

# VCSEL-1540-T



## Tunable VCSEL 1540 nm, Single Mode with built-in TEC

### OVERVIEW

The Optilab VCSEL-1540-T is a wavelength tunable Vertical Cavity Surface Emitting Laser (VCSEL) diode. Utilizing a MEMS based tuning capacity, its peak wavelength can be tuned over 10 nm at 100 kHz. VCSEL-1540-T is designed for fiber sensing, laser transmitter and optical communication applications. It also integrates an internal TEC and optical isolator for stable single mode output. Contact Optilab for more information.

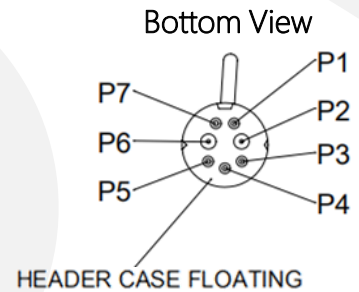
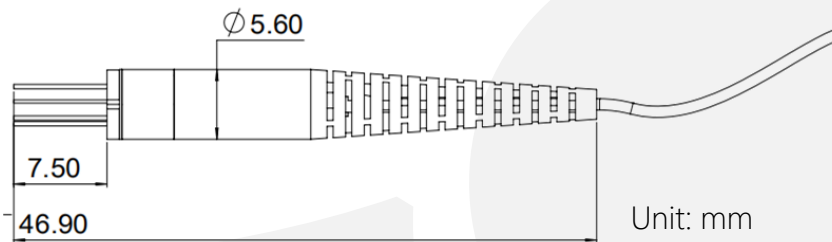
### FEATURES

- 10 nm Wavelength Tuning Range
- 100 kHz Wavelength Turning Speed
- Mode Hopping Free Tuning
- Integrated TEC and Optical Isolator
- Single Mode Output
- 1 mW CW Output Power
- Small Footprint (TO-56)
- 10 Gb/s Direct Modulation

### USE IN

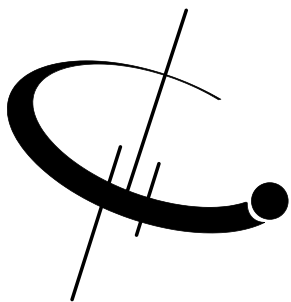
- OCT Imaging
- 1540nm Optical Communications
- RFoF
- FBG Sensing
- LIDAR

### MECHANICAL DRAWING & PIN OUT



PIN No.	PIN1	PIN2	PIN3	PIN4	PIN5	PIN6	PIN7
ASSIGNMENT	TEC +	LD -	TIUNING (Vt -)	THERMI STOR	THERMI STOR	LD + / Vt +	TEC -





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## SPECIFICATIONS

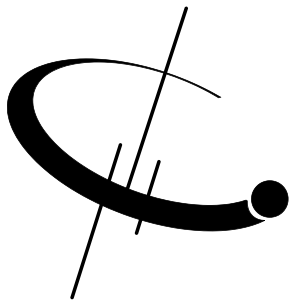
### GENERAL

Output Wavelength	1530 ~ 1540 nm
Output Power	1 mW typ.
Side Mode Suppression Ratio	40 dB typ.
Laser Linewidth	300 MHz typ.
Relative Intensity Noise	-127 dB/Hz
LD Threshold Current	7 mA
LD Operation Current	18 mA
RF Bandwidth (S21)	8.5 GHz
Electrical Return Loss (S22)	-5 dB
RF Input Impedance	50 $\Omega$
Wavelength Tuning Voltage	18 V max.
Wavelength Tuning Current	100 $\mu$ A
Wavelength Tuning Speed	100 kHz
Wavelength Tuning Range	10 nm
Thermistor	10 k $\Omega$

### ABSOLUTE MAXIMUM RATINGS

Operation Temperature	0°C ~ 70 °C
Storage Temperature	-20°C ~ 85 °C
Soldering Temperature	350 °C
LD Forward Current	25 mA
LD Forward Voltage	2.5 V
Tuning Voltage	20 V
Tuning Current	0.1 mA
TEC Voltage	1.5 V
TEV Current	0.8 A

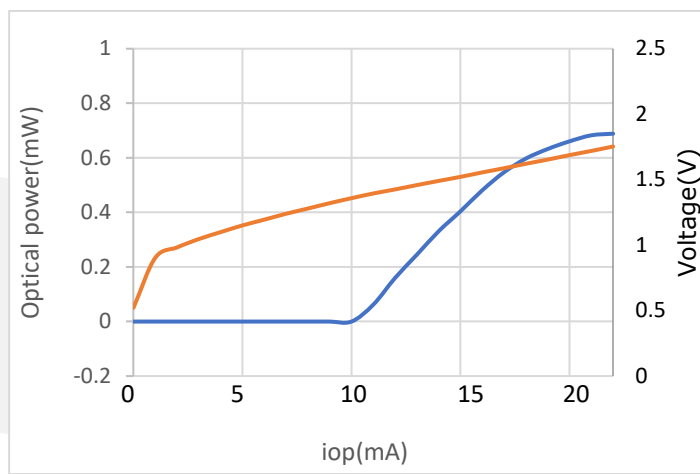




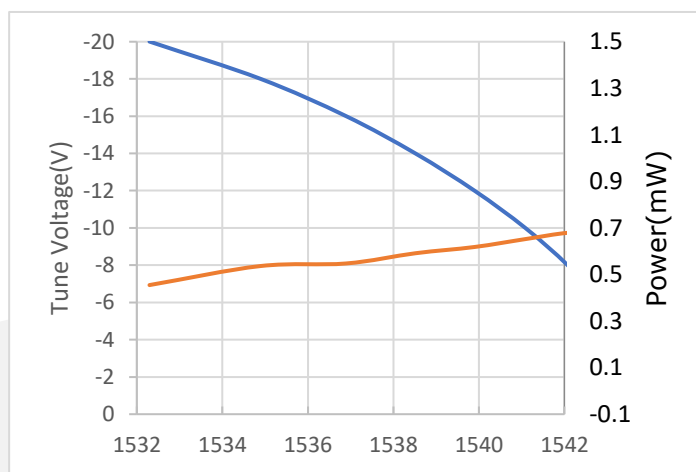
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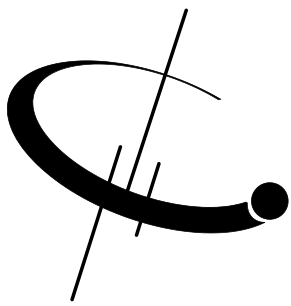
## TEST REPORT

### L-I-V Curve



### Wavelength Tuning Curve

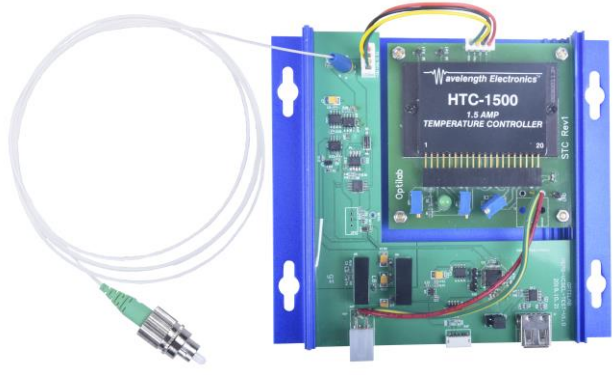




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## RELATED EVALUATION BOARD

- **VCSEL-T-EVB**



Optilab VCSEL-T-EVB is an evaluation board designed for ease of testing. It provides convenient access to all 7pins and data output ports.

- **SWL-15XX-MC**



Optilab SWL-15XX-MC is a low cost Swept Wavelength Laser module. It features fast continuous sweeping of 100kHz within 10nm range.

- **VCSEL-1550-SM**



Optilab VCSEL-1550-SM is packaged in compact coaxial housing with single mode fiber pigtail. It requires very low drive current and features built-in TEC.

