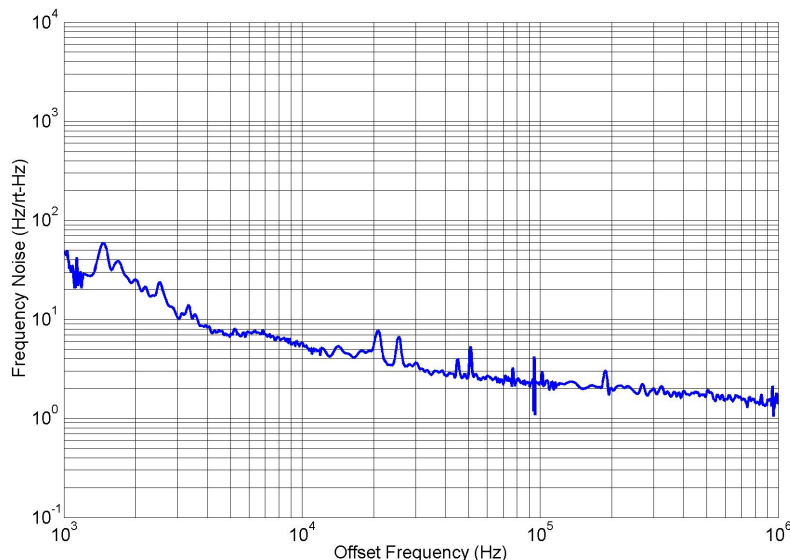


HI-Q<sup>®</sup> laser offers **Ultra-Narrow Lorentzian Linewidth of less than 80 Hz** and low phase/frequency noise in a compact form factor.



This 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) micro-resonator. The laser is available at a variety of wavelengths in the 780nm region.

The unique technology of the OEwaves HI-Q<sup>®</sup> laser leverages the self-injection locking capability of a suitable commercially available 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 insensitive to environmental vibrations.



## FEATURES

- Ultra-Narrow Instantaneous Laser Linewidth
- Ultra-Low Phase/Frequency Noise
- Key wavelengths within 770-790 nm
- Low Vibration Sensitivity
- Low Residual Amplitude Modulation
- Wavelength Stability
- Compact Package
- Integrated Driver/Controller
- USB or RS-232 Control Interface

## APPLICATIONS

- Rubidium atomic transitions
- Optical Metrology & Spectroscopy

# HI-Q® NEAR IR LASER SPECIFICATIONS

**HERTZ**  
**OE4078**

Key wavelengths within range	770-790nm	Single Frequency, CW; Vacuum
Spectral Linewidth	< 80 Hz	Lorentzian; Instantaneous
Output Power	3 – 5 mW	
Frequency Noise	100 Hz/√Hz 20 Hz/√Hz 8 Hz/√Hz	1 kHz Offset 10 kHz Offset 1 MHz Offset
Short Term Stability	2 x10 <sup>-9</sup> @ 1 s	At Constant Case Temperature
Frequency Stability	100 MHz/day	At Constant Case Temperature
Thermal Tuning Range	10 GHz (~0.02 nm)	Mode Hop Free
Thermal Tuning Rate	100 MHz/s	Mode Hop Free
Side-Mode Suppression Ratio	50 dB	
Relative Intensity Noise	-140 dBc/Hz	At 10 MHz
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"	Including Driver Electronics
Fiber Pigtail	PM-FC/APC	
Polarization Extinction Ratio	20 dB	

## OPTIONS

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

**Tech Notes:** 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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