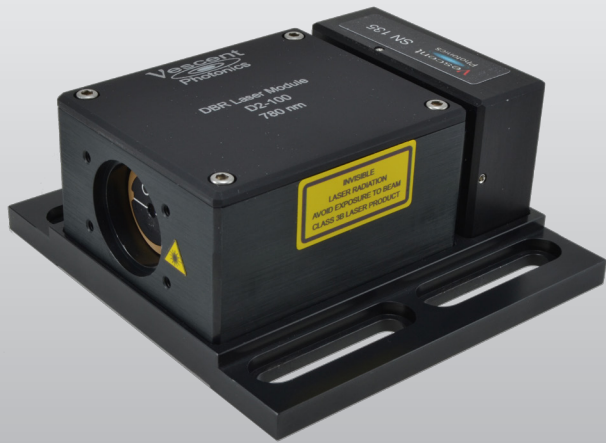


# D2-100 DBR Lasers



*The D2-100 DBR Laser*

The D2-100-DBR laser module is comprised of a Distributed Bragg Reflector (DBR) laser diode in a precision temperature-controlled housing with beam conditioning optics and an optical isolator. DBR laser diodes are fabricated with the feedback grating patterned directly adjacent to the gain section of the diode. They are highly immune to vibrations and by virtue of a very short cavity (~1 mm), they can be injection current tuned mode hop-free over more than 40 GHz, enabling very fast servo control for easy locking to atomic and molecular transitions.

The D2-100 is a complete, ready-to-use laser module. It includes an anamorphic prism pair for beam circularization and a 35 dB optical isolator for clean, dependable mode hop-free operation.

## Features:

- Potassium, Rubidium, and Cesium Wavelengths
- Vibration immune: no moving parts or piezos
- 40 GHz mode hop-free tuning via high-bandwidth injection current
- Optically isolated standard
- Beam shaping optics standard
- Circular, collimated laser output
- Fiber-coupled configurations
- 100 mW at 780 & 795 nm and 180 mW at 852 & 895 nm

## Applications:

- Cold-atom physics
- Atomic clocks
- Inertial navigation
- Gravity measurements
- Quantum computing & cryptography
- Electromagnetically induced transparency
- Cavity transfer of frequency standards

# D2-100 DBR Laser

Parameter	Min	Typical	Max	Units
<b>General Performance</b>				
Available Center Wavelengths <sup>1</sup>	767, 770, 780, 785, 795, 852, 895, 1064, 1083			nm
Center Wavelength Accuracy <sup>2</sup>	On transition for K, Rb, & Cs wavelengths			
<b>Tuning</b>				
Temperature	1.5			nm
Injection Current (Mode Hop-Free)	40	50	60	GHz
Linewidth	0.5	1	2	MHz
Output Power <sup>3</sup>	25	40	180	mW
Polarization	Horizontal			
<b>Configuration</b>				
Two-stage Temperature Regulation	~0.1			mK/hr
Beam Shaping	Anamorphic prism pair			
Integral Optical Isolation	>35			dB
<b>Dimensions</b>				
Head	3.75 × 3.98 × 1.70 (9.5 × 10.1 × 4.3)			inches (cm)

**Notes:**

All specifications subject to change without notice.

<sup>1</sup>Other wavelengths available on request.

<sup>2</sup>Contact Factory for accuracy of further wavelengths.

<sup>3</sup>Output power increases with wavelength. 760 and 767 nm specified at 25 mW. High-power versions available at 780, 795 852, & 895 nm.

The D2-100 Distributed Bragg Reflector (DBR) laser is a complete laser head robust to mechanical vibration and acoustic interference because it requires no moving parts to tune. The beam shaping and optical isolation provide for extremely stable single-mode, mode hop-free tuning and operation.



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