

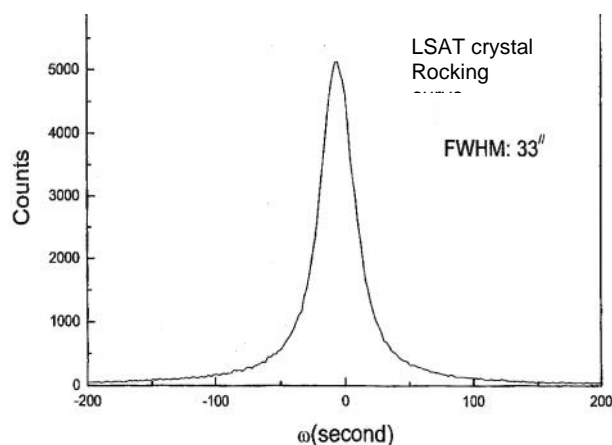
**A New Twin-free Perovskite Crystal**

**LSAT**



LSAT (LaAlO<sub>3</sub>)<sub>0.3</sub> (Sr<sub>2</sub>AlTaO<sub>6</sub>)<sub>0.7</sub> is a newly developing crystal with perovskite structure and twin-free. LSAT has excellent lattice match with high T<sub>c</sub> superconductors and many oxide materials. LSAT has lower melting point and can be grown by CZ technology at lower cost, therefore, it is expected to replace LaAlO<sub>3</sub> and SrTiO<sub>3</sub> as a common single crystal substrate for epitaxial oxide thin films for gain magnetic ferro-electronic and superconductive devices

Typical Physical Properties	
Chemical Formula	(LaAlO <sub>3</sub> ) <sub>0.3</sub> (Sr <sub>2</sub> AlTaO <sub>6</sub> ) <sub>0.7</sub> or (La <sub>0.18</sub> Sr <sub>0.82</sub> )(Al <sub>0.59</sub> Ta <sub>0.41</sub> )O <sub>3</sub>
Crystal Structure	cubic: a = 3.868 Å
Growth Method	Czochralski
Density	6.74 g/cm <sup>3</sup>
Melt Point	1840 °C
Thermal expansion	10 (x10 <sup>-6</sup> /°C)
Dielectric Constant	~ 22
Color and Appearance	Colorless to light brown based on annealing condition No twin and domain visible
Standard Products	
Epi -polished substrates <100>ori. ± 0.5° 1 or 2 sides polished Ra < 8 Å	2" dia x 0.5 mm 10 x 10 x 0.5mm 5 x 5 x 0.5 mm <i>Special size and orientation is available upon request</i>



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