

1550 nm Wide tunable 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

● 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)

- **Part Number**

MP-VCS-1550-1.6-A82-T056-TEC

- **Application area**

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

- **Core parameters**

Wavelength	Power	Package
1550nm	1.6mW	T056

- **General Parameters**

Technical parameters:

Conditions: $T_{OP} = 20^{\circ}\text{C}$, $I_{OP} = 2.0 \text{ mA}$ 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	I _{op}	0	18	25	mA
Operating temperature	T _{op}	-40	25	85	°C
Threshold current	I _{th}		8	12	mA
Slope efficiency (CW, Tc=25°C)	SE	0.14	0.18		mW/mA
Laser drive voltage	V _{cc}	0	1.5	2.5	V
Resistance	R _s		50		Ω
Center wavelength (please specify center wavelength)	Δλ	1525		1575	nm
Guaranteed tuning range (applying positive voltage will reduce peak wavelength)	λ	8	10		nm
Maximum tuning response rate	f _{max}	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	V _{tune}	0	Test Sheet	Test Sheet	V
Tuning current	I _{tune}	0	-	100	μA



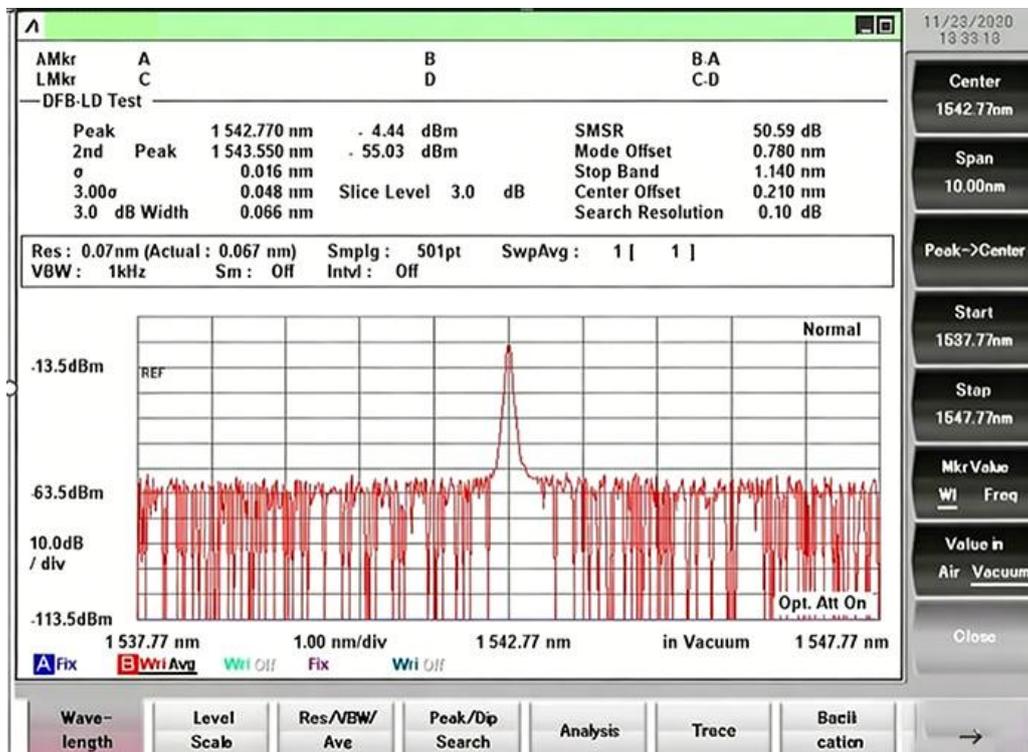
TEC voltage	V_{TEC}	0.35	1.5	V
TEC current	I_{TEC}	0.05	0.6	A

Absolute Maximum Ratings:

Parameters	Symbol	Index	Unit
Storage temperature	T_{stg}	-20to+85	°C
Operating temperature	T_c	-5to+70	°C
Forward current	I_{LD}	25	mA
Reverse voltage	V_{LD}	3	V
Soldering temperature	T_{sld}	350(10 sec.)	°C

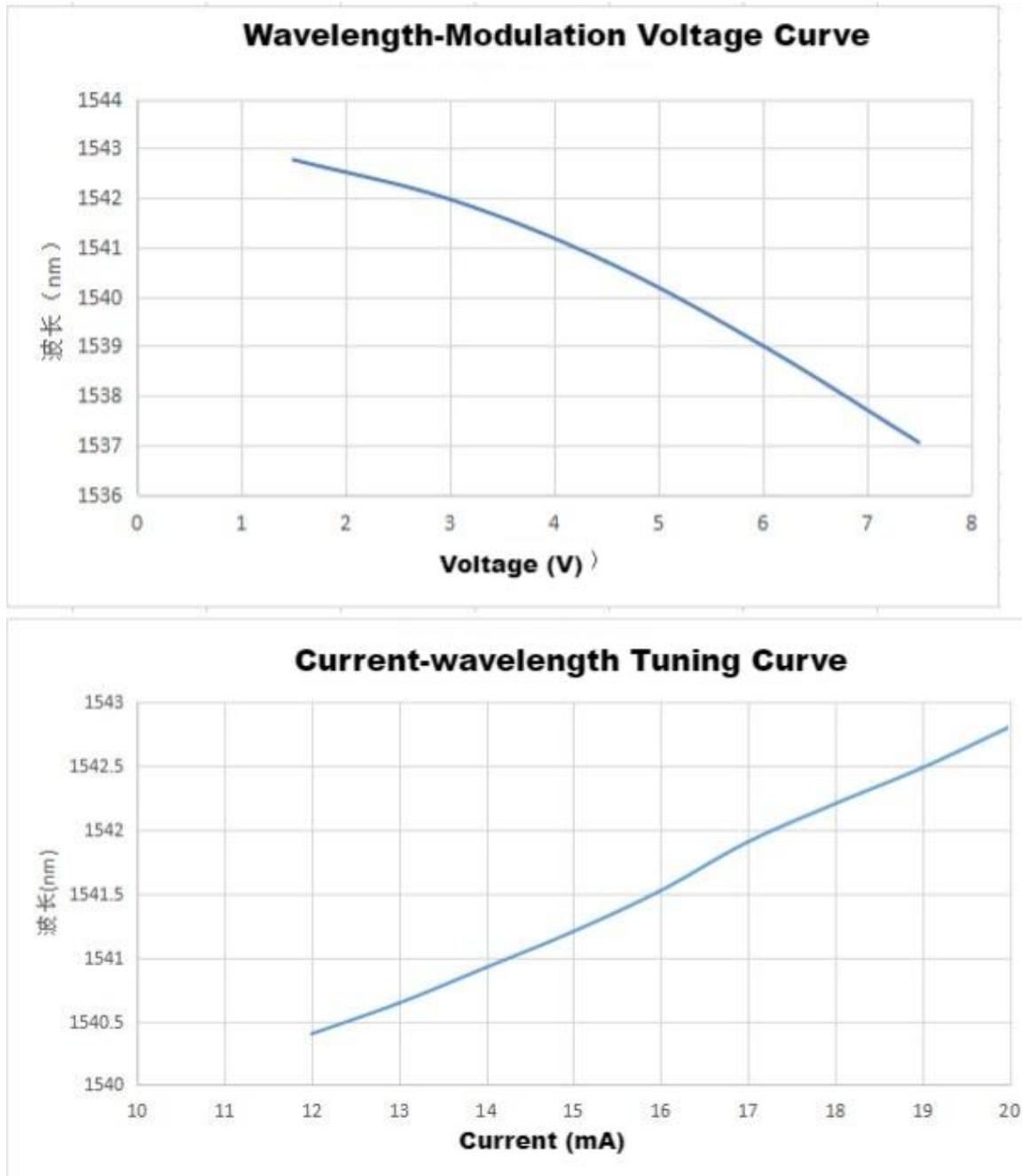
(*TEC temperature must be below 150°C)

Test spectrum:



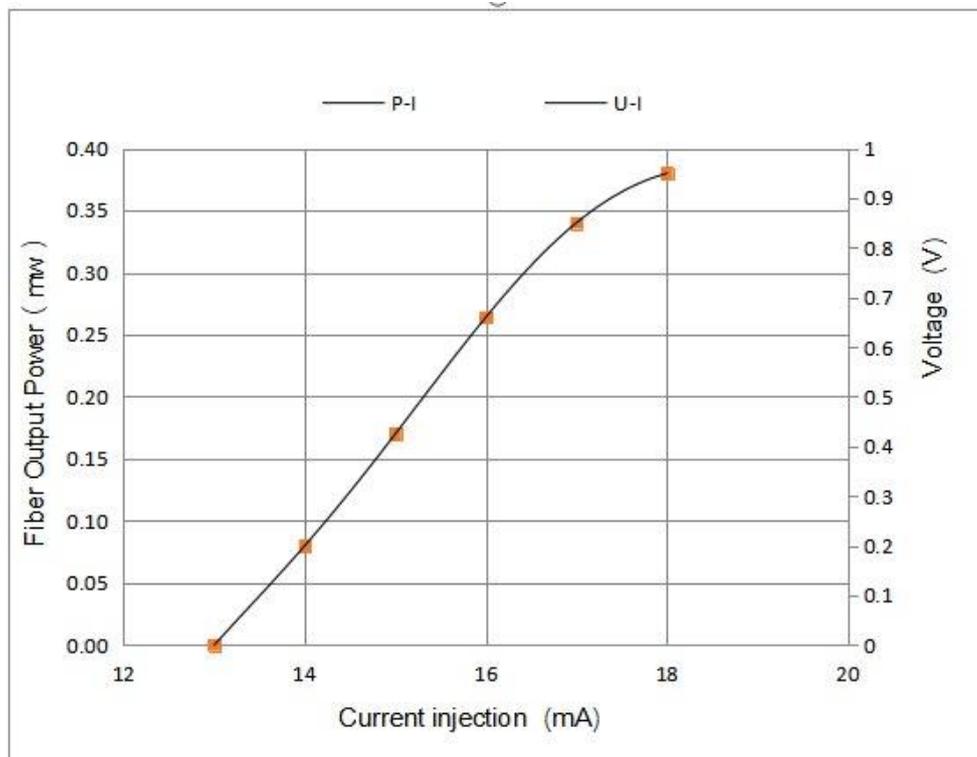


Wavelength tuning curve:

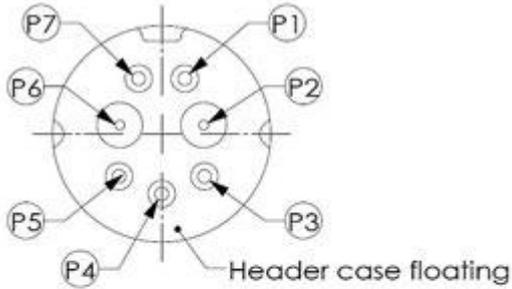




Power curve:

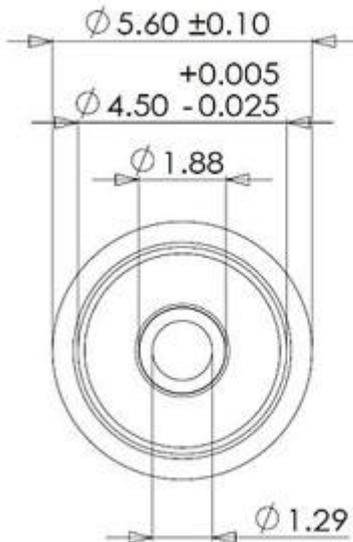


Pin definition:

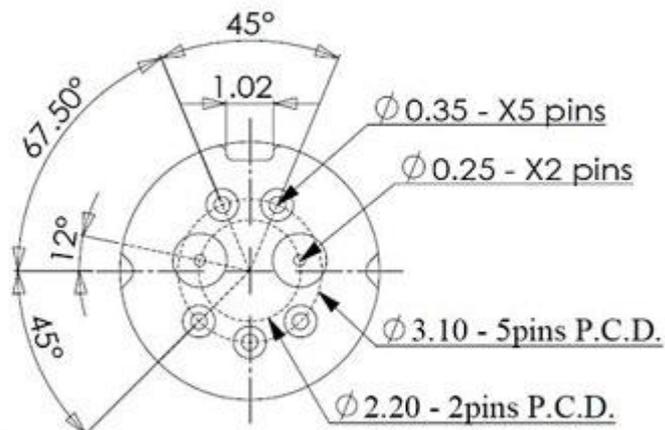


Bottom View

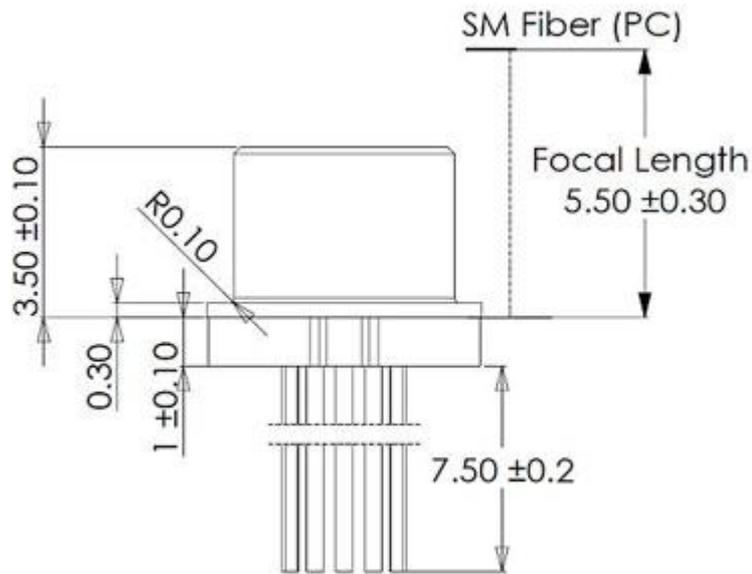
PIN NUMBERS	ASSIGNMENT
P1	TEC (+)
P2	LD (-)
P3	TUNING Vt (-)
P4	THERMISTOR (-)
P5	THERMISTOR (+)
P6	LD (+) & Vt (+)
P7	TEC (-)



Top View



Bottom View



Order Info:

MP-VCS-□□□□-☆-A8▽-XX

□□□□: Wavelength

1540: 1540nm

1550: 1550nm

1570: 1570nm

☆ : TEC

0: Without TEC

1: With TEC

▽: Wavelength Tolerance



1: $\pm 0.5\text{nm}$

2: $\pm 1.5\text{nm}$

XX: Package T056