PHOTOP

Electro-Optic Crystals

BBO Crystal

BBO crystal is an excellent electro-optic crystal for high power applications for the wavelength from 200nm to 2,500nm. It has electro-optic coefficients $\gamma 11=2.7pm/V$ and $\gamma 22$, $\gamma 31<\gamma 11$. It launchs a super Q-switch for a cw diode pumped Nd:YAG laser with average power >50W. Photop provides high quality BBO crystals with Z-cut, AR coating and Au-electrodes for high power E-O applications. The standard size is 3×3×15mm, 3×3×18mm, 3×3×20mm, 4×4×18mm, also, 6×6×18mm. The half-wave Voltage is 9KV at 1064nm with size 3×3×18mm. If you need further information, you can contact our sales for latest BBO Q-switch elements.

$LiNbO_3$ Crystal

$LiNbO_3$ is also widely used as elecro-optic modulator and Q-switch for Nd:YAG, Nd:YLF and Ti:Al_2O_3 lasers.
If a $LiNbO_3$ with spec listed in the following Table is used as Q-switch crystal, i.e. the light propagates in Z-axis and electric field applies to X-axis.
The electro-optic coefficients of $LiNbO_3$ are: r_{33} = 32 pm/V, r_{31} = 10 pm/V, r_{22} = 6.8 pm/V at low frequency and r_{33} = 31 pm/V, r_{31} = 8.6 pm/V, r_{22} = 3.4 pm/V at high electric frequency. The half wave voltage: $V_\pi=\lambda d/n_o^3\gamma_c l$, $\gamma_c=(n_e/n_o)^3\gamma_{33}-\gamma_{13}$.

Specifications:

Parameter	Unit	
Size	mm^3	9×9×25 or 4×4×15
		Other size is available upon request
Tolerance of Size	mm	Z-axis:+/-0.2
		X-axis and Y-axis:+/-0.1
Chamfer		Less than 0.5 mm at 45°
Accuracy of Orientation	are minute	Z-axis: <+/-5
		X-axis and Y-axis: <+/-10
Parallelism	are second	<20
Surface Quality (scratch/dig)		10-5
Flatness		λ/8 at 633nm
AR-coating		R <0.2%@1064nm
Electrodes		Gold/Chrome plated on X-faces
Wavefront Distortion		<λ/4@633nm
Extinction Ratio		> 400:1@633nm, φ6mm beam

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