

## PCB

## BBO POCKELS CELLS



PCB3D

PCB3D-C

- Minimal piezoelectric ringing
- Low absorption
- Broad transmission range from 200 nm to 2000 nm
- Compact size

## APPLICATIONS

- High repetition rate DPSS Q-switch
- High repetition rate regenerative amplifier control
- Cavity dumping
- Beam chopper

Pockels cells are used to change the polarization state of light passing through it when a voltage is applied to the electrodes of electro-optic crystals such as BBO. When used in conjunction with polarizer, Pockels cells can be used as fast optical switches. Typical applications include Q-switching of the laser cavity, laser cavity dumping and coupling light into and from regenerative amplifiers.

BBO based Pockels cells can be useful at wavelengths from the UV to more than 2  $\mu\text{m}$ . Low piezoelectric ringing makes these Pockels cells attractive for the control of high-power and high pulse repetition rate lasers. Fast switching electronic drivers properly matched to the cell are

available for Q-switching, cavity dumping and other applications.

Pockels cells of PCB series are transverse field devices. Low electro-optical coefficient of BBO results in high operating voltages. The quarter-wave voltage is proportional to the ratio of electrode spacing and crystal length. As a result, smaller aperture devices have lower quarter-wave, however even for 2.5 mm aperture devices the quarter-wave voltage is as high as 4 kV @ 1064 nm.

Double crystal design is employed to reduce required voltages and to allow operation in half-wave mode with fast switching times.

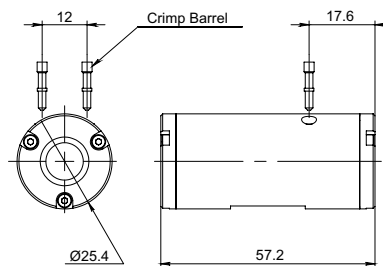
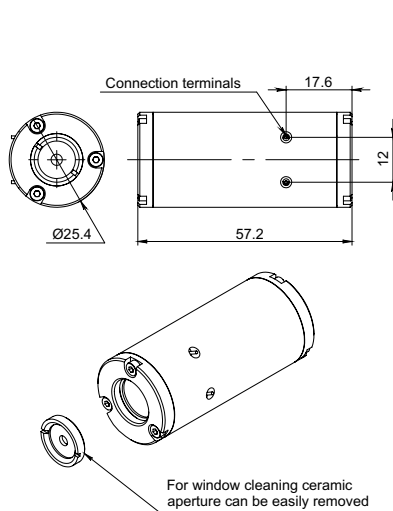
## SPECIFICATIONS

Model	PCB3S	PCB3D	PCB4S	PCB4D
Clear aperture diameter, mm	2.5	2.5	3.5	3.5
Crystal size (W×H×L), mm	3×3×20	3×3×20	4×4×20	4×4×20
Quantity of crystals	1	2	1	2
$\lambda/4$ voltage (@ 1064 nm), kV DC	<3.5	<1.8	<4.6	<2.3
Capacitance, pF	4	6	3	6
Optical transmission, %	>98	>98	>98	>97
Contrast ratio <sup>1)</sup>	>1:1000	>1:500	>1:1000	>1:500
Dimensions, mm	Ø25.4×37.2	Ø25.4×57.2	Ø25.4×37.2	Ø25.4×57.2

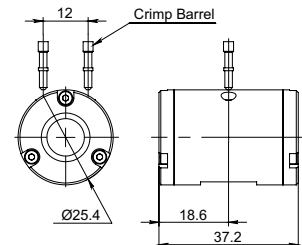
<sup>1)</sup> Measured by crossed polarizers method.

Specifications are subject to changes without advance notice.

All crystals are coated AR/AR@1064 nm.  
Other antireflection coatings are available on request.  
Damage threshold >5 J/cm<sup>2</sup> for 10 ns pulses at 1064 nm.



PCB3D, PCB4D outline drawing



PCB3S, PCB4S outline drawing

BBO Pockels Cells with ceramic aperture are available. Please append letter C to code for ceramic aperture.

An example:

PCB3S-C – BBO Pockels cell with ceramic aperture

## RELATED PRODUCTS

Mounting Stages for Pockels Cells of Ø25.4 mm

See page 3.5



DQ High Repetition Rate Pockels Cell Driver for Q-Switching

See page 3.6



DPD Cavity Dumping & Pulse Picking Pockels Cell Drivers

See page 3.7

