

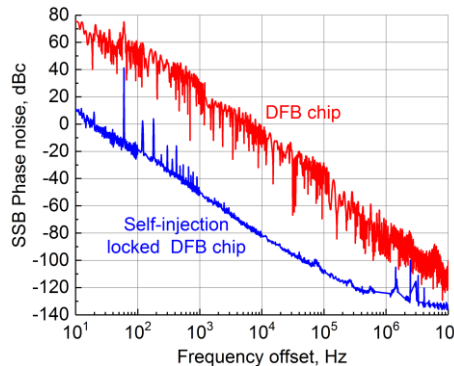
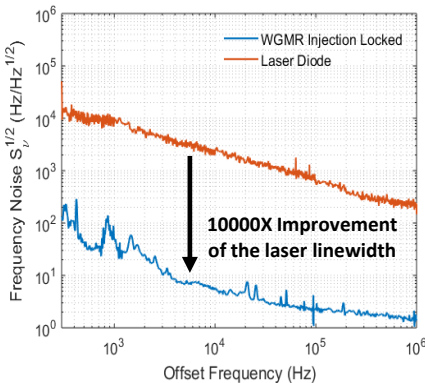
HI-Q<sup>®</sup> laser offers **Ultra-Narrow Lorentzian Linewidth** and **low phase/frequency noise** in a compact form factor.



The HI-Q<sup>®</sup> laser houses a proprietary driver/controller and the OEwaves laser source which is based on a high quality factor (Q) Whispering Gallery Mode (WGM) optical micro-resonator. The laser is available at a variety of wavelengths (370 – 4500 nm).

The unique technology of the OEwaves HI-Q<sup>®</sup> laser leverages the self-injection locking capability of a laser diode via resonant optical feedback from a high-Q WGM micro-resonator. Its monolithically integrated approach along with micro-scale mass and volume make the laser virtually insensitive to environmental vibrations.

### Typical Improvements



### FEATURES

- Ultra-Narrow Instantaneous Laser Linewidth
- Ultra-Low Phase/Frequency Noise
- Wavelength: 370 – 4500 nm
- Low Vibration Sensitivity
- Ultra-Low Residual Amplitude Modulation
- Wavelength Stability
- Compact Package
- Integrated Driver/Controller
- USB or RS-232 Control Interface

### APPLICATIONS

- Quantum Computing
- Coherent Communication
- Atomic Clocks
- Frequency Control
- Optical Metrology and Spectroscopy
- Acoustic Sensing
- Interferometric Optical Sensing
- B-OTDR Temperature and Strain
- LIDAR

**RIDE THE WAVE OF INNOVATION**

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# HI-Q® 370 – 4500 nm LASER SPECIFICATIONS (Typical\*)

**ULTRA-NARROW**  
**OE3745**

Wavelengths Offered	370 to 4500 nm	Single Frequency, CW; Vacuum
Spectral Linewidth	Sub-Hz to 100 Hz	Lorentzian; Instantaneous
Output Power	1 to 100 mW	Diode-dependent
Frequency Noise	~ 10 to 500 Hz/√Hz ~ 5 to 200 Hz/√Hz ~ 2 to 50 Hz/√Hz	1 kHz Offset 10 kHz Offset 1 MHz Offset
Short Term Stability	Minimum 10 <sup>-9</sup> @ 1 s	At Constant Case Temperature
Frequency Stability	~100 MHz/day	At Constant Case Temperature
Tuning Range	≤ 10 GHz mode hop free	Wavelength-dependent
Tuning Rate	100 MHz/s mode hop free	
Side-Mode Suppression Ratio	≤ 50 dB	Diode-dependent
Relative Intensity Noise	-130 to -150 dBc/Hz	At 10 MHz, Diode-dependent
Vibration / Acceleration Sensitivity	5 x 10 <sup>-11</sup> /g	
Operating Temperature	+20°C to +40°C	Case Temperature
Storage Temperature	-10°C to +50°C	Case Temperature
Monitor / Control Interface	USB	
Package	2.3" x 6" x 1" (most lasers)	Including Driver Electronics
Fiber Pigtail	PM-FC/APC	PANDA fiber; Slow-axis
Polarization Extinction Ratio	15 to 20 dB	

## OPTIONS

Frequency Modulation	DC-100 kHz	5 - 15 MHz/V; > ±100 MHz Range
Monitor / Control Interface	RS-232	

**\*Quoted Specifications:** OE3745 pricing, specifications and lead times are dependent on diode beam properties and availability of components. Consult with OEwaves Sales.

**Technical Note:** Instantaneous Linewidth is computed from the noise floor of the power spectral density of frequency noise (PSDFN).

**Laser Safety:** This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR) 1040 and is classified as a FDA/CDRH Class 3b laser product.

**Note:** These specifications are subject to change without notice. This product line is covered by one or more of the following U.S. patents: 6,871,025; 6,879,752; 7,248,763; 7,991,025; 7,869,472. Other patents pending. ECCN: EAR99



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