

BBO POCKELS CELLS



DESCRIPTION

BBO (BaB_2O_4) Pockels Cells, also known as Barium Borate Pockels Cells, is a Pockels Cells device with superior overall performance. With a high damage threshold, low insertion loss, high extinction ratio, minimal piezoelectric ringing, and competitive price, BBO Pockels Cells exhibit significant advantages in laser power handling capability, and temperature stability, and are largely unaffected by piezoelectric ringing. BBO Pockels Cells are the most attractive candidates for high repetition rate Q-switches, pulse pickup up to 3 MHz, laser cavity dumping, regenerative amplifier control, and beam choppers. With a high repetition rate and high power applications, the BBO Pockels Cells are a better choice than the KDP Pockels Cells. Due to the low voltage electrical coupling factor of the BBO, pulses with repetition frequencies of several hundred kilohertz can be generated.

FEATURES

- Low absorption and noise
- High UV transmittance
- High repeatability and damage resistance
- Pockels Cells with double crystal design available

APPLICATIONS

- emptying of the cavity
- Beam Chopper
- High Repetition Rate DPSS Q Switch
- High repetition rate regenerative amplifier control

BBO PHYSICAL CHARACTERISTICS

Crystal Structure	Triangle, space group R3c, point group 3m
Cell parameters	$a=b=12.532\text{\AA}, c=12.717\text{\AA}, Z=6$
Melting point	$1095\pm 5^\circ\text{C}$
Phase change point	$925\pm 5^\circ\text{C}$
Optical uniformity	$\delta n \sim 10^{-6}\text{cm}$
Mohs Hardness	4
Density	3.85g/cm^3
Moisture absorption	Low
Coefficient of thermal expansion	$a: 4 \times 10^{-6}\text{K}, c: 36 \times 10^{-6}\text{K}$
Thermal conductivity	$\perp C: 1.2\text{W/m/k}, // C: 1.6\text{W/m/K}$
Absorption coefficient	$< 0.1\%/ \text{cm} @ 1064\text{nm}$



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POCKELS CELLS SPECIFICATIONS

Aperture	To be determined
Optical transmission	>98%
Damage Threshold	500MW/cm ² @10ns 1064nm
Wavefront distortion	<λ/8 @1064nm
Typical Capacitance	<3pF
Dimension	φ25.4×44mm
Quarter-wave voltage	3.4kv

BBO SINGLE CRYSTAL Q-SWITCH SPECIFICATIONS

Modle	CLBBO-S02525-2035	CLBBO-S02525-151728-S	CLBBO-S0320-2035	CLBBO-S0325-2035	CLBBO-S0420-2035	CLBBO-S0425-2035
CLEAR APERTURE	2.2mm	2.2mm	2.7mm	2.7mm	3.7mm	3.7mm
CRYSTAL SIZE	2.5x2.5x25mm	2.5x2.5x25mm	3x3x20 mm	3x3x25 mm	4x4x20 mm	4x4x25 mm
SHELL SIZE	Dia. 20x35mm	15x17.5x28mm Square enclosure	Dia.20x35mm	Dia.20x35mm	Dia.20x35mm	Dia.20x35mm
QUARTER WAVE VOLTAGE (@ 1064 nm), kV DC	2.4kV	2.4kV	3.6kV	2.9kV	4.8kV	3.9kV
CAPACITOR, pF	2.2pF	2.2pF	3pF	3pF	4pF	4pF
TRANSMITTANCE	>99%	>99%	>99%	>99%	>99%	>99%
WAVELENGTH RANGE	1030nm-1064nm	1030nm-1064nm	1030nm-1064nm	1030nm-1064nm	1030nm-1064nm	1030nm-1064nm
DAMAGE THRESHOLD, 10ns 10Hz 1064nm	600MW/cm ²	600MW/cm ²	600MW/cm ²	600MW/cm ²	600MW/cm ²	600MW/cm ²
EXTINCTION RATIO	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1
PRICE (\$)	little 899 abundant 812	little 1015 abundant 870	little 870 abundant 725	little 899 abundant 812	little 914 abundant 841	little 1087 abundant 986



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BBO DOUBLE CRYSTAL Q-SWITCH SPECIFICATIONS

Modle	CLBBO-D0320-2055	CLBBO-D0420-2055
CLEAR APERTURE	2.7mm	3.7mm
CRYSTAL SIZE	3x3x20 mm ³	4x4x20 mm ³
SHELL SIZE	Dia.20x55mm	Dia.20x55mm
QUARTER WAVE VOLTAGE (@ 1064 nm), kV DC	1.8kV	2.4kV
CAPACITOR, pF	6pF	7pF
TRANSMITTANCE	>99%	>99%
WAVELENGTH RANGE	1030nm-1064nm	1030nm-1064nm
DAMAGE THRESHOLD, 10ns 10Hz 1064nm	600MW/cm ²	600MW/cm ²
EXTINCTION RATIO	500:1	500:1
PRICE (\$)	little 1885 abundant 1740	little 2319 abundant 2174

STRUCTURE

