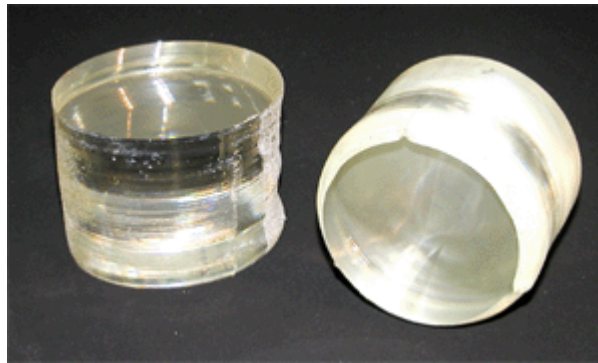




# Lithium Niobate Single crystals

Molecule of formula	LiNbO <sub>3</sub>
Weight of molecule	147.85
Typical ingot size	Φ 40×200 / Φ 76×100 / Φ 100×80
Typical orientation	Z, X, Y, 45° Z, 128° Y, 64° Y, 41° Y,
Products	Surface Acoustic Wave(SAW) grade ingot, Optical grade ingot, Adopted LN (Fe, MgO, ZnO etc) and selected orientation ingots



Lithium Niobate properties	
Point group	3m
Density	4.64g/cm <sup>3</sup>
Lattice parameter	a: 0.5148nm c: 1.3863nm
Hardness (Mohs)	5 -- 5.5
Melting point	1260 °C
Curie point	1142±1 °C
Solubility:	Insoluble in H <sub>2</sub> O
Heat Capacity (Cp)	89 J / k.mol
Thermal Conductivity	38 W / m / K @ 25 °C
Relative Dielectric Constants	ξ <sub>T 11</sub> / ξ <sub>0</sub> : 84.6 ξ <sub>T 33</sub> / ξ <sub>0</sub> : 28.6
Elastic Constants	C <sub>E 11</sub> : 2.030 × 10 <sup>11</sup> N / m <sup>2</sup> C <sub>E 12</sub> : 0.573 × 10 <sup>11</sup> N / m <sup>2</sup> C <sub>E 13</sub> : 0.752 × 10 <sup>11</sup> N / m <sup>2</sup> C <sub>E 14</sub> : 0.085 × 10 <sup>11</sup> N / m <sup>2</sup> C <sub>E 33</sub> : 2.424 × 10 <sup>11</sup> N / m <sup>2</sup> C <sub>E 44</sub> : 0.595 × 10 <sup>11</sup> N / m <sup>2</sup>
Dielectric Constants	T <sub>11</sub> : 85.2 T <sub>33</sub> : 28.7
Piezoelectric strain constants	d <sub>15</sub> : 7.40 × 10 <sup>-11</sup> C/N d <sub>22</sub> : 2.08 × 10 <sup>-11</sup> C/N d <sub>31</sub> : -0.086 × 10 <sup>-11</sup> C/N d <sub>33</sub> : 19.22 × 10 <sup>-11</sup> C/N

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# Lithium Niobate Single crystals

Lithium Niobate Optical properties	
Transparency range	370 ~ 5200nm
Refractive index	n e = 2.146, n o = 2.220 @ 1300 nm n e = 2.156, n o = 2.232 @ 1064 nm n e = 2.203, n o = 2.286 @ 632.8nm
Gradient of refractive index @ 633nm	$\leq 5 \times 10^{-5}$ /cm
Transmissivity @ 633nm	$\geq 68\%$
Electro-Optic Coefficients @ 633nm	$\gamma_{T33} = 32.2$ pm/V, $\gamma_{S33} = 36.7$ pm/V, $\gamma_{T13} = 10$ pm/V, $\gamma_{S13} = 11$ pm/V, $\gamma_{T22} = 6.8$ pm/V, $\gamma_{S22} = 3.4$ pm/V, $\gamma_{T51} = 32$ pm/V, $\gamma_{S51} = 18.2$ pm/V,
Nonlinear Optical Coefficients @ 1064nm (*d 31 =d 15 )	d 22 / I d 36 KDP I: 6.5 d 31 / I d 36 KDP I: -12.3 d 33 / I d 36 KDP I: -86
Application	Piezoelectric transducer , Surface Acoustic Wave devices, Bulk Acoustic Wave devices, Optical wave guide devices, Electro-optical devices, Acoustic optical devices, Holographic memory, Piezoelectric sensor

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