

# 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 0302, 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\*

ATC Termination Code	Termination Materials
CA	Gold over Non-Magnetic Barrier Termination
G	Gold over Magnetic Barrier Termination

\*Consult factory for other termination options, e.g., tin plate and solder plate.



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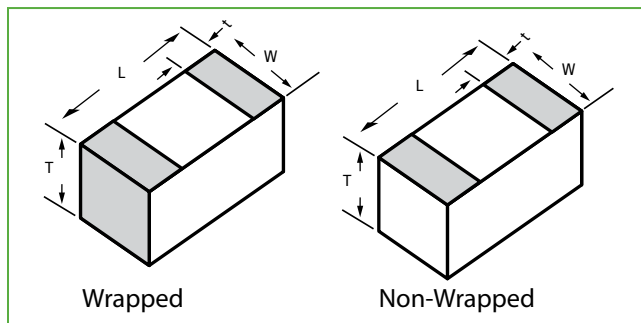
# ATC Q-BRIDGE THERMAL CONDUCTOR

## Dimensions

Size (EIA)	Length (L)	Width (W)	Standard Thickness (T, mils)		Termination (t)
			T1	T2	
0302	0.030 ± .002 (.77 ± .051)	0.020 ± .002 (0.51 ± 0.051)	20	15	0.010 ± .002 (0.25 ± 0.051)
0402	0.040 ± .002 (1.02 ± 0.051)	0.020 ± .002 (0.51 ± 0.051)	20	15	0.010 ± .002 (0.25 ± 0.051)
0603	0.060 ± .002 (1.52 ± 0.051)	0.030 ± .002 (0.76 ± 0.051)	25	20	0.015 ± .002 (0.38 ± 0.051)
0805	0.080 ± .002 (2.03 ± 0.051)	0.050 ± .002 (1.27 ± 0.051)	40	25	0.020 ± .002 (0.51 ± 0.051)

inches (mm)

## Mechanical Configurations



## Typical Characteristics

AIN Case Size	Thermal Resistance (°C/W)		Thermal Conductivity (mW/°C)		Capacitance Value (pF)*	
	Thickness T1	Thickness T2	Thickness T1	Thickness T2	Thickness T1	Thickness T2
0302	19	24	53	41	.08	.07
0402	25	32	40	30	.06	.05
0603	20	25	50	40	.08	.06
0805	10	16	100	60	.13	.08
BeO Case Size	Thermal Resistance (°C/W)		Thermal Conductivity (mW/°C)		Capacitance Value (pF)*	
	Thickness T1	Thickness T2	Thickness T1	Thickness T2	Thickness T1	Thickness T2
0302	12	15	81	63	.07	.06
0402	16	21	61	46	.05	.04
0603	13	16	76	61	.06	.05
0805	7	11	153	92	.10	.07

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

\*Applies to wrapped versions only. Non-wrapped versions have lower capacitance.

## ATC Part Number Code

	<b>QB</b>	<b>0603</b>	<b>A</b>	<b>25</b>	<b>W</b>	<b>G</b>	<b>T</b>	
Q-Bridge	—	—	—	—	—	—	—	Packaging
Case Size	—	—	—	—	—	—	—	T = Tape and Reel, std. 1000 pc., 7" Reel 500 pc., 7" Reel C = ATC Matrix Tray
Substrate	—	—	—	—	—	—	—	Termination
A = AlN; B = BeO	—	—	—	—	—	—	—	CA = Gold over Non-Magnetic Barrier Termination G = Gold over Magnetic Termination
Thickness (mils)	—	—	—	—	—	—	—	Style: W = Edge Wrap; E = No Wrap

The above part number refers to a Q-Bridge, (EIA case size 0603), Aluminum Nitride (AlN) substrate, Thickness 25 mils, Style W, G Termination (Gold over 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.

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