

## Certified Performance for the Most Demanding Applications

Over the years, Photodigm has worked with our customers to understand how our DBR lasers perform in many applications. We have developed our website to be a valuable reference for our customers. It contains data sheets, product bulletins, and a series of applications notes to help our customers utilize our products better.

Among these Applications Notes are the following:

- ◆ Difference Between DBR and DFB Lasers
- ◆ DBR Laser Linewidth
- ◆ Optical Feedback in Laser Diodes
- ◆ Rubidium Absorption Spectroscopy
- ◆ Wavelength Tuning in DBR Lasers
- ◆ PermaLoc™ to Atomic Resonance
- ◆ Gain Switched Laser Diodes
- ◆ Second Harmonic Generation

Our web site also has a library of peer-reviewed articles by Photodigm authors as well as links to publications describing work using Photodigm lasers.



The unique and defining characteristics of Photodigm DBR lasers offer both the OEM instrument manufacturer and the individual researcher a powerful enabler for probing the physical universe.

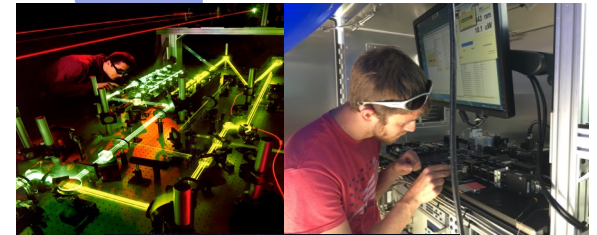
Email: [sales@photodigm.com](mailto:sales@photodigm.com)  
[www.photodigm.com](http://www.photodigm.com)

**Photodigm DBR Laser Diodes** set the world's standard for precision laser diodes in the short wave IR. These devices deliver beams rivaling those of bench top systems. In recent years, these research lasers have blazed new trails in optical engineering, opening up new concepts in spectroscopy, diagnostic imaging, and metrology. The monolithic Distributed Bragg Reflector (DBR) laser is making these instruments commercially viable.

### TAKING LASERS:

FROM THE LAB

TO THE FIELD

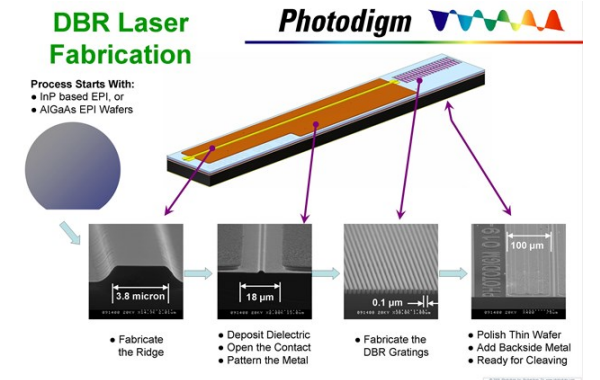


Photodigm 

TO SPACE

**The DBR Laser** delivers single frequency, phase coherent photons at a precise wavelength.

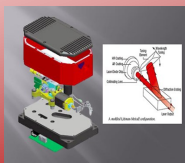
**The Laser Diode** is a monolithic semiconductor chip consisting of a resonant cavity with gain medium and feedback elements. The DBR laser, commercially pioneered by Photodigm, brings together single growth epi, precision fabricated gain ridges, and passive gratings to deliver unmatched semiconductor laser performance. The graphic below depicts the critical features of the Photodigm DBR laser.



**Ti: Sapphire**



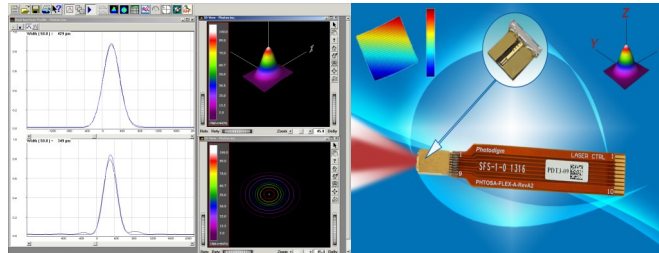
*Photodigm DBR lasers deliver performance equivalent to research lasers at 1/1000 the volume and scalable pricing*



**ECDL**

**Photodigm DBR lasers** are now available with internal beam correction and control of thermal mode hops. A virtual point source microlens corrects astigmatism and reduces fast axis divergence, resulting in a user-friendly beam that can be focused or collimated as needed with a single aspherical lens. The device locks to a selected cavity mode in stable operation without hops over an extended range of current tuning. Available now in a Mercury™ or TO-8 package.

**Laser Fabrication** is a critical element in Photodigm's business. We maintain our own state of the art laser wafer fab. We are proud to be a primary manufacturer of semiconductor lasers based in Richardson, Texas.



**New Product:**  
**Photodigm PreciseMode™ DBR Laser Diodes**

**The Characteristics of DBR Lasers**

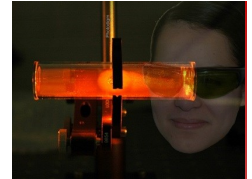
**Brightness.** Photodigm DBR lasers emit a diffraction-limited beam approaching theoretical maximum brightness.

**Color.** Photodigm DBR lasers are available at key wavelengths:

- ◆ Alkali metals, Rb, Cs, K: the D<sub>1</sub> and D<sub>2</sub> lines
- ◆ O<sub>2</sub> at 760nm
- ◆ He\* at 1083nm
- ◆ H<sub>2</sub>O at 828nm
- ◆ Raman spectroscopy at 785nm
- ◆ 976nm and 1064nm. Please inquire about others.

Our extended mode hop free DBR lasers can be tuned over a full 2nm

**Speed.** Photodigm DBR lasers can deliver high modulation rates or short pulses. They deliver low noise beams with linewidths below 500kHz. Modulation rates up to 6.8 GHz and pulse durations of <100 psec are available. The long coherence length and long term stability of Photodigm DBR lasers make them important frequency standards, calibration references and spectroscopic sources.



*Photodigm's first commercial product was a DBR laser tuned to the Rb D<sub>2</sub> line at 780nm. This Photo shows the D<sub>1</sub> fluorescence of Rb vapor at 795nm when excited by the D<sub>2</sub> line.*