

LiTaO₃ / Fe:LiTaO₃ 钽酸锂 / 掺铁：钽酸锂

Lithium Tantalate 简介 Introduction:

钽酸锂(LiTaO₃, 简称 LT)晶体是一种重要的多功能晶体材料, 该晶体具有优良的压电、铁电、声光及电光效应。因而成为声表面波(SAW)器件、光通讯、激光及光电子领域中的基本功能材料。经过抛光的 LT 晶片广泛用于谐振器、滤波器、换能器等电子通讯器件的制造, 尤其以它良好的机电耦合、温度系数等综合性能而被用于制造高频声表面波器件, 并应用在手机、对讲机、卫星通讯、航空航天等许多高端通讯领域。

LiTaO₃ Lithium Tantalate (LT) crystal is an important multifunctional crystal material with excellent piezoelectric, ferro-electric, acoustic-optical and electro-optical

effects. Therefore, it has become a basic functional material in the field of acoustic surface wave (SAW) devices, optical communication, laser, and opto-electronics. Polished LT wafer is widely used in the manufacturing of resonators, filters, transducers and other electronic communication devices, especially for its good mechanical and electrical coupling, temperature coefficient and other comprehensive performance and is used in manufacturing high-frequency acoustic surface wave devices, and applied in many mobile phones, intercom, satellite communication, aerospace and other communication fields.



主要优点 Main Advantages:

- ◇ 居里温度点高
- ◇ 热电系数大
- ◇ 介电常数小
- ◇ 化学物理性质稳定
- ◇ High Curie temperature point
- ◇ Large Thermal power coefficient
- ◇ Small dielectric constant
- ◇ Stable chemical and physical properties

材料特性 Material Properties:

晶体结构 Crystal Structure	三方晶系 Trigonal
晶格常数 Lattice constant	a=5.154Å,c=13.783Å
密度 Density	7.45g/cm ³
熔点 Melting Point	1650°C
居里温度 Curie Point	603±2°C
硬度 Mohs Hardness	5.5-6 Mohs
介电常数 Dielectric Constant	es11/eo:39~43, es33/eo:42~43; et11/eo:51~54, et33/eo:43~46
电阻系数 Thermal Conductivity	1015wm
热膨胀系数 Thermal Expansion Coefficient	a1=a2=1.61×10 ⁻⁶ /°C, a3=4.1×10 ⁻⁶ /°C
折射率 Refractive Indices	n0=2.176 ne=2.180 @ 633nm
电光系数 E-O Coefficient	R33=30.4
机电耦合系数 Electro-mechanical coupling factor	R15≥0.3
热释电系数 pyroelectric coefficient	2.3×10 ⁻⁷ C/cm ² /K
透过范围 transmission range	400-5000nm

科瑞思创提供 Crystro offers:

尺寸 Size	4" , 6" 晶棒和晶圆 (声表级/光学级) Boule or wafer ,Acoustic or Optical grade
掺杂 Doping	无掺杂或可掺杂 Fe, No Doping or With Fe
晶棒长度 Boule Length	≥50mm
晶圆厚度 Wafer Thickness	0.25, 0.35, 0.50(mm)
切向 Orientation	Y42°/Y36°/X/Y/Z 可依客户需求定制 or Upon Request
表面处理 Surface Process	单面抛光, 双面抛光 Single/Double Sides Polishing
TTV	< 10μm
BOW	± (25μm ~40um)
Warp	≤35μm
定向边宽度 Flat Width	32.0±2.0 (mm) 可要求定制 or Upon Request
抛光面 Roughness	粗糙度 Ra≤10Å
倒角 Chamfer	≤0.1mm@45°