

Sapphire Data Sheet

Physical Properties			
Hardness	9	Modulus of bulk (MPa)	895
Density (g/cm ³)	3.95-4.1	Melting point °C	2050
Young's modulus (Gpa)	380	crystal structure	六方晶系
Thermal conductivity (W·m ⁻¹ ·K ⁻¹)	24	Purity	>99.999%
Thermal expansion coefficient (K ⁻¹)	8.8*10 ⁻⁶	Resistivity (Ω·cm)	1014
Specific heat capacity (J/mol·K)	77	Poisson's ratio	0.27-0.29
Dielectric constant (F·m ⁻¹)	11.5(//C), 9.3(⊥C)	Modulus of rupture (Mpa)	400
Optical Properties			
Transmission range (um)	0.14-6 (T≈80%@0.3-5.0um)		
dn/dt (/K@633nm)	13×10 ⁻⁶		
Refractive Index	n _o =1.768, n _e =1.760		
Absorption Coefficient	0.0006@3um; 0.055@4um; 0.920@5um		
Refractive Index	1.713@3um; 1.677@4um; 1.627@5um		
Formats / Sizes / Tolerances			
Sapphire circular disks and wafer	Unit: mm		
Diameter	15-500		
Diameter tolerance	≤0.5		
Minimum thickness	0.65		
Maximum thickness	40		
Thickness tolerance	≤0.5		
Sapphire rectangular	Unit: mm		
Maximum size	610*410		
tolerance	±0.1		
Minimum thickness	4		
Thickness tolerance	±0.1		