

CeramTec CeramCool® Rubalit® 708 Alumina, 96%

Category : Ceramic , Oxide , Aluminum Oxide

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 Rubalit® 708. 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-Rubalit-708-Alumina-96.php

Physical Properties	Metric	English	Comments
Density	3.78 g/cc	0.137 lb/in ³	ASTM-C20
Water Absorption	0.00 %	0.00 %	ASTM-C373
Particle Size	3.0 - 5.0 µm	3.0 - 5.0 µm	Medium Grain (d50)

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	340 GPa	49300 ksi	ASTM-F417
Flexural Strength	400 MPa	58000 psi	Bending Strength; 4-point method (40x4x3 mm ³); ASTM-F417
	500 MPa	72500 psi	Bending Strength; dual-ring method (0.63 mm substrate thickness); DIN 52292

Thermal Properties	Metric	English	Comments
CTE, linear	6.80 µm/m-°C	3.78 µin/in-°F	ASTM-C372
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	7.30 µm/m-°C	4.06 µin/in-°F	ASTM-C372
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
	8.00 µm/m-°C	4.44 µin/in-°F	ASTM-C372
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	

Thermal Properties	Metric	English	Comments
Thermal Conductivity	24.0 W/m-K @Temperature 20.0 - 100 °C	167 BTU-in/hr-ft ² -°F @Temperature 68.0 - 212 °F	ASTM-C408

Component Elements Properties	Metric	English	Comments
Al2O3	96 %	96 %	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+10 ohm-cm @Temperature 600 °C	1.00e+10 ohm-cm @Temperature 1110 °F	ASTM-D257
	1.00e+11 ohm-cm @Temperature 400 °C	1.00e+11 ohm-cm @Temperature 752 °F	ASTM-D257
	1.00e+12 ohm-cm @Temperature 200 °C	1.00e+12 ohm-cm @Temperature 392 °F	ASTM-D257
	1.00e+13 ohm-cm @Temperature 20.0 °C	1.00e+13 ohm-cm @Temperature 68.0 °F	ASTM-D257
Dielectric Constant	9.8 @Frequency 1.00e+6 Hz	9.8 @Frequency 1.00e+6 Hz	
	10 @Frequency 1.00e+9 Hz	10 @Frequency 1.00e+9 Hz	
Dielectric Breakdown	7000 V @Thickness 0.250 mm	7000 V @Thickness 0.00984 in	ASTM-D149
	12600 V @Thickness 0.630 mm	12600 V @Thickness 0.0248 in	ASTM-D149
	15000 V @Thickness 1.00 mm	15000 V @Thickness 0.0394 in	ASTM-D149
Dielectric Loss Index	0.00030 @Frequency 1.00e+6 Hz	0.00030 @Frequency 1.00e+6 Hz	ASTM-D150

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

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