



# Advanced Ceramics

Precision fabrication of advanced ceramic components. All shapes of oxide and non-oxide ceramic materials, prototype to full production with fast turnaround.



- Mechanical Supports
- High Voltage
- Thermal Insulation
- Thermal Shock Resistance
- High Temperature
- Tolerances:  $\pm$ .XXXXXX of Inch
- Harsh Environments
- High Thermal Conductivity
- Wear Resistance
- Up To 28" Diameter
- Corrosion Resistance

## Typical Property Values, Selected Ceramic Materials

Property	Thermal Conductivity	Electrical Resistivity	Dielectric Constant	Coefficient of Thermal Expansion	Density	General Characteristics
Units	W/m <sup>0</sup> K	Ohm-cm	RT-1 MHz	10 <sup>-6</sup> °C	Grams/cm <sup>3</sup>	
<b>AlN</b> Aluminum Nitride	170-190	$>10^{14}$	8.9	4.6	3.30	High thermal conductivity. Non toxic. Readily available.
<b>Al<sub>2</sub>O<sub>3</sub></b> 99.5% Aluminum Oxide (94%-98% also available)	36	$>10^{14}$	9.8	8.2	3.89	Good electrical properties. Corrosive resistance. Strong metallization.
<b>BeO</b> 99% Beryllium Oxide	260	$>10^{14}$	6.7	8.5	2.85	High thermal conductivity. Good electrical properties. Strong Metallization.
<b>Si<sub>3</sub>N<sub>4</sub></b> Silicom Nitride	42	$>10^{14}$	9.0	3.0	3.29	Thermal shock resistance. High strength.
<b>Sapphire</b>	40	$>10^{16}$	9.4	8.4	3.98	Chemically inert. Hermetic brazing. High light transmission.
<b>SiC</b> Silicon Carbide	120	$>10^{14}$	9.0	4.5	3.21	Chemically inert. Thermal shock resistance. High thermal conductivity.
<b>ZrO<sub>2</sub></b> Zirconia	2.2	$>10^{13}$	9.0	10.3	6.04	Impact and wear resistant. High strength. Corrosive resistance.

NOTE: The information set forth herein is offered for comparison only.



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