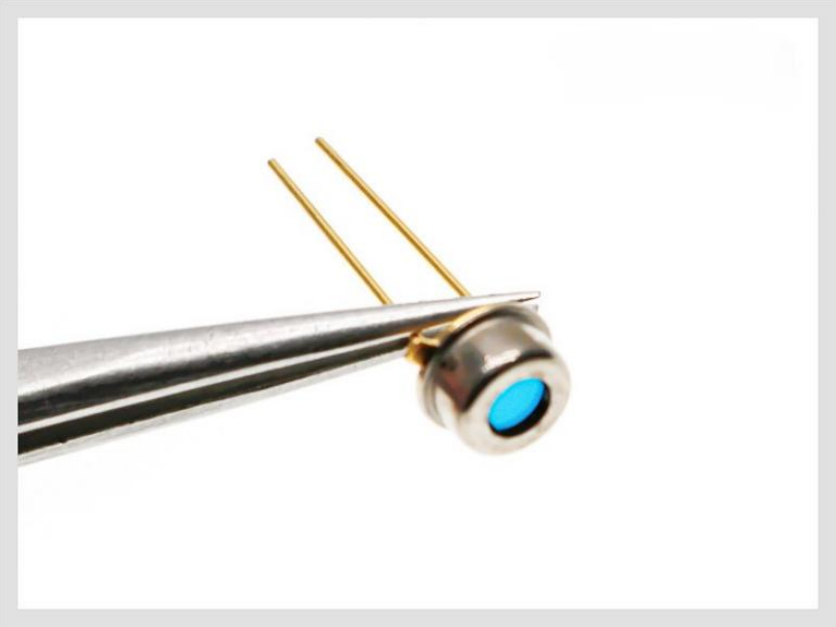
760nm 0.5mW SM VCSEL laser diode without TEC



Product Description

The 760 nm vertical-cavity surface-emitting laser (VCSEL) is a vertically light-emitting single-mode semiconductor laser. Its chip is fabricated from GaAsP/AlGaAs material grown via Metal-Organic Vapor Phase Epitaxy (MOVPE) process, and packaged in TO46 hermetic housing.It realizes wavelength tuning by adjusting laser drive current and operating temperature. The package integrates a built-in Thermoelectric Cooler (TEC) and monitoring Photodetector (PD), and is specially designed for Tunable

Diode Laser Absorption Spectroscopy (TDLAS) applications. With outstanding narrow linewidth performance, it serves as a cost-effective ideal solution for oxygen concentration analysis without auxiliary cooling modules.

Product features

100 MHz spectral bandwidth; Excellent wavelength tunability; TO46 window with Anti-Reflection (AR) coating ; Optimized design for oxygen sensing scenarios

Part Number

MP-VCS-760-0.5-A82-TO46-SM

Application area

TDLAS Oxygen Sensing | Fourier Transform Infrared Spectroscopy (FTIR)

Core parameters

Center Wavelength
760nm

General Parameters

Detailed parameters

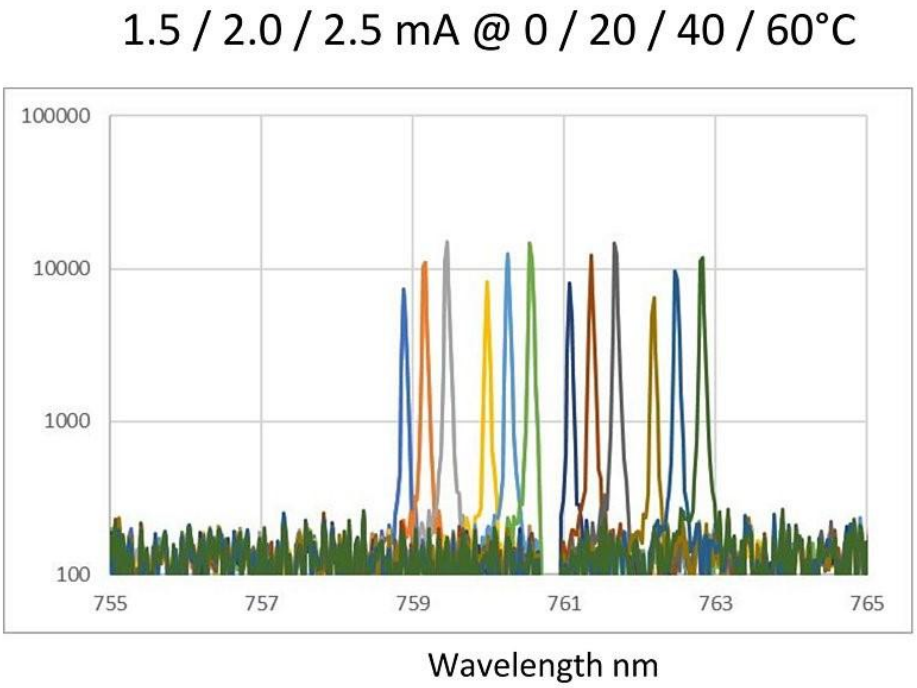
Laser specifications

Condition: TOP=20°C, IOP=2.0mA unless otherwise stated (TO P = Chip backside temperature, controlled by semiconductor cooler (TEC)).

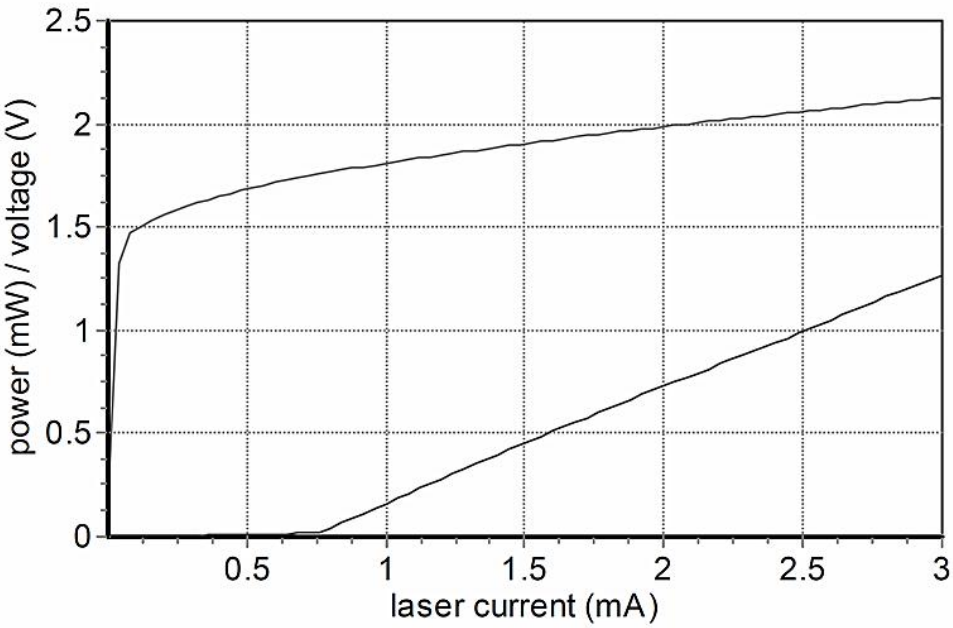
Parameters	conditions	Minimum	Typical values	Maximum	unit	Note:
Emission wavelength	λR	760nm				
Threshold current	ITH		0.5		mA	
Output power	Popt	0.25	0.5	0.75	mW	
Threshold voltage	UTH		1.8		V	
Drive current	IOP			2	mA	Popt = 0.3 mW
Laser voltage	UOP		2		V	Popt = 0.3 mW
Electro-optical conversion efficiency	ηWP		12		%	Popt = 0.3 mW
Slope efficiency	ηS		0.3		W/A	
Differential series resistors	RS		150		Ω	Popt = 0.3 mW

3dB bandwidth	v3dB	0.10			GHz	Popt = 0.3 mW, due to the presence of electrostatic protection diodes
Relative intensity noise	RIN		-130	-120	dB/Hz	Popt = 0.3 mW @ 1 GHz
Current tuning wavelength			0.6		nm/mA	
Thermistor (VCSEL chip).	Rthermal	3		5	K/mW	
Edge mold suppression ratio		25			dB	I = 2 mA
Beam divergence angle	θ	10		25	°	Popt = 0.3 mW, full width 1/e2
Spectral width			100		MHz	Popt = 0.3 mW

Spectral diagram

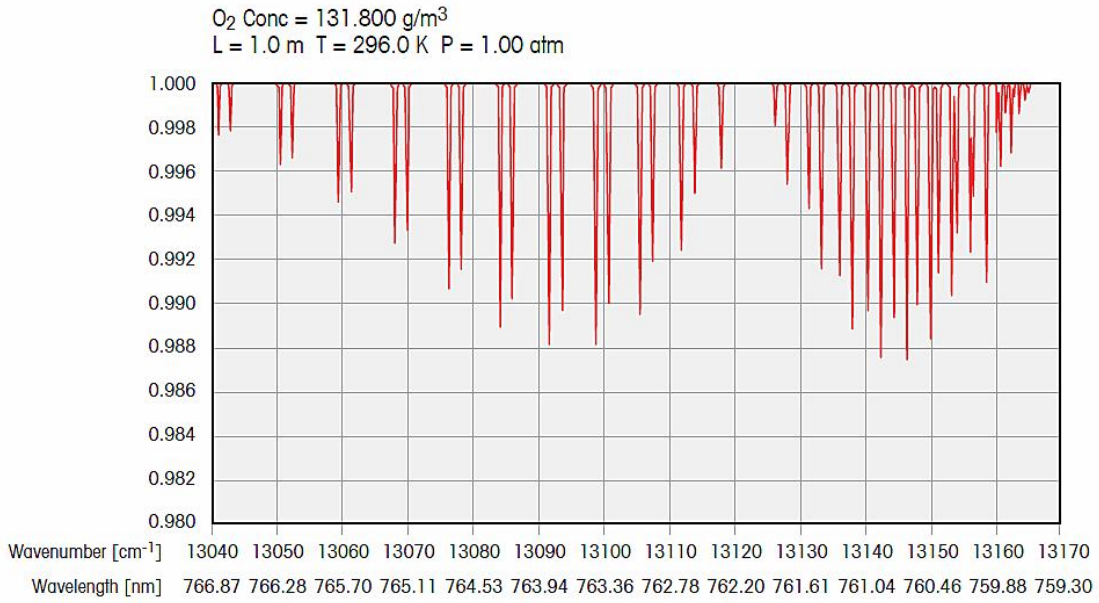


L-I curve (T@25°C)

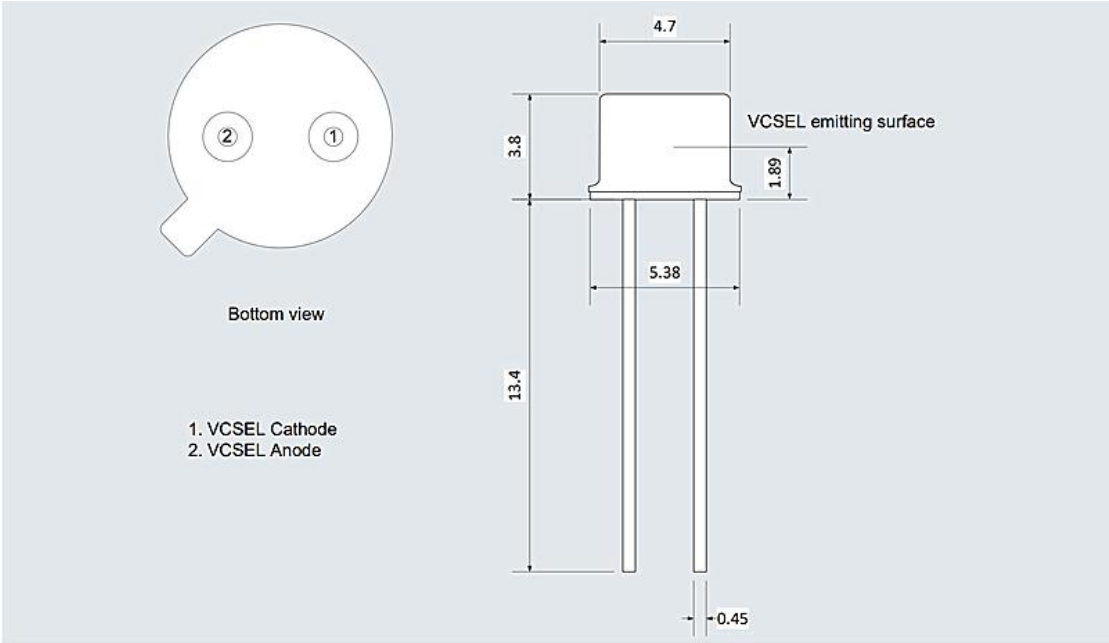


We strongly recommend keeping the maximum current within 2mA to ensure stable performance of this vertical cavity surface emitting laser (VCSEL).

Oxygen absorption line



Dimensions and pin definitions (in mm).



Absolute maximum rating (T=25°C, IF=2mA).

Item	unit	Minimum	Typical values	Maximum
Storage temperature	C	-40	25	125
Chip temperature	°C	10	25	40
Operating current	mA	0	2	2.5
Forward voltage	V	0.8	1.2	1.8
Welding temperature*	°C	100	130	270
Electrical power dissipation	mw	-	-	5

Ordering information

MP-VCS-□□□□-☆-A8▽-TO39-XX

□□□□: Wavelength

0760: 760nm

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1653.7: 1653.7nm

☆: TEC

0: Without TEC

1: With TEC

▽: Wavelength Tolerance

1: ±0.5nm

2: ±1.5nm