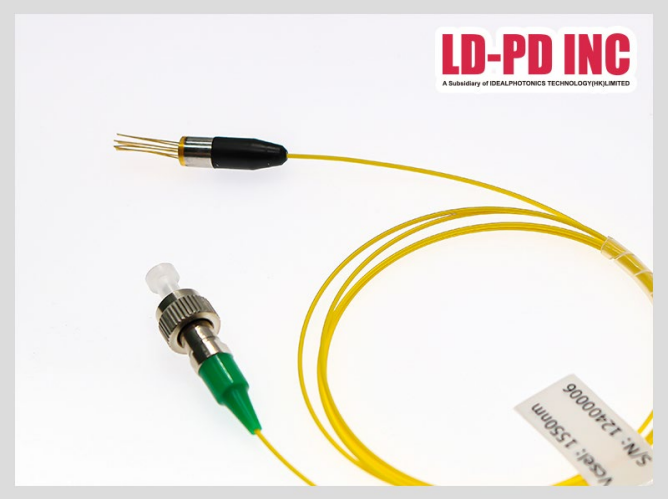
1550nm SM VCSEL Laser diode for 4.25Gbps High speed Communication



Description:

The PL-VCSEL-1550-0-A81- CPSA 1550nm VCSEL is a vertical emitting MOVPE grown GaAsP/AlGaAs Single Mode diode laser. Wavelength tuning can be achieved via laser current and temperature tuning. package with TEC and PD Built in. Our 1550 nm single mode VCSEL is designed for high-speed, high-performance communication applications.

Features:

- Low dependence of electrical and optical characteristics over temperature
- Data rates from OC-3 to OC-48
- Vertical Cavity Surface-Emitting Laser
- Internal TEC and Thermistor, ESD protection
- Narrow linewidth
- 2 nm tunability with TEC

Applications:

- Access network for long distance
- Local area network
- Gigabit Ethernet

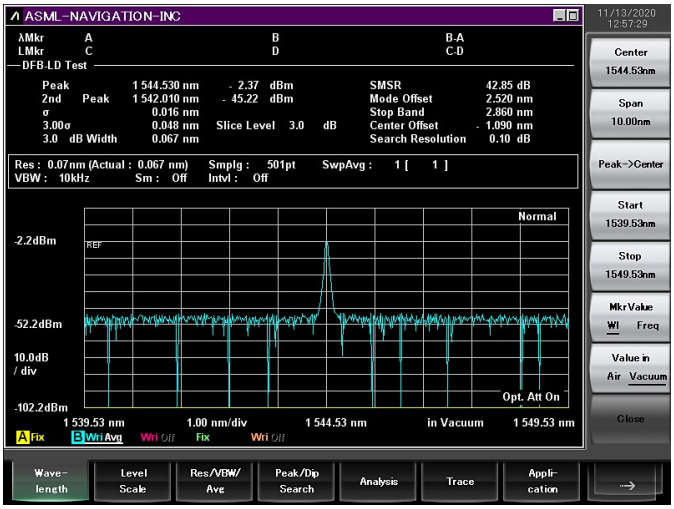
Electrical/Optical Characteristics:

Condition:TO P = 20°C, IO P = 10.0 mA unless otherwise stated (TO P = chip backside temperature, controlled by the TEC)

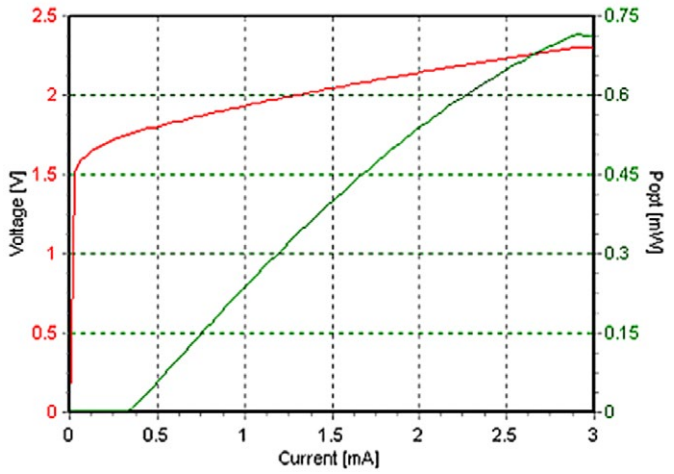
Parameters	Symbol	Min	Typ	Max	Unit	Remark
Emission Wavelength	λR	1530-1570nm				1530-1570nm
Threshold current	ITH		2		mA	
Output Power	Popt	0.3	0.5	0.7	mW	
Threshold Voltage	UTH		1.8		V	
Driving Current	IOP			15	mA	Popt = 0.5mW
Laser voltage	UOP		3		V	Popt = 0.5 mW
Electro optic conversion rate	ηWP		12		%	Popt = 0.5 mW
Slope efficiency	ηS		0.3		W/A	
Rise and Fall time	Tr/Tf		90/120		Psec	
Differential series resistance	RS		100	200	Ω	Popt = 0.5 mW
3dB bandwidth	v3dB	0.10			GHz	Popt = 0.5 mW
						Due to ESD protection diode
Relative intensity noise	RIN		-130	-120	dB/Hz	Popt = 0.3 mW @ 1 GHz
Wavelength tuning over current			0.6		nm/mA	
Wavelength tuning over temperature			0.06		nm/K	
Thermal resistance (VCSEL chip)	Rthermal	3		5	K/mW	
Side mode supression		35			dB	I = 2 mA
Beam divergence	θ	10		25	°	Popt = 0.5mW, full width 1/e2
Spectral Width			100		MHz	Popt = 0.5 mW

Tec Characteristics	Unit	Min	Typ	Max	Remark
Tec Current	mA	-150(Heating)		+300(Cooling)	Proper Heart Sink Required
NTC Thermistor Resistance	KΩ	9.5	10.0	10.5	T=25℃@10 KΩ
NTC Thermistor Resistance	KΩ	10/exp{3892-(1/289K-I/TOP)}			

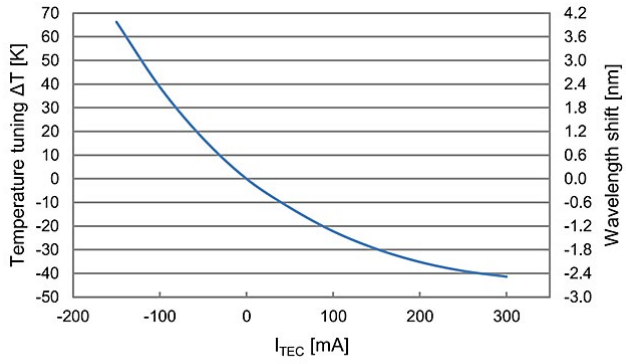
Spectrum:



L-I Curve(T@25°C):

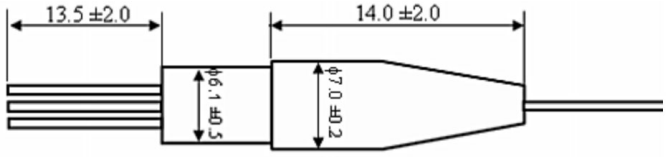


Temperature / wavelength tuning over TEC current*:



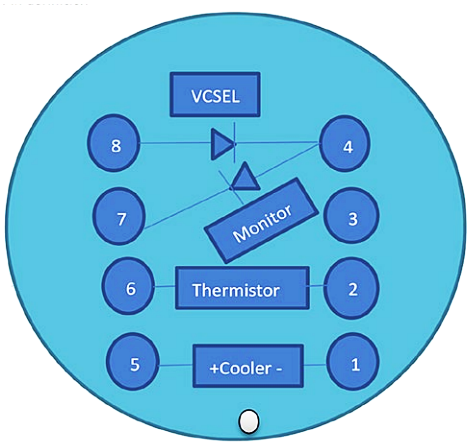
* TEC performance is dependent on heat load, ambient temperature and heatsink properties

Package Size:



TO package Bottom side View (Unit in mm)

Pin definition:



1	Thermoelectric Cooler (-)	5	Thermoelectric Cooler (+)
2	Thermistor	6	Thermistor
3	N/C	7	PD Monitor Cathode (+)
4	VCSEL Cathode (–)/PD Monitor Anode (-)	8	VCSEL Anode (+)

Absolute Maximum Ratings:

Item	Unit	Min	Typ	Max
Store Temperature	°C	-40	25	125
Chip Temperature	°C	+10	25	40
Operating Current	mA	0	3.0	15.0
Forward Voltage	V	0.8	1.2	1.8
TEC Current	mA	-150	-	+300
Soldering Temperature*	°C	100	130	260
Electrical Power Dissipation	mw	-	-	5

(*TEC temperature must be below 150°C)

Ordering Info:

PL-VCSEL-□□□□-☆-A8▽-XXXX

□□□□: Wavelength

0760:760nm

0850-850nm

*****

1550: 1550nm

☆ : TEC

0: Without TEC

1: With TEC

▽: Wavelength Tolerance

1: ±0.5nm

2: ±1.5nm

XXXX: Fiber and Connector Type

FS=Free Space

BFSA=Butterfly Package with SMF-28E+ FC/APC

CPSA=Coaxial Package with SMF-28E+ FC/APC

BFSP=Butterfly Package with SMF-28E+ FC/PC

CPSP=Coaxial Package with SMF-28E+ FC/PC

BFPP=PM Fiber+ FC/PC

BFPA=PM Fiber+ FC/APC