

# CHIRON 3

## BBO Pockels Cell

### PRODUCT DATASHEET

Chiron 3 BBO Pockels cell raises the bar for high repetition rate and high-average power laser applications.

The Chiron 3 BBO Pockels cell design builds on the dual crystal geometry successfully used to minimize drive voltage (~2.3 kV quarter-wave voltage @ 1064 nm for the Chiron 3). BBO Pockels cells operate from approximately 0.2 to 1.65  $\mu\text{m}$  and are not subject to tracking degradation. Due to the low piezoelectric coupling coefficients of BBO, the Chiron 3 functions at repetition rates up to 1 MHz.

Chiron Pockels cells work in regenerative amplifiers, high pulse repetition rate micro-machining lasers, and high-average power lasers for material processing and metal annealing.



#### Key Features

- High pulse rate operation to 1 MHz
- Solid state - no index matching fluid
- Low acoustic noise
- Damage resistant ceramic apertures
- Compact design
- High-reliability
- Operation at high average power

#### Key Benefits

- Ideal for high average power systems
- Low absorption leading to reduced thermal lensing/thermal depolarization
- Exceptional high repetition rate performance
- Excellent, accessible technical support

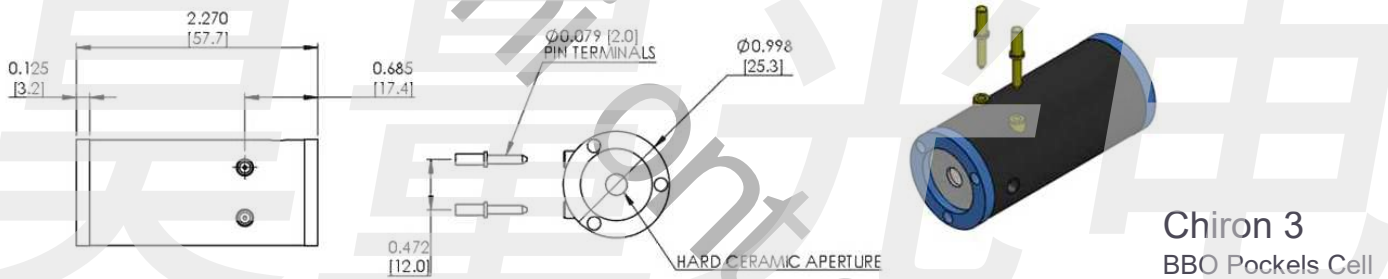
#### Applications

- Military
- OEM and replacement laser systems:
  - Machining, marking, via drilling
  - Ophthalmology
  - Q-switching and regenerative amplifiers
  - Research

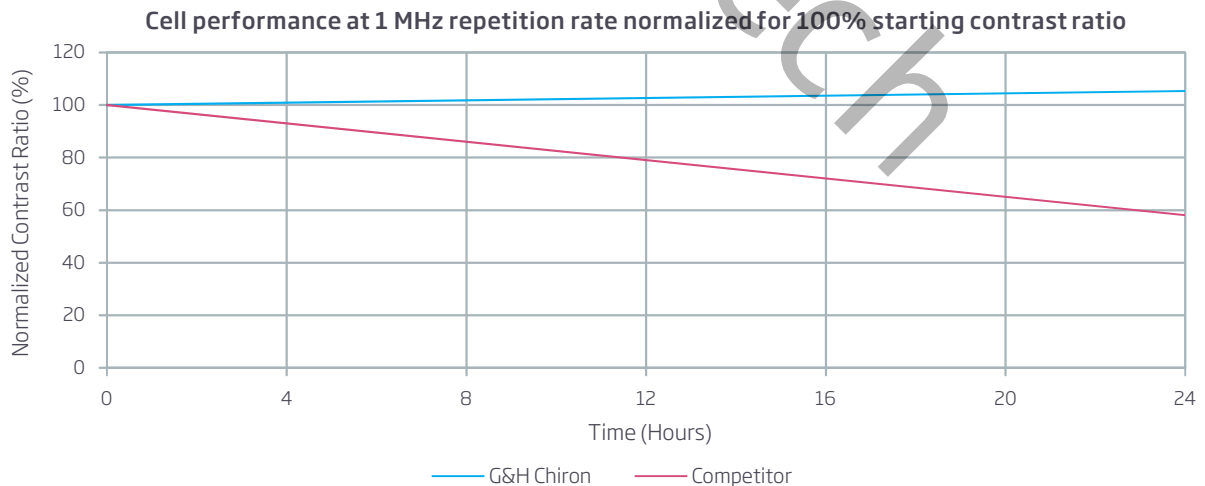
## Performance Data

Typical specifications for standard cell	Chiron 3
<b>PHYSICAL</b>	
Hard aperture diameter	3.25 mm
Single pass insertion loss @ 1064 nm	< 1.5%
Intrinsic contrast ratio (ICR) @ 1064 nm	> 1000:1
Voltage contrast ratio (VCR) @ 1064 nm (parallel polarizers)	> 500:1
Single pass wavefront distortion @ 1064 nm	< $\lambda/6$
LIDT <sup>1</sup> , 10 Hz @1064 nm, 10 ns, ~1 mm diameter	10 J/cm <sup>2</sup>
<b>ELECTRICAL</b>	
Capacitance (DC)	~4 pF
DC half wave voltage @ 1064 nm	4.3 to 4.9 kV
Temperature range exposure to simulate storage and shipping conditions <sup>2</sup>	-25°C to 50°C
10-90% rise time (theoretical) into 50 $\Omega$ line	~ 1 ns
Duty cycle in 1 s (applied voltage time / total time)	< 5%

- 1 Recommended operation at 1/2 this fluence level for increased longevity. LIDT will vary with wavelength and beam parameters.  
 2 May require 48 hours, or more, to equilibrate following exposure to temperature extremes for contrast ratio values to recover.



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