100 ±.002 (2.54 ±.051) | .050 ±.002 (1.27 ±.051) | 40 (1.02 ±.05) | 20 (0.51) | 13 | 8 | 77 | 122 | W | Y, T |
| | | | | | | | | | E | S |
| 1020 | .100 ±.002 (2.54 ±.051) | .200 ±.002 (5.08 ±.051) | 40 (1.02 ±.05) | 20 (0.51) | 3 | 2 | 320 | 508 | W | Y, T |
| | | | | | | | | | E | S |
| 1111 | .110 ±.002 (2.79 ±.051) | .110 ±.002 (2.79 ±.051) | 40 (1.02 ±.05) | 20 (0.51) | 7 | 4 | 153 | 240 | W | Y, T |
| | | | | | | | | | E | S |
| 2010 | .195 ±.010 (4.95 ±.254) | .095 ±.010 (2.41 ±.254) | 60 (1.52 ±.05) | 30 (0.77) | 10 | 6 | 100 | 159 | W | S |
| | | | | | | | | | E | S |
| 2525 | .240 ±.010 (6.10 ±.254) | .250 ±.010 (6.35 ±.254) | 60 (1.52 ±.05) | 40 (1.02) | 4 | 3 | 240 | 380 | W | S |
| | | | | | | | | | E | S |
| 3725 | .370 ±.010 (9.40 ±.254) | .245 ±.010 (6.22 ±.254) | 60 (1.52 ±.05) | 50 (1.27) | 6 | 4 | 160 | 254 | W | S |
| | | | | | | | | | E | S |
| 3737 | .365 ±.010 (9.27 ±.254) | .375 ±.010 (9.53 ±.254) | 60 (1.52 ±.05) | 50 (1.27) | 4 | 3 | 240 | 380 | W | S |
| | | | | | | | | | E | S |

inches (mm)

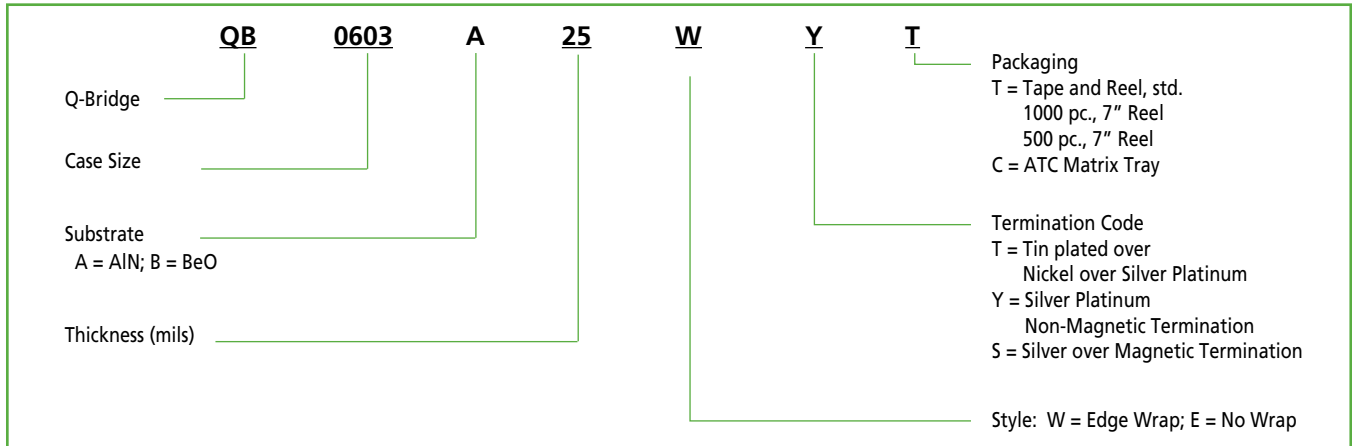
Note: Thermal conductivity is normalized to chip size. All values are approximate. Consult factory for extended thermal conductivity options.

ATC Q-BRIDGE THERMAL CONDUCTOR

Capacitance

| Case Size | Part Number | Capacitance (pF) | Case Size | Part Number | Capacitance (pF) |
|-----------|-----------------|------------------|-----------|-----------------|------------------|
| 0302 | QB0302A20WY / T | 0.039 | 1020 | QB1020A40WY / T | 0.204 |
| | QB0302A20ES | 0.011 | | QB1020A40ES | 0.121 |
| | QB0302B20WY / T | 0.028 | | QB1020B40WY / T | 0.158 |
| | QB0302B20ES | 0.006 | | QB1020B40ES | 0.092 |
| 0402 | QB0402A20WY / T | 0.028 | 1111 | QB1111A40WY / T | 0.096 |
| | QB0402A20ES | 0.018 | | QB1111A40ES | 0.042 |
| | QB0402B20WY / T | 0.025 | | QB1111B40WY / T | 0.078 |
| | QB0402B20ES | 0.009 | | QB1111B40ES | 0.031 |
| 0505 | QB0505A25WY / T | 0.070 | 2010 | QB2010A60WS | 0.070 |
| | QB0505A25ES | 0.032 | | QB2010A60ES | 0.042 |
| | QB0505B25WY / T | 0.061 | | QB2010B60WS | 0.055 |
| | QB0505B25ES | 0.027 | | QB2010B60ES | 0.086 |
| 0603 | QB0603A25WY / T | 0.035 | 2525 | QB2525A60WS | 0.156 |
| | QB0603A25ES | 0.007 | | QB2525A60ES | 0.114 |
| | QB0603B25WY / T | 0.029 | | QB2525B60WS | 0.122 |
| | QB0603B25ES | 0.007 | | QB2525B60ES | 0.075 |
| 0805 | QB0805A40WY / T | 0.081 | 3725 | QB3725A60WS | 0.105 |
| | QB0805A40ES | 0.018 | | QB3725A60ES | 0.076 |
| | QB0805B40WY / T | 0.055 | | QB3725B60WS | 0.080 |
| | QB0805B40ES | 0.015 | | QB3725B60ES | 0.058 |
| 1005 | QB1005A40WY / T | 0.046 | 3737 | QB3737A60WS | 0.164 |
| | QB1005A40ES | 0.008 | | QB3737A60ES | 0.130 |
| | QB1005B40WY / T | 0.038 | | QB3737B60WS | 0.126 |
| | QB1005B40ES | 0.007 | | QB3737B60ES | 0.099 |

ATC Part Number Code



The above part number refers to a Q-Bridge, (EIA case size 0603), Aluminum Nitride (AlN) substrate, Thickness 25 mils., Style W, Y Termination (Silver Platinum Non-Magnetic Termination), 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.

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

Consult factory for additional performance data.

Sales of ATC products are subject to the terms and conditions contained in American Technical Ceramics Corp. Terms and Conditions of Sale (ATC document #001-992). Copies of these terms and conditions will be provided upon request. They may also be viewed on ATC's website at www.atceramics.com/productfinder/default.asp. Click on the link for Terms and Conditions of Sale.

ATC has made every effort to have this information as accurate as possible. However, no responsibility is assumed by ATC for its use, nor for any infringements of rights of third parties which may result from its use. ATC reserves the right to revise the content or modify its product line without prior notice.

© 2015 American Technical Ceramics Corp. All Rights Reserved.

ATC # 001-1143, Rev. K, 5/20

