

2.3 μm Broadly Tunable VECSEL Laser Source

OPScan-2300



InnOptics has developed a family of single frequency laser sources based on VECSEL (Vertical External Cavity Surface Emitting Laser) technology.

This laser technology combines the advantages of semiconductor diodes (compactness, reliability, wavelength flexibility) with the beam quality, linewidth, low noise and coherence properties of solid state lasers.

Thanks to the modular architecture of the device, several wavelengths are available with the same package type and footprint.

The small-size module comprises a semiconductor $\frac{1}{2}$ VCSEL chip, a compact optical system for multimode pumping, a TEC cooler for laser temperature adjustment, and a monitoring photodiode for pump power feedback control, as well as a piezo-controlled output mirror for broadband wavelength tuning.

Applications:

- Scientific instrumentation
- Gas sensing

Benefits:

- High SMSR
- Single mode TEM₀₀ beam close to diffraction limit
- Circular low divergence beam
- Broadly continuously tunable wavelength
- Low intensity noise



Electro-Optical Parameters		Typical Values	Units
Wavelength		2300	nm
Output power		> 5	mW
Linewidth (1ms)		<200	kHz
Side Mode Suppression Ratio (SMSR)		> 30	dB
Polarization Extinction Ratio (PER)		> 30	dB
Relative Intensity Noise (RIN)		@ 100 kHz	<-110
Relative Intensity Noise (RIN)		>200MHz	Shot noise
Continuous frequency tuning range		> 500	GHz
Beam divergence		< 5	deg
Beam quality (M ²)		< 1.2	-
Threshold current (I _{th})		0.3	A
Operating current (I _{op})		1	A
Thermal Parameters		MIN	MAX
Laser temperature range		0	30
Operating temperature range		-20	50
Storage temperature range		-40	85
Mechanical Characteristics			
Laser head dimensions		73.5x58x27	mm ³
Weight		200	g