Sapphire Domes

Features:

- Good transmission from UV to Mid-Infrared
- Excellent surface hardness and chemical Resistance
- For defense, security and aerospace application

Descriptions:

Domes need both high transmission as well as durability, sapphire is a excellent selection for its good mechanical properties and good transmission from UV to MWIR of 3-5μm, it is suitable for multi-spectral and high-speed applications. Hangzhou Shalom EO provide the sapphire domes with wide wavelength from UV to MWIR, they are widely used in defense, security and aerospace applications.

Specifications:

Materials	Optical grade sapphire crystals (Al2O3)	Diameter Range	10~ 380mm
Thickness Tolerance	+/-0.2mm (Optional:+/-0.1mm and +/-0.05mm)	Surface Quality	60/40 to 40/20 S/D
Frings (N)	customized	Irregularity (delta N)	customized
Chamfer	0.1~0.3mmx45degree		

Physical and Optical Properties:

Transmission Range	0.17 to 5.5μm	Refractive Index	No 1.75449; Ne 1.7466 3 at 1.06μm (1)
Reflection Loss	14% at 1.06μm	Absorption Coefficient	0.3 x 10^{-3} cm-1 at 2.4μm (2)
Reststrahlen Peak	13.5μm	dn/dT	13.1 x 10^{-6} at 0.546μm (3)
dn/dμ = 0	1.5μm	Density	3.97 g/cc
Melting Point	2040°C	Thermal Conductivity	27.21 W m-1 K-1 at 300K
Thermal Expansion	5.6 (para) & 5.0 (perp) x 10^{-6}/K *	Hardness	Knoop 2000 with 2000g indenter
Specific Heat Capacity	763 J Kg-1 K-1 at 293K (4)	Dielectric Constant	11.5 (para) 9.4 (perp) at 1MHz

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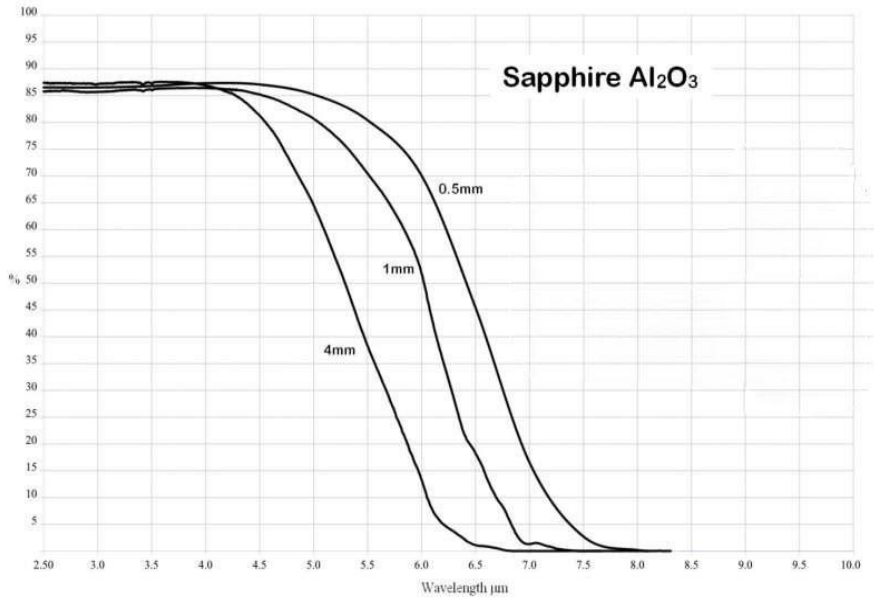
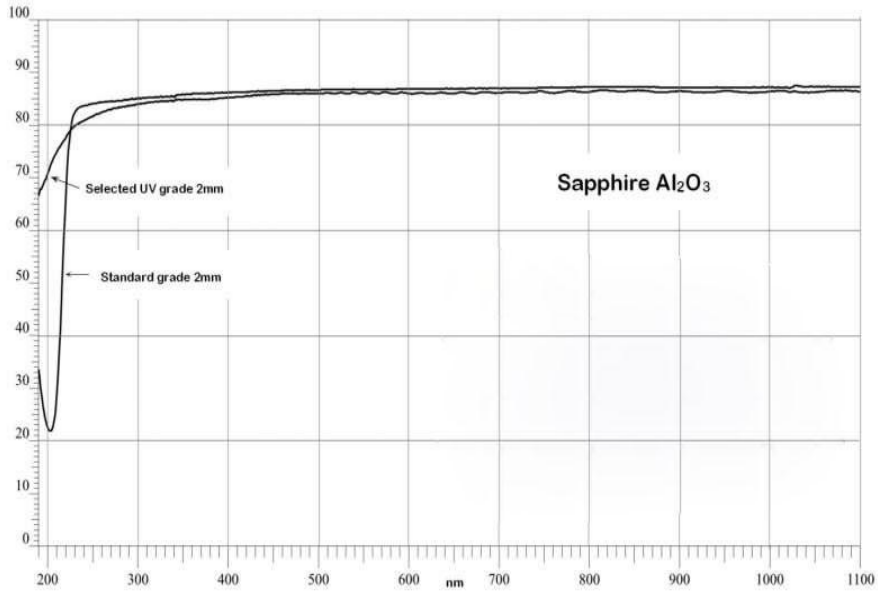
Youngs Modulus (E)	335 GPa	Shear Modulus (G)	148.1 GPa
Bulk Modulus (K)	240 GPa	Elastic Coefficients	C11=496 C12=164 C13=115 C33=498 C44 =148
Apparent Elastic Limit	300 MPa (45,000 psi)	Poisson Ratio	0.25
Solubility	98 x 10^{-6} g/100g water	Molecular Weight	101.96
Class/Structure	Trigonal (hex), R3c		

Technical Images:

1. Transmission of Sapphire at Infrared Wavelength Range (no coating)



2. Transmission of Sapphire at UV Wavelength Range (no coating)



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Related products:

1) Infrared domes -> hot pressed MgF2 domes
2) Infrared domes -> hot-pressed ZnS domes
3) Infrared windows-> Sapphire windows

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