

CeramTec Alunit® Aluminum Nitride

Category : Ceramic , Nitride

Material Notes:

Alunit® offers an extremely high thermal conductivity of 180 W/mK and outstanding electrical insulation properties. The thermal expansion coefficient of this material is comparable to silicon. Its electrical and mechanical characteristics are similar to aluminum oxide. Alunit® is non-toxic and environmentally compatible, presenting no disposal problems. Alunit® substrates come in a variety of surface finishes: as fired, as fired superior, ground, or polished. They can be manufactured by using tape casting, dry pressing, lasering, or metallizing. Typical applications include: power electronics, IGBT modules, telecommunications, cooling devices, DCB (Direct Copper Bonding), and LEDs.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CeramTec-Alunit-Aluminum-Nitride.php

Physical Properties	Metric	English	Comments
Density	3.33 g/cc	0.120 lb/in ³	DIN EN 623-2 / ASTM-C373 / ASTM-C20
Water Absorption	0.00 %	0.00 %	DIN EN 623-2 / ASTM-C373
Particle Size	4.0 - 5.0 µm	4.0 - 5.0 µm	Median Grain (d50)

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	320 GPa	46400 ksi	ASTM-F417
Flexural Strength	360 MPa	52200 psi	Bending Strength; 4-Point Method (40x4x3 mm ³); ASTM-F417
Poissons Ratio	0.32	0.32	ASTM C-1259-94
Shear Modulus	121 GPa	17500 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	4.70 µm/m-°C	2.61 µin/in-°F	ASTM-C373
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	5.20 µm/m-°C	2.89 µin/in-°F	
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
	5.60 µm/m-°C	3.11 µin/in-°F	
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	
Specific Heat Capacity	0.740 J/g-°C	0.177 BTU/lb-°F	DINV ENV 821-3
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	

Thermal Properties	Metric	English	Comments
Thermal Conductivity	W/m-K	Btu-in/hr-ft ² -°F	ISO 1502 / ASTM-C408

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+13 ohm-cm	1.00e+13 ohm-cm	ASTM-D257
Dielectric Constant	9.0 @Frequency 1.00e+6 Hz	9.0 @Frequency 1.00e+6 Hz	IEC 672-1 / ASTM-C150
Dielectric Breakdown	16000 V @Thickness 1.00 mm	16000 V @Thickness 0.0394 in	
Dielectric Loss Index	0.00010 @Frequency 1.00e+6 Hz	0.00010 @Frequency 1.00e+6 Hz	IEC 672-1 / ASTM-D149,150

Descriptive Properties	Value	Comments
Color	Translucent Medium Gray	
Ra = Arithmetic Mean Roughness Value (µm)	Profilometer (0.8 mm Cutoff)	

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