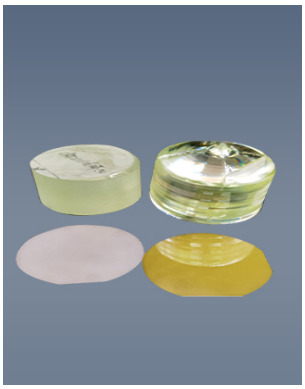
Lithium Tantalate ($LiTaO_3$)

Introduction:



Lithium Tantalate $LiTaO_3$ crystal is an important multifunctional crystal material with excellent piezoelectric, ferro-electric, acoustic-optical and electro-optical effects. Therefore, it has become a primary functional material in the field of acoustic surface wave SAW filter, optical communication, laser, and opto-electronics.

Polished LT wafer, especially for its good mechanical and electrical coupling, temperature coefficient and other comprehensive performance, is widely used in manufacturing of resonators, high-frequency acoustic surface wave filters, transducers and other electronic communication devices, and applied in many fields like mobile phones, intercom, satellite communication, aerospace etc.

Main Advantages:

- ✧ High Curie temperature
- ✧ Large Thermal-electric coefficient
- ✧ Small dielectric constant
- ✧ Stable chemical and physical properties

Typical applications:

- ✧ Acoustic surface wave filter
- ✧ Resonator
- ✧ Q switch
- ✧ Optical modulator
- ✧ Acoustic and optical switch
- ✧ Laser multiple frequency multiplier
- ✧ Optical parametric oscillator
- ✧ Optical memory
- ✧ High-temperature and high-frequency ultrasonic detector
- ✧ Infrared detector
- ✧ Optical pickup devices

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Material Properties:

Crystal Structure	Trigonal
Lattice constant	a=5.154Å, c=13.783Å
Density	7.45g/cm^3
Melting Point	1650℃
Curie Point	603±2℃
Mohs Hardness	5.5-6.0
Dielectric Constant	es11/eo:39~43, es33/eo:42~43； et11/eo:51~54, et33/eo:43~46
Thermal Conductivity	1015wm
Thermal Expansion Coefficient	a1=a2=1.61×10^{-6}/℃, a3=4.1×10^{-6}/℃
Refractive Indices	n0=2.176 ne=2.180 @ 633mn
E-O Coefficient	R33=30.4
Electro-mechanical Coupling factor	R15≥0.3
Pyroelectric Coefficient	2.3×10^{-7} C/cm^2/K
Transmission Range	400nm-5000nm

Crystro Offers:

Size	4" ， 6" boule or wafer ,Acoustic or Optical grade
Doping	No Doping or With Fe
Boule Length	≥50mm
Wafer Thickness	0.25，0.35，0.50(mm)
Orientation	Y42°/Y36°/X/Y/Z or Upon Request
Surface Process	Single/Double Sides Polishing
TTV	< 10μm
BOW	± (25 ~40 μm)
Warp	≤35μm
Flat Width	32.0±2.0 (mm) or Upon Request
Roughness	Ra≤10Å
Chamfer	0.1mm @45° or round edge

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

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