

CeramTec CeramCool® Alunit® Aluminum Nitride

Category : Ceramic , Nitride

Material Notes:

CeramCool® is a metallized ceramic heat-sink for high power applications demonstrated by high power LED-systems. CeramCool® material characteristics: electrical insulation, high volume resistivity, thermal cycling stability, high breakthrough voltage, no corrosion, and no water intrusion. Benefits of CeramCool®: optimized thermal management, passive cooling, absorption of thermal stress, increased lifetime of die, higher color stability, reduction TCE mismatch, thermal expansion coefficient of semiconductor materials, one system for alignment of sources, simplified system, miniaturization, weight reduction, cost reduction, and high current conductors. CeramCool® can be metallized directly with thick or thin film processes such as conventional ceramic substrates. This makes the complete surface of the heat-sink useable as a circuit carrier while providing reliable electrical insulation. CeramCool® is available from the proven ceramic material Alunit®. This material has a thermal expansion coefficient that is adapted to semi-conductor materials, possesses excellent electrical characteristics and is at the same time corrosion-resistant. CeramCool® is available with or without metallizations.

Order this product through the following link:

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

Physical Properties	Metric	English	Comments
Density	3.33 g/cc	0.120 lb/in ³	ASTM-C20
Water Absorption	0.00 %	0.00 %	ASTM-C373
Particle Size	4.0 - 5.0 µm	4.0 - 5.0 µm	Medium 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

Thermal Properties	Metric	English	Comments
CTE, linear	4.70 µm/m-°C	2.61 µin/in-°F	ASTM-C372
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	5.20 µm/m-°C	2.89 µin/in-°F	ASTM-C372
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
	5.60 µm/m-°C	3.11 µin/in-°F	ASTM-C372
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	
Specific Heat Capacity	0.738 J/g-°C	0.176 BTU/lb-°F	

Thermal Properties Thermal Conductivity	180 W/m-K Metric	1250 BTU-in/hr-ft ² -°F English	Comments ASTM-C408
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	

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	
Dielectric Breakdown	16000 V @Thickness 1.00 mm	16000 V @Thickness 0.0394 in	ASTM-D149
Dielectric Loss Index	0.00040 @Frequency 1.00e+6 Hz	0.00040 @Frequency 1.00e+6 Hz	ASTM-D150

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

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