

1550 nm Wide tunable Vertical-Cavity Surface-Emitting Laser with TEC



Description

The PL-VCSEL-1550-1-A81 1550nm VCSEL is a vertical emitting MOVPE grown GaAsP/AlGaAs Single Mode diode laser. The chips are mounted in TO5 can. Wavelength tuning can be achieved via laser current and temperature tuning. package with TEC and PD Built in. It is special designed for High speed fiber communication.

Features

- TO-56 7Pin Small Form Footprint
- Aspherical lens cap
- Integrated TEC (Temperature Stabilization)
- CW Optical Output Power: Typical
- 1.6mW (@20°C TEC Temperature)
- Single Mode VCSEL
- Center wavelength can be within
- several bands through the C and L band.
- Wide Tuning Range: > 8 nm
- High modulation bandwidth (10 Gbps)
- Fast Wavelength Tuning (~100 kHz)

Application

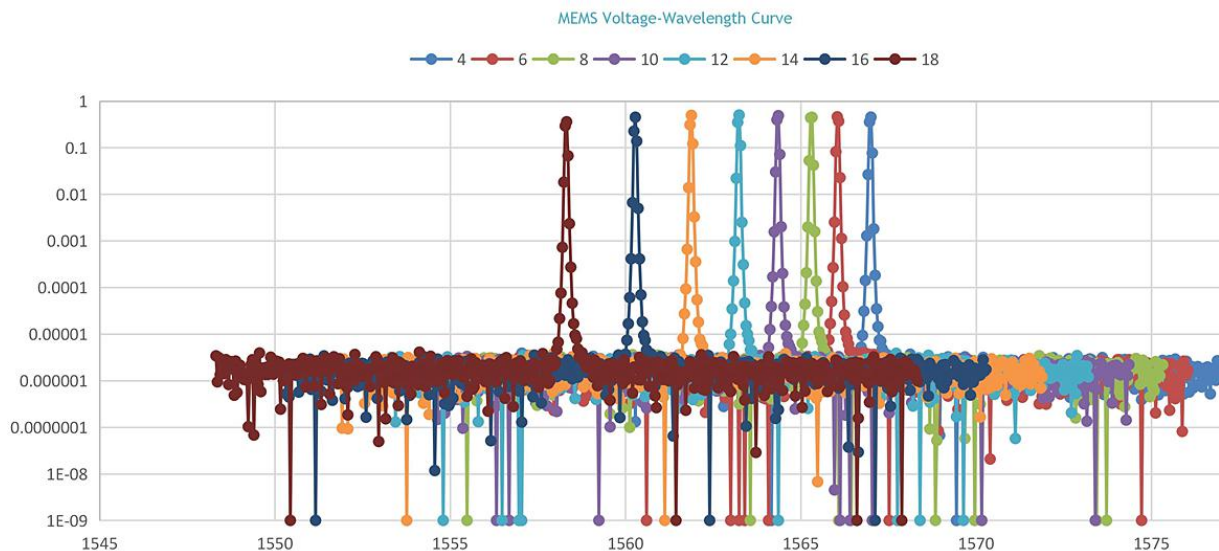
- Optical communications
- Swept source
- Optical gas sensing
- LIDAR

Laser Specifications

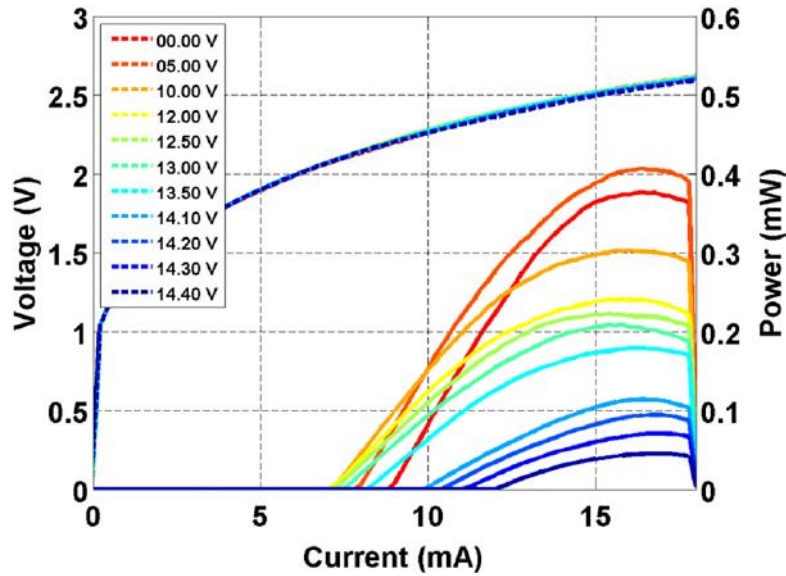
Condition: TO P = 20°C, IO P = 2.0 mA unless otherwise stated (TO P = chip backside temperature, controlled by the TEC)

Parameter	Symbol	Values			Unit
		Min	Typical	Max	
Optical Output Peak Power @25° C	P	1.0	1.6		mW
Operating Bias Current	Iop	0	18	25	mA
Operating Temperature range	Top	-40	25	85	°C
Threshold Current	Ith		8	12	mA
Slope Efficiency (CW, Tc=25°C)	SE	0.14	0.18		mW/mA
Laser Drive Voltage	Vcc	0	1.5	2.5	V
Resistance	Rs		50		Ω
Center Wavelength Please specify desired center wavelength in the purchase order	$\Delta\lambda$	1525		1575	nm
Guaranteed Tuning Range Applying a positive voltage will decrease peak wavelength.	λ	8	10		nm
Max. Mechanical Tuning Response	fmax	100	200	-	kHz
Side-mode suppression ratio	SMSR	30	40		dB
Linewidth (-3 dB FWHM), CW Ibias=Iop	σ			300	MHz
Relative Intensity Noise	RIN			-128	dB/Hz
Tuning Voltage	Vtune	0	Test Sheet	Test Sheet	
Tuning Current	I _{tune}	0	-	100	μA
TEC Voltage	VTEC		0.35	1.5	V
TEC Current	ITEC		0.05	0.6	A

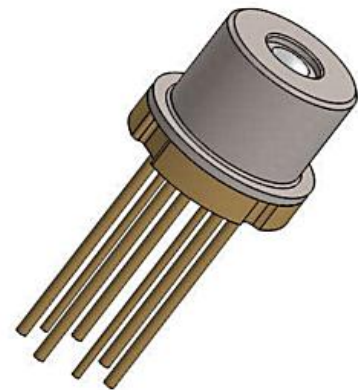
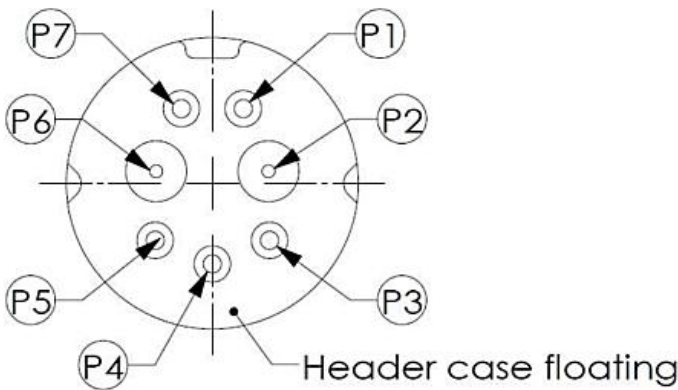
Optical Spectrum at 15mA at 20°C (As a function of Tuning Voltage)



L-I Curve (T@25°C)



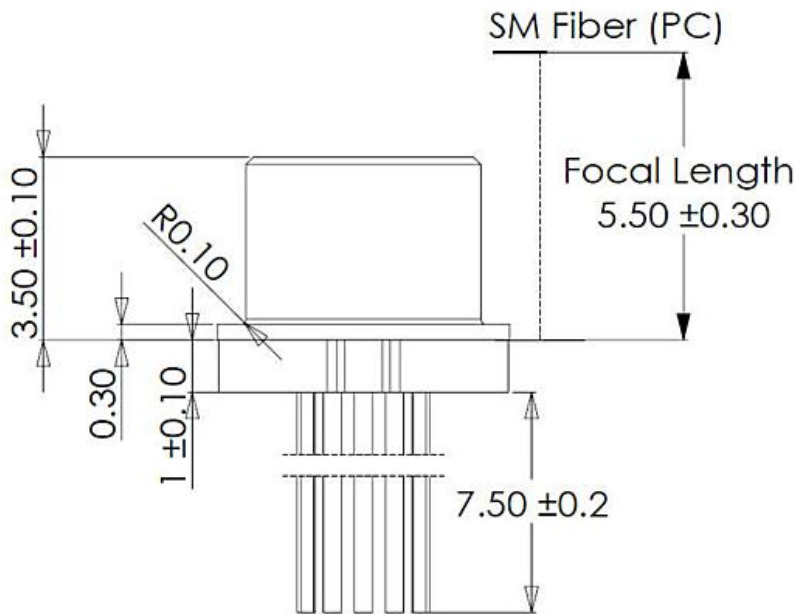
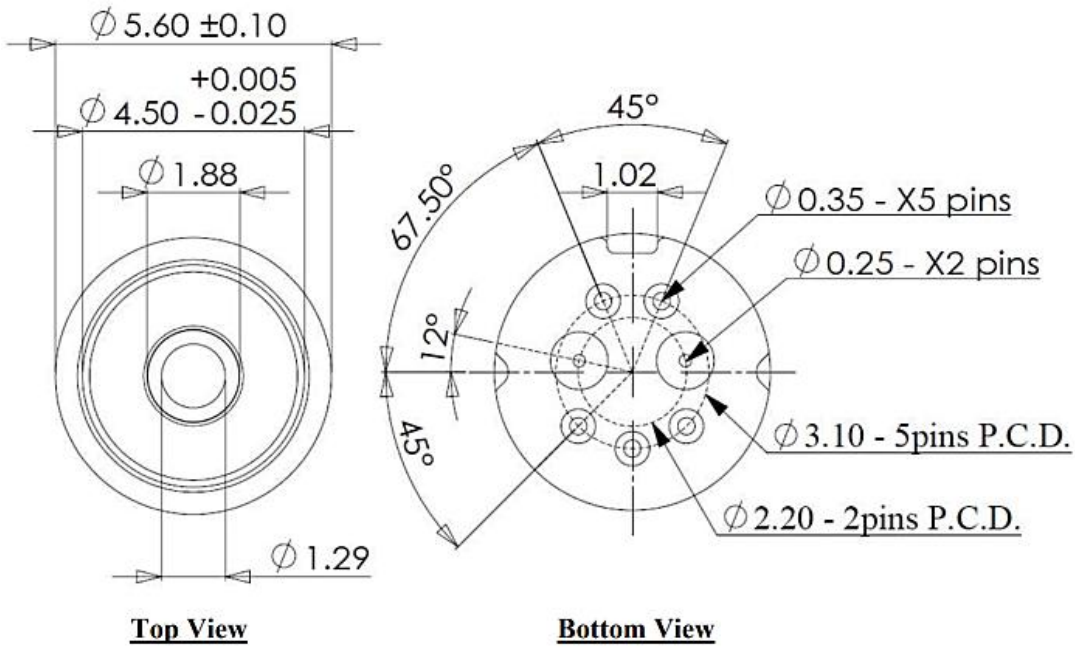
Package Size



Bottom View

PIN NUMBERS	ASSIGNMENT
P1	TEC (+)
P2	LD (-)
P3	TUNING Vt (-)
P4	THERMISTOR (-)
P5	THERMISTOR (+)
P6	LD (+) & Vt (+)
P7	TEC (-)

Pin definition



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Storage Temperature	Tstg	-20 to +85	°C
Operating Case Temperature	Tc	-5 to +70	°C
Forward Current of VCSEL	ILD	25	mA
Reverse Voltage of VCSEL	VLD	3	V
Soldering Temperature	Tsld	350 (10 sec.)	°C

OEM Info

PL-VCSEL-□□□□-☆-A8▽-XX

□□□□: Wavelength

1540: 1540nm

1550: 1550nm

1570: 1570nm

☆ : TEC

0: Without TEC

1: With TEC

▽: Wavelength Tolerance

1: ±0.5nm

2: ±1.5nm

XX: Package

T056

User Safety

Safety and Operating Considerations

This device operates under reverse bias voltage, and the polarity of the device can't be reversed.

Operating the Photodiode outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with this component cannot exceed maximum peak optical power.

ESD PROTECTION—Electrostatic discharge (ESD) is the primary cause of unexpected laser diode failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces, and rigorous antistatic techniques when handling Photodiodes.