

Al₂O₃ – Aluminium Oxide

MATERIAL PROPERTIES

Structure formula:	Al ₂ O ₃	
State:	monocrystalline	
Crystal structure:	hexagonal	α = 4.77 Å c = 13.04 Å
Density:	3.98 g/cm ³	
Melting point:	2040°C	
Coefficient of expansion:	6.7 * 10 ⁻⁶ /°C 5.0 * 10 ⁻⁶ /°C	parallel C-axis perpendicular C-axis
Dielectrical constant (ε):	9.0 11.5	parallel C-axis perpendicular C-axis
Dielectrical lost (10GHz):	3 * 10 ⁻⁵ 8.6 * 10 ⁻⁵	parallel C-axis perpendicular C-axis
Specific resistance:	1019 Ω/cm	

SUBSTRATE PROPERTIES

Production method:	Czochralski, HEM, Verneuil grown
Orientation:	(0001), (1-102), (11-20)
Orientation accuracy:	until ± 0.5°
Standard size:	10mm x 10mm x thickness 1mm or 0.5mm
Tolerance of length:	± 0.02mm
Tolerance of thickness:	± 0.02mm
Parallelness:	± 0.3°
Polishing:	one side or both sides epi-polished
Flatness:	± 0.3µm / 10mm
Roughness of surface:	Ra ± 10Å
Scratches:	none
Surface quality:	with light microscope without defects

