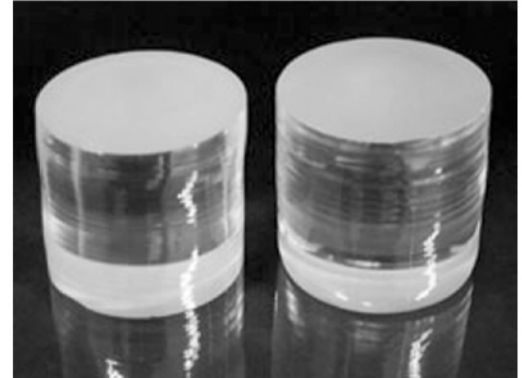


Applications

- Frequency doublers for >1 μ m
- Optical parametric oscillators(OPOs) pumped at 1064nm
- Quasi-phase-matched (QPM) devices
- Pockel cells
- Q-switches
- Phase modulators
- Waveguide substrate
- Surface acoustic wave(SAW) wafers



Specifications

Transmitting wavefront distortion	less than $\lambda/4$ @ 633 nm
Dimension tolerance	(W \pm 0.1 mm) x (H \pm 0.1 mm) x (L \pm 0.2mm)
Clear aperture	> 90% central area
Flatness	$\lambda/8$ @ 633 nm
Scratch/Dig code	20/10 to MIL-O-13830A
Parallelism	better than 20 arc seconds
Perpendicularity	5 arc minutes
Angle tolerance	< \pm 0.5°

Structural and Physical Properties

Crystal Structure	Trigonal, Space group R _{3c} , Point group 3m
Cell Parameters	a=5.148 Å, c=13.863 Å
Melting Point	1253°C
Curie Temperature	1140°C
Mohs Hardness	5
Density	4.64 g/cm ³
Elastic Stiffness Coefficients	C ₁₁ ^E 2.33($\times 10^{11}$ N/m ²) C ₃₃ ^E 2.77($\times 10^{11}$ N/m ²)

Optical and Electro-optical Properties

Transparency Range	420 - 5200 nm
Optical Homogeneity	$\sim 5 \times 10^{-5}$ /cm
Refractive indices at 1064nm	n _o = 2.146, n _e = 2.220 @ 1300 nm n _o = 2.156, n _e = 2.232 @ 1064 nm n _o = 2.203, n _e = 2.286 @ 632.8 nm
NLO Coefficients	d ₃₃ = 86 x d ₃₆ (KDP) d ₃₁ = 11.6 x d ₃₆ (KDP) d ₂₂ = 5.6 x d ₃₆ (KDP)
Effective NLO Coefficients	d _{eff} (I) = d ₃₁ sin θ - d ₂₂ cos sin 3 ϕ d _{eff} (II) = d ₂₂ cos ² θ cos 3 ϕ
Electro-Optic Coefficients	r ₃₃ ^T = 32 pm/V, r ₃₃ ^S = 31 pm/V, r ₃₁ ^T = 10 pm/V, r ₃₁ ^S = 8.6 pm/V, r ₂₂ ^T = 6.8 pm/V, r ₂₂ ^S = 3.4 pm/V,
Half-Wave Voltage, DC	Electrical field // z, light \perp z: 3.03 KV Electrical field // x or y, light // z: 4.02 KV
Damage Threshold	100 MW/cm ² (10 ns, 1064 nm)

Thermal and Electrical Properties

Melting Point	1250 °C
Crue Temperature	1140 °C
Thermal Conductivity	38W/m/K @ 25 °C
Thermal Expansion Coefficients(at 25°C)	// a, 2.0 x 10 ⁻⁵ /K // c, 2.2 x 10 ⁻⁵ /K
Resistivity	2 x 10 ⁻⁶ $\Omega \cdot$ cm @ 200 °C
Dielectric Constants	$\epsilon_{11}^S/\epsilon_0$ 43 $\epsilon_{11}^T/\epsilon_0$ 78 $\epsilon_{33}^S/\epsilon_0$ 28 $\epsilon_{33}^T/\epsilon_0$ 32
Piezoelectric Strain Constant	d ₂₂ 2.04 (x10 ⁻¹¹ C/N) d ₃₃ 19.22 (x10 ⁻¹¹ C/N)