

1550nm tunable VCSEL vertical cavity surface emitting laser (with TEC)



● Product Description

1550nm VCSEL is a vertically emitting MOVPE grown GaAsP/AlGaAs single mode diode laser. Wavelength tuning can be achieved by laser current and temperature tuning. Built-in TEC and PD

● Part Number

PL-VCSEL-1550-1-A82-TO56

● Product features

TO-56 7-pin small package outline、Aspheric collimating lens、Integrated

TEC (temperature stabilized)、 CW optical output power: 1.6mW typical (@20°C TEC temperature)、 Single-mode VCSEL、 Center wavelength can be in several bands through C and L bands.、 Wide tuning range: >8nm、 High modulation bandwidth (10 Gbps)、 Fast wavelength tuning (about 100 kHz)

● Application area

Optical communications、 Scanning light sources、 Optical gas sensing、 LiDAR

Parameters

Technical parameters:

Conditions: TOP = 20° C, IOP = 2.0 mA unless otherwise specified (P = chip backside temperature, controlled by TEC)

Parameter	Symbol	Index			Unit
		Min.	Typ.	Max	
Optical output peak power @ 25° C	P	1.0	1.6		mW
Operating current	Iop	0	18	25	mA
Operating temperature	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 center wavelength)	$\Delta \lambda$	1525		1575	nm
Guaranteed tuning range (applying positive voltage will reduce peak wavelength)	λ	8	10		nm
Maximum tuning response rate	fmax	100	200	-	kHz
Side mode suppression ratio (SMSR)	SMSR	30	40		dB
Linewidth (-3 dB FWHM), CW I _{bias} =I _{op}	σ			300	MHz

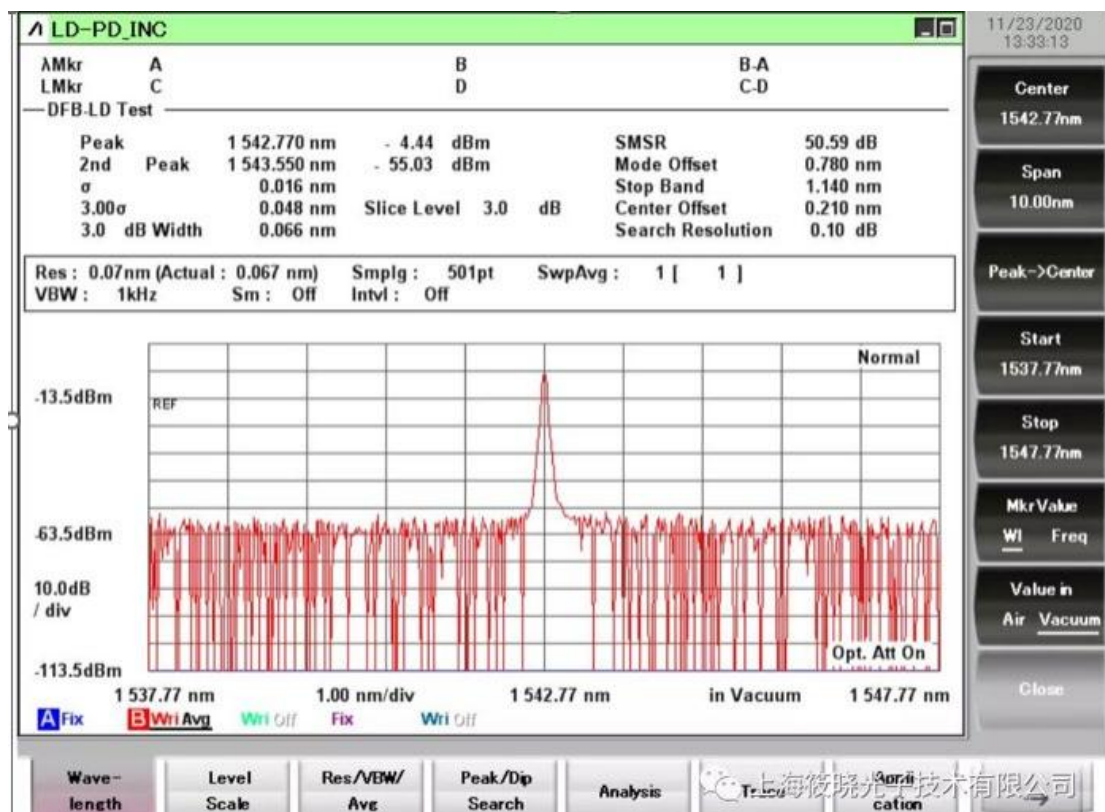
Relative intensity noise	RIN			-128	dB/Hz
Tuning voltage	Vtune	0	Test Sheet	Test Sheet	V
Tuning current	Itune	0	-	100	μ A
TEC voltage	VTEC		0.35	1.5	V
TEC current	ITEC		0.05	0.6	A

Absolute Maximum Ratings:

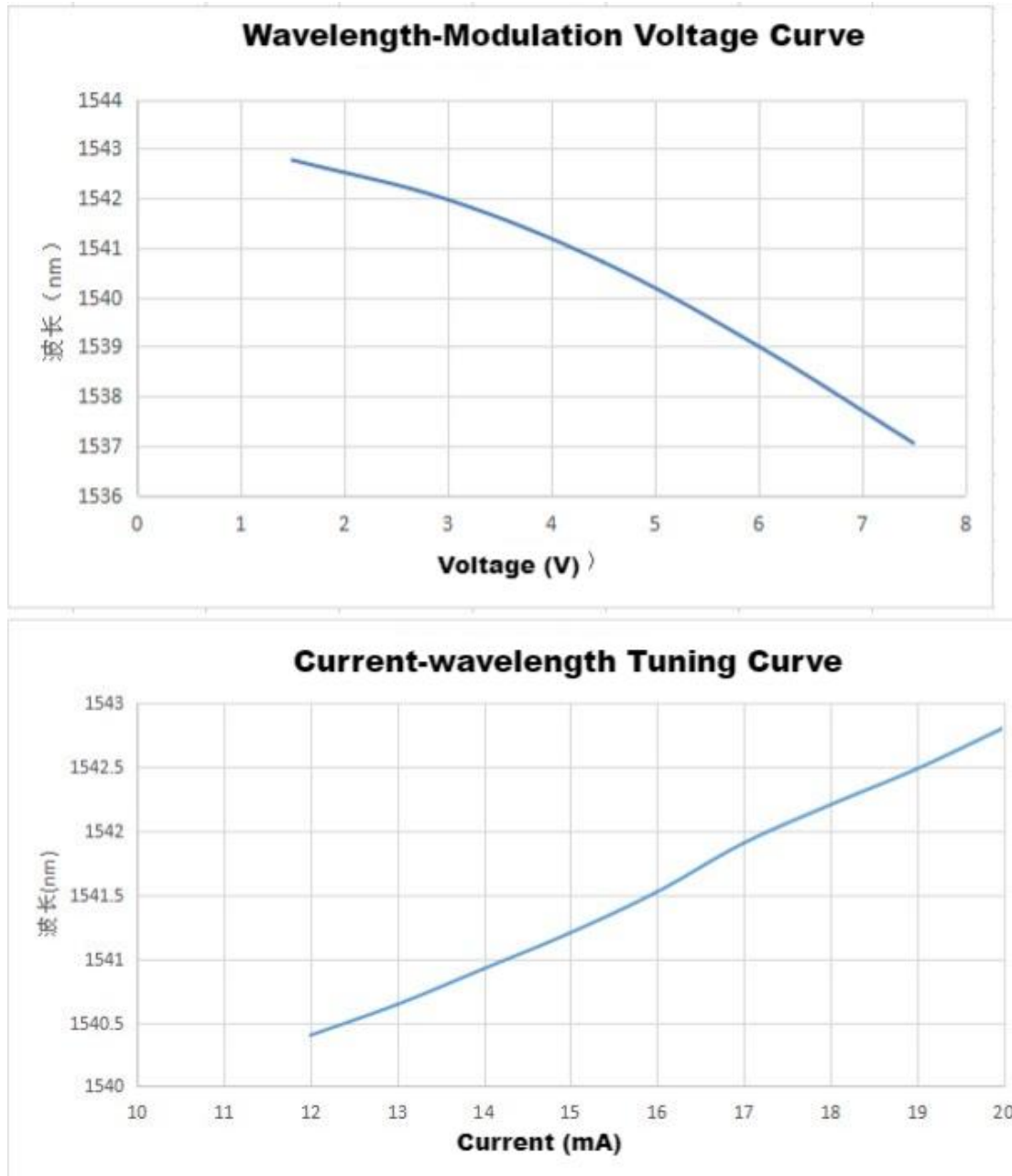
Parameters	Symbol	Index	Unit
Storage temperature	Tstg	-20 to +85	° C
Operating temperature	Tc	-5 to +70	° C
Forward current	ILD	25	mA
Reverse voltage	VLD	3	V
Soldering temperature	Tsld	350 (10 sec.)	° C

(*TEC temperature must be below 150° C)

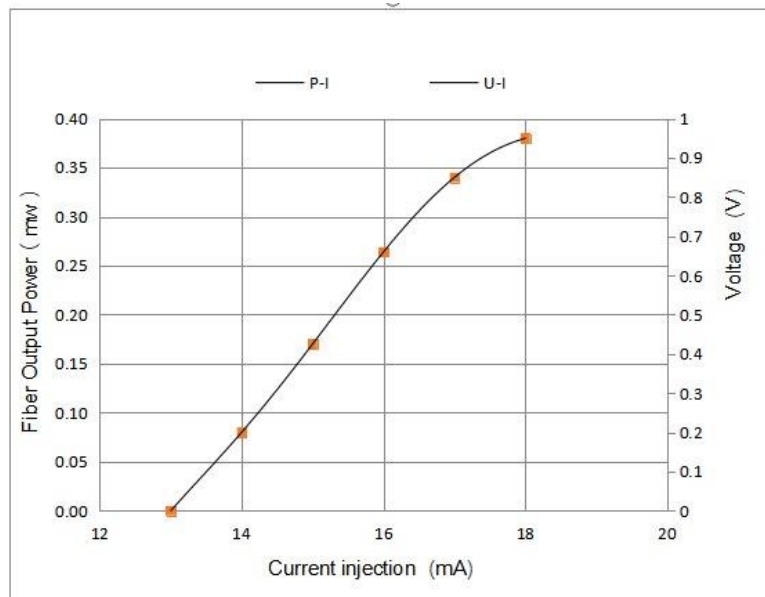
Test spectrum:



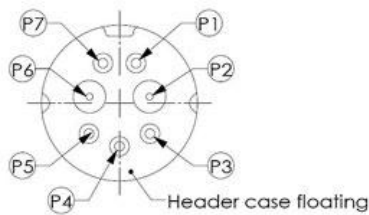
Wavelength tuning curve:



Power curve:

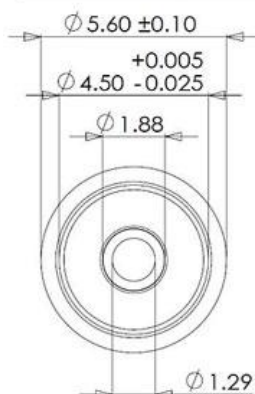


Pin definition:

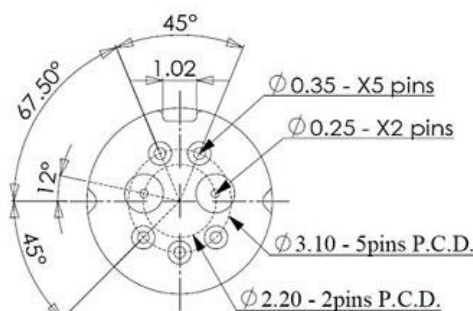


Bottom View

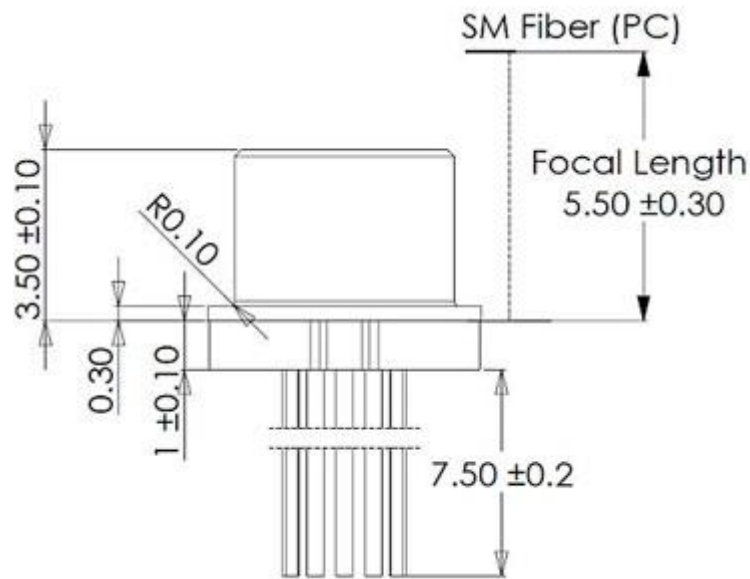
PIN NUMBERS	ASSIGNMENT
P1	TEC (+)
P2	LD (-)
P3	TUNING Vt (-)
P4	THERMISTOR (-)
P5	THERMISTOR (+)
P6	LD (+) & Vt (+)
P7	TEC (-)



Top View



Bottom View



Order Info:

PL-VCSEL-□□□□-☆-A8▽-XX

□□□□: Wavelength

1540: 1540nm

1550: 1550nm

1570: 1570nm

☆ : TEC

0: Without TEC

1: With TEC

▽: Wavelength Tolerance

1: ± 0.5 nm

2: ± 1.5 nm

XX: Package TO56