

Lanthanum Aluminate (LaAlO₃)

Introduction:

LaAlO₃ is a high temperature superconducting single crystal substrate. It is a good substrate material for epitaxial growth of high temperature superconducting thin films and giant magnetic thin films. Its dielectric properties are suitable for low loss microwave and dielectric resonance applications.



Main Advantages:

- ✧ Small dielectric constant
- ✧ Low dielectric loss
- ✧ Good lattice matching
- ✧ Small thermal expansion coefficient
- ✧ Good chemical stability; wide energy gap
- ✧ Large specific surface area
- ✧ Good thermal stability

Typical applications:

High temperature superconducting thin film epitaxial substrate; Macro-magnetic thin film epitaxial substrate; Microwave amplification and dielectric resonance

Material Properties:


Chemical Formula	LaAlO ₃
Growth Method	Czochralski
Crystal System	Hexagonal (room temperature)
Lattice Constant	Hexagonal a = 5.357Å c = 13.22 Å
Hardness	6.5 Mohs
Density	6.52g/cm ³
Melting Point	2080°C
Thermal Expansion	10×10 ⁻⁶ /°C
Loss Tangent (10ghz)	~ 3×10 ⁻⁴ @300K, ~ 0.6×10 ⁻⁴ @77K

Crystro offers:

Dimensions	Max Diameter 76.2mm (3 inch)
Thickness	0.5mm other thickness available
Polishing	Single or double
Orientation	<100><110><111>
Ra	Ra≤5Å (5μm×5μm)
Orientation Tolerance	±0.2°
Orientation Flat	2° (within 1° for special requirement)
Angle of Crystalline	Special size and orientation are available upon request

Note: Above parameters for reference only, please contact our sales Rep. for your specific requirement.

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