

MATERIAL SPECIFICATIONS

Specifications are offered as assistance to Engineers and Purchasing professionals in the design and procurement of thin and thick film circuit substrates. Accumet makes no certification as to the suitability of materials for any application. (Basis for specifications available upon request.)

Properties	Units	Fused Silica/Quartz	Sapphire (Crystalline)
Chemical Composition		SiO ₂	(Al ₂ O ₃)
Purity	%	100	100
Color		Transparent	Transparent
Nominal Density	g/cm ³	2.2	3.97
Surface Finish (Polished)		60/40 Optical (Scratch/Dig)	<1.0μ-inch CLA
Surface Finish (Lapped)	μ-inches	7 nominal	15-20
Length & Width Tolerance	Options include: diamond sawcut, laser scribed/cut, &/or diamond ground edges to: +/- 1%, .010", or +/- .001"		
Edge Chips	inches	.025" long x	.025" long x
		.010" into face (max)	.010" into face (max)
Defects	inches	Call for criteria	Call for criteria
Camber	inch/inch	.0003"- .0005"*	.0003"- .0005"*
Thickness	inches	.004"- .100"	.003"- .250"
Sizes (L&W)	inches	3.25" Sq Max	Call for available sizes
Coefficient of Thermal Expansion (CTE)	10 ⁻⁶	20-320°C 0.55	A plane @25°C 5.3
Dielectric Constant	@1 MHz	3.826	11.5/9.3 ^A
Dielectric Constant	@24 GHz	3.82	Not available
Dissipation Factor (Loss Tangent)	@1 MHz	0.000015	.00086/.0003 ^A
Dissipation Factor (Loss Tangent)	@24 GHz	0.00033	Not available
Hardness		7 Mohs	1800/2200 ^A Knoop
Flexural Strength	K(10 ³) lbs/in ²	25	60
Compressive Strength	(10 ³) lbs/in	161	350
Grain Size		Amorphous	Single crystal

*Tighter tolerances are available. Please inquire.

^A – Value varies with orientation ("A" plane / "C" plane)

(FoV) – Field of View @ 50X