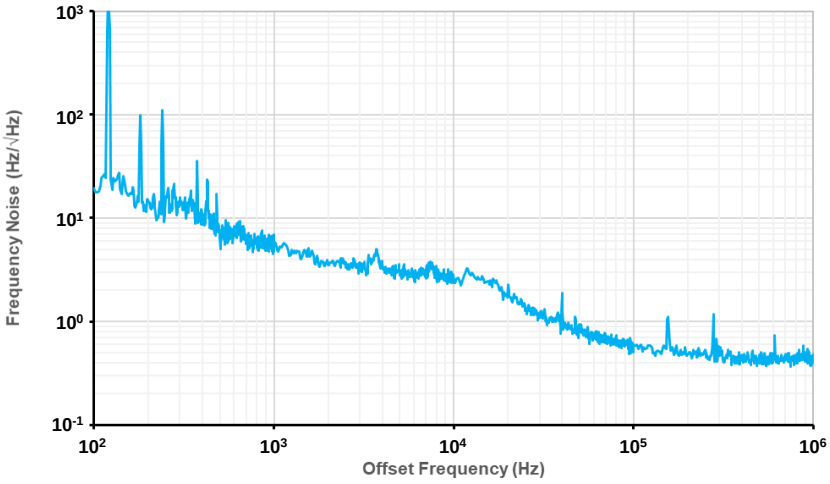
OEwaves
INVENT ▪ DEVELOP ▪ DELIVER

HI-Q™ 1.5 MICRON LASER SERIES

HI-Q™ Laser offers ultra-narrow Lorentzian linewidth and low phase/frequency noise in a compact form factor.

This HI-Q™ 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 C band wavelengths (1530 – 1565 nm).

The unique technology of the OEwaves HI-Q™ 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 virtually insensitive to environmental vibrations.



FEATURES

- Ultra-Narrow Instantaneous Laser Linewidth
- Ultra-Low Phase/Frequency Noise
- 1530 – 1565 nm
- Wide Thermal Tuning Range
- Low Vibration Sensitivity
- Low Residual Amplitude Modulation
- Wavelength Stability
- Compact Package
- Integrated Driver/Controller
- USB or RS-232 Control Interface

APPLICATIONS

- Interferometric Optical Sensing
- LIDAR
- B-OTDR Temperature and Strain
- Gas Sensing
- Optical Metrology and Spectroscopy
- Acoustic Sensing
- Oil and Gas Exploration
- Coherent Communication
- Test and Measurement

RIDE THE WAVE OF INNOVATION

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HI-Q™ 1.5 MICRON LASER SERIES
SPECIFICATIONS

	OE4023 Tunable	OE4026 Ultra-Narrow	OE4028 Hertz	OE4030 Sub-Hertz
Spectral Linewidth* (Lorentzian, instantaneous)	≤ 300 Hz	≤ 80 Hz	≤ 7 Hz	≤ 3 Hz*
Frequency Noise ▪ 1 kHz Offset ▪ 10 kHz Offset ▪ 1 MHz Offset	 300 Hz / √Hz 30 Hz / √Hz 10 Hz / √Hz	 60 Hz / √Hz 20 Hz / √Hz 8 Hz / √Hz	 30 Hz / √Hz 10 Hz / √Hz 4 Hz / √Hz	 10 Hz / √Hz 5 Hz / √Hz 2 Hz / √Hz
Thermal Tuning Range (Continuous)	40 GHz	10 GHz	10 GHz	10 GHz
Options	Multiples of 40GHz (.32 nm) up to 200GHz (1.6 nm)			
Thermal Tuning Rate	200 MHz / s	100 MHz / s	100 MHz / s	100 MHz / s
Extended Power (Option)	18 mW	18 mW	N/A	N/A
Relative Intensity Noise (at 10 MHz)	- 140 dBc / Hz	- 140 dBc / Hz	- 145 dBc / Hz	- 150 dBc / Hz
Wavelengths Offered	1530 – 1565 nm (Single Frequency, CW; Vacuum)			
Output Power	10 mW			
Short Term Stability (Typical)	10^{-9} @ 1 s (At Constant Case Temperature)			
Frequency Stability (Typical)	100 MHz / day			
Signal to Noise Ratio	55 dB			
Side-Mode Suppression Ratio	50 dB			
Operating Temperature	+20°C to +40°C			
Storage Temperature	-10°C to +50°C			
Monitor / Control Interface	USB (Standard) or RS-232 (Option)			
Package	2.3” x 6” x 1” (Including Driver Electronics)			
Fiber Pigtail	PM-FC / APC (PANDA Fiber, Slow Axis)			
Polarization Extinction Ratio	20 dB			
Frequency Modulation (Option)	DC-10 kHz; 5 - 15 MHz/V; > ±100 MHz Range DC-100 kHz; 5 - 15 MHz/V; > ±100 MHz Range			

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

*Contact Sales for less than <1 Hz linewidth.

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; 7248,763, 7991,025; 7869,472. Other patents pending.
ECCN: EAR99

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