

CleanLaze

Turnkey Spectrum Stabilized Laser System



U.S. Patent: #7,245,369

Features

- Narrow Linewidth (< 0.03nm)
- Power Output from 50mW to 450mW
- Lifetime > 10,000 Hours
- Plug-and-play Design
- Excellent Spectral and Power Stability
- Free-space or Fiber Coupled
- USB Software Interface Available
- Rugged Environmentally Sealed Design
- TTL & Analog Modulation Available
- TEM₀₀ Beam Quality
- Perfect for Raman Spectroscopy

The CleanLaze® laser series is capable of maintaining a linewidth of less than 0.03nm (15GHz) in single transverse mode operation at 785nm. The core part of this laser is a high-power broad-stripe laser diode with its output spectrum narrowed and stabilized using novel laser cavity technology. Conventional external cavity lasers are both delicate and require high maintenance costs due to the inclusion of external reflective dispersive elements, resulting in a long cavity length. In the CleanLaze®, the wavelength selective element is an integral part of the laser diode through a hybrid integration process, resulting in a compact device which is stable against environmental changes (temperature, vibration, humidity, etc.). The utilization of a broad-stripe laser diode guarantees a low cost module while delivering higher output power than its DFB and DBR counterparts. The wavelength selective element filters out unwanted spectral sidelobes from the broad-stripe laser diode and locks its output wavelength to the filter's central wavelength.

Specifications

Model Number	BRM-532-0.03-100-0.22-SMA	BRM-638-0.01-100-0.22-SMA	BRM-785-0.100-FS	BRM-785-0.05-5-0.13-FC	BRM-785-0.45-100-0.22-SMA	BRM-830-0.30-100-0.22-SMA	BRM-1064-0.45-100-0.22-SMA
Wavelength (nm)	532 +/-1	638 +/-1	785 +/- 0.5			830 +/-1	1064 +/-1
Output Power (mW)	> 30	> 10	> 100	> 50	> 450	> 300	> 450
Spatial Mode	Multi-Mode		Single-Mode		Multi-Mode		
FWHM Linewidth (nm)	< 0.03				< 0.3		
M ²	N/A		< 2	< 1.1	N/A		
Beam Diameter at 1/e ² (mm) (Typical)	N/A		1.0	N/A			
Beam Divergence (mrad) (Typical)	N/A		2.5	N/A			
Fiber Core Diameter (μm)	100		N/A	5	100		
Fiber Numerical Aperture	0.22		N/A	0.13	0.22		
Beam Asymmetry	< 1.1:1		< 2:1	< 1.1:1			
Mode of Operation*	CW / Modulated						
Long-Term Power Stability (pk-pk)	< 5%						
RMS Noise							
20Hz to 10MHz	< 0.5%						
10MHz to 500MHz	< 2.0%						
Digital Modulation/External Trigger**							
Maximum Bandwidth (kHz)	> 20		On/Off Only		> 20		
Rise Time (10% to 90%) (μsec)	< 20		N/A		< 20		
Fall Time (10% to 90%) (μsec)	< 20		N/A		< 20		
Modulation Depth (Extinction Ratio)	> 100:1						
Analog Modulation**							
Maximum Bandwidth (kHz)	> 1		N/A		> 1		
Rise Time (10% to 90%) (μsec)	< 50		N/A		< 50		
Fall Time (10% to 90%) (μsec)	< 50		N/A		< 50		
Modulation Depth (Extinction Ratio)	> 100:1		N/A		> 100:1		
Polarization Ratio	N/A		> 100:1	N/A			
Warm-Up Time (Minutes)	< 5						
Beam Position (mm)	N/A		38 +/-1	N/A			
Beam Angle (mrad)	N/A		< +/-5	N/A			
Pointing Stability (μrad/°C)	N/A		< 30	N/A			
CDRH Laser Classification	IIIb						
Ambient Temperature (°C)	10 - 35						
Physical Dimensions (in)	6(W) x 3(H) x 10(D)						

*External Analog and Digital Modulation Interface Available

**Optional