

BBO

Beta Barium Borate

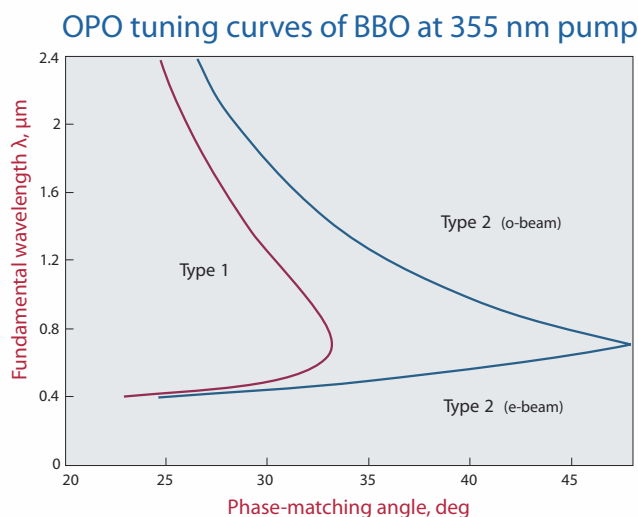
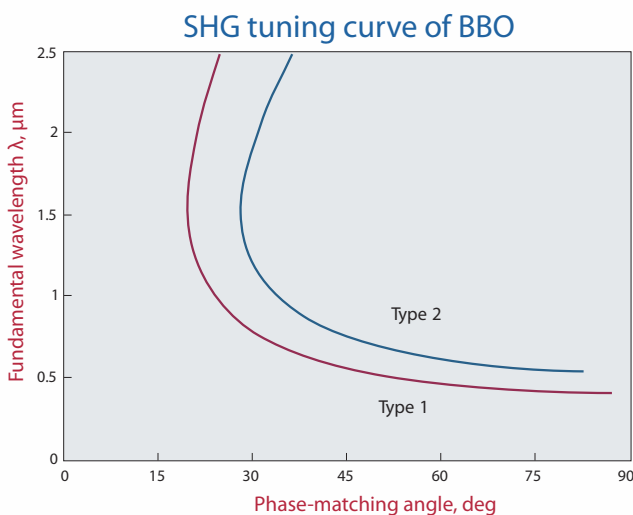


BBO is a nonlinear optical crystal with combination of number of unique features:

- Wide transparency region
- Broad phase-matching range
- Large nonlinear coefficient
- High damage threshold
- Wide thermal acceptance bandwidth
- High optical homogeneity

As a result of its excellent properties BBO has a number of advantages for different applications:

- Harmonic generations (up to fifth) of Nd:YAG and Nd:YLF lasers
- Frequency doubling and tripling of ultrashort pulse Ti:Sapphire and Dye lasers
- Optical parametric oscillators (OPO) at both Type 1 (ooe) and Type 2 (ooe) phase-matching
- Frequency doubling of Argon ion and Copper vapour laser radiation
- Electro-optic crystal for Pockels cells

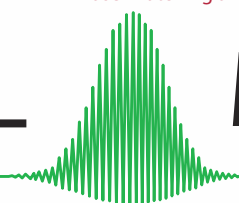


Del Mar Photonics Inc offers:

- Crystal aperture up to 22 X 22 mm
- Crystal length up to 22 mm
- Thin crystals down to 5 μm thickness
- AR, BBAR, P- coating
- Different mounting and repolishing services
- Accurate quality control
- Attractive prices and fast delivery
- One month customer's satisfaction term

Please contact Del Mar Photonics Inc for further information or nonstandard specifications

DEL MAR PHOTONICS



www.dmphotonics.com



Physical and Optical properties of BBO

Chemical formula	BaB ₂ O ₄	
Crystal structure	trigonal, 3m	
Optical symmetry	Negative Uniaxial (n _o >n _e)	
Space group	R3c	
Density	3.85 g/cm ³	
Mohs hardness	5	
Optical homogeneity	δ _n =10 ⁻⁶ cm ⁻¹	
Transparency region at "0" transmittance level	189-3500 nm	
Linear absorption coefficient at 1064 nm	<0.1% cm ⁻¹	
Refractive indices	n _o	n _e
at 1064 nm	1.6551	1.5426
at 532 nm	1.6750	1.5555
at 355 nm	1.7055	1.5775
at 266 nm	1.7571	1.6139
at 213 nm	1.8465	1.6742
Sellmeier equations (λ[μm])	n _o ² =2.7405+0.0184/(λ ² -0.0179)-0.0155λ ² n _e ² =2.3730+0.0128/(λ ² -0.0156)-0.0044λ ²	
Phase matching range Type 1 SHG	410-3300 nm	
Phase matching range Type 2 SHG	530-3300 nm	
Walk-off angle	55.9 mrad (Type 1 SHG 1064 nm)	
Angular acceptance	1.2 mrad x cm (Type 1 SHG 1064 nm)	
Thermal acceptance	70 K x cm (Type 1 SHG 1064 nm)	
Nonlinearity coefficients	d ₂₂ = ±(2.22 ± 0.09) pm/V d ₃₁ = ±(0.16 ± 0.08) pm/V	
Effective nonlinearity expressions	d _{ooe} = d ₃₁ sinθ- d ₂₂ cosθsin3φ d _{eoe} = doee=d ₂₂ cos ² θcos ³ φ	
Damage threshold for TEM ₀₀ 1064 nm	> 5 GW/cm ² at 10 ns > 50 GW/cm ² at 1 ps	

Standard Specifications of BBO Crystals

Flatness	λ/6 at 633 nm
Parallelism	< 10 arc sec
Perpendicularity	< 5 arc min
Angle tolerance	< 30 arc min
Aperture tolerance	± 0.1 mm
Surface quality	10/5 scratch/dig as per MIL-O-13830A
Clear aperture	90 % of full aperture



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