$LaAlO_3$ (Lanthanum Aluminate) Substrate

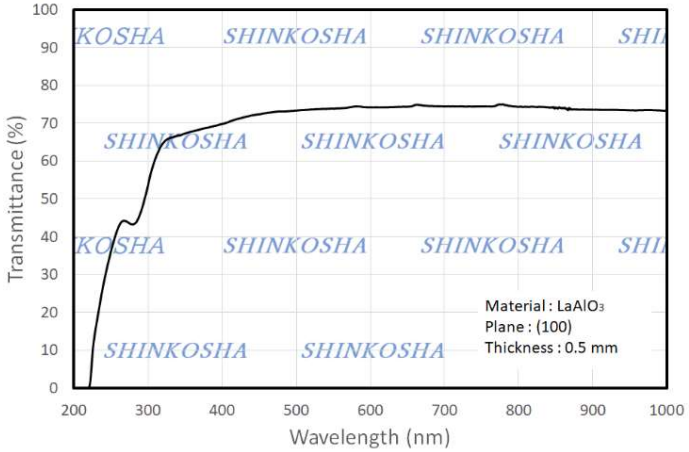
A phase transition occurs around 420 ° C, resulting in a trigonal crystal structure at room temperature. However, the material is often treated as a pseudo-cubic crystal for high-temperature applications, and is used as a substrate with a lattice constant of *a = 0.379nm* (cubic notation).
Due to the phase transition during cooling after crystal growth, twinning may occur in the crystal, making high crystallinity at room temperature difficult to achieve. Nevertheless, stable surface quality (compatible with STEP substrates) can still be provided.

【Features】

- *Phase transition occurs around 420 ° C*
- *Stable surface quality (compatible with STEP substrates)*
- *Suitable for optical applications due to its transparency*

Detail site

Transmittance of $LaAlO_3$ substrate



【Characteristics】

Crystal system	Trigonal (Pseudo-cubic) *
Crystal structure	Pseudo-Perovskite
Space group	$R\bar{3}c$
Lattice constant	a_0 = 0.379 nm (Pseudo-cubic)
Melting point	2100 ℃
Density	6.52 g/cm^3
Dielectric constant	15～22 (27℃,1MHz)
Thermal expansion	12.6×10^{-6}/℃
Phase transition temperature	Approx. 420 ℃ (Trigonal ⇔ Cubic)
Twin crystal	Generated by phase transition

【Standard Specifications】

Orientation	（100）, (110) Tolerance±0.5° (in Pseudo-cubic)
Size	10×10×0.5 mm , 15×15×0.5 mm Tolerance (outside dimension) : ±0.1 mm Tolerance (thickness) : ±0.05 mm
Polishing	One-side / Both-side
STEP	Available for (100)
Surface roughness	Ra ≦1.0nm , Rmax ≦5.0nm

If you are looking for other specs, please contact us.

*$LaAlO_3$ is a trigonal crystal (a=0.5357nm, α=60.1°) accurately, but it is treated as a pseudo-cubic or hexagonal crystal generally.

All figures in graph and table are typical data (not guaranteed).

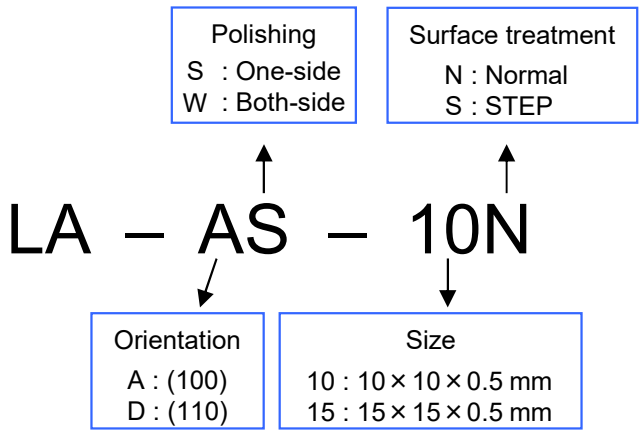
$LaAlO_3$ Model list

Size (mm)	Polishing	Surface treatment	Orientation	
			(100)	(110)
10x10x0.5mm	One-side	Normal	○	△
〃	Both-side	〃	○	△
〃	One-side	**STEP**	△	–
15x15x0.5mm	One-side	Normal	○	△
〃	Both-side	〃	△	△
〃	One-side	**STEP**	△	–

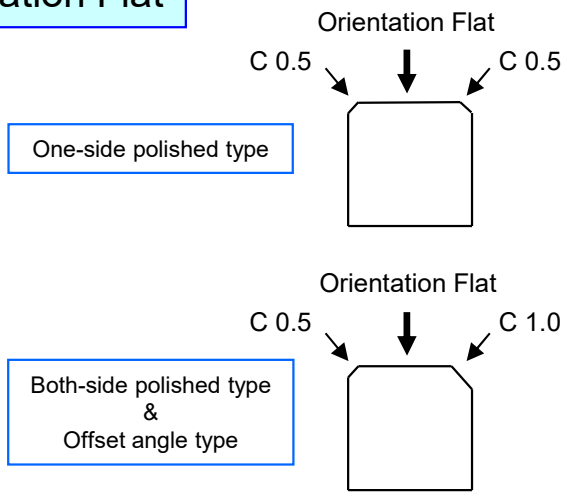
○ : Standard　　△ : Made-to-order

If you are looking for different sizes (up to φ2 in), offset angle type and others, please contact us.
*Minimum order for STEP model, made-to-order model and special model : 5pcs

Model Number



Orientation Flat



Substrate Orientation	Orientation Flat
(100)	(010)
(110)	(100)

<Visual check note>
We pass over the following:
(a) Chips within 0.2mm from the circumference of substrates
(b) Chips on the edge strip under 1/2 size of substrate thickness
(c) Scratches and blemish on the back side of single-side polished substrates

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