BeO / AlN Specification Chart

Specifications are offered as assistance to Engineers and Purchasing professionals in the design and procurement of thin and thick film circuit substrates.

Centerline Technologies makes no certification as to the suitability of materials for any application. (Basis for specifications available upon request.)

Properties	Units	Beryllium Oxide	Aluminum Nitride
Chemical Composition		BeO	AIN
Purity	%	99.5	98 +by volume/ 95+ by weight
Color		White	Tan/gray
Nominal Density	g/cm3	2.85	3.30 min
Surface Finish (Polished)	µ-inches	2.0-4.0	<2.0*
Surface Finish (Lapped)	µ-inches	20-30*	15-25*
Surface Finish (As fired)	µ-inches	n/a	n/a
Camber	inch/inch	.0003/.0005	.0003/.0005
Thickness	inches	0.005-0.100*	0.004-0.100*
Thickness Tolerance	inches	±0.0005	±0.0005
Process Sizes	inches		
(L/W)	1.0/2.25	1.0/4.5	
Coefficient of Thermal Expansion (CTE)	10-6	9.0 (25-1000°C)	4.6 (25-300°C)
Thermal Conductivity	Watts/m°K	285	170
Dielectric Constant	@1 MHz	6.5	8.8
Dielectric Constant	@4 MHz	—	—
Dielectric Constant	@10 MHz	—	—
Dissipation Factor (Loss Tangent)	@1 MHz	0.0004	0.0005
Dissipation Factor (Loss Tangent)	@10 MHz	—	—
Q	@1 GHz	—	5000
Hardness	Rockwell	45	n/a
Flexural Strength	K(10-3) lbs/sq.in.	35 (3 pt. bend)	59 (4 pt. bend)
Compressive Strength	M(10-3) lbs/sq.in.	n/a	n/a
Grain Size	um (microns)	9-16	5-7

• Additional thicknesses and tolerances available upon request

• Additional surface finishes available upon request

† Value varies with orientation (“A” plane / “C” plane)

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