1540/1550nm Pigtailed VCSEL laser



Description

A Vertical-Cavity Surface-Emitting Laser (VCSEL) is a kind of semiconductor laser, whose laser is emitted perpendicular to the top surface. Developed on the basis of gallium arsenide semiconductor material, it is different from LED (Light Emitting Diode) and LD (Laser Diode). It consists of a mirror surface, an active layer and a metal contact layer. The two transmitting mirrors are P-type and N-type Bragg transmitters. The active region is composed of quantum hydrazine. A metal contact layer is made on the outer surface of the P-type DBR to form ohmic contact, and a circular outlet is made on the P-type DBR to output laser. It has a small far-field divergence angle, and the divergence angle beam is narrow and round. And the threshold current is low and the modulation frequency is high, which can reach 300KHz. The wavelength tuning can be realized by changing the laser current and temperature. Package with TEC and PD inside, which is specially designed for high-speed optical fiber communication.

Features

- 6 Pin.
- Integrated TEC controls temperature stability.
- Output power 1.6mW
- Single mode, can pass C-L band

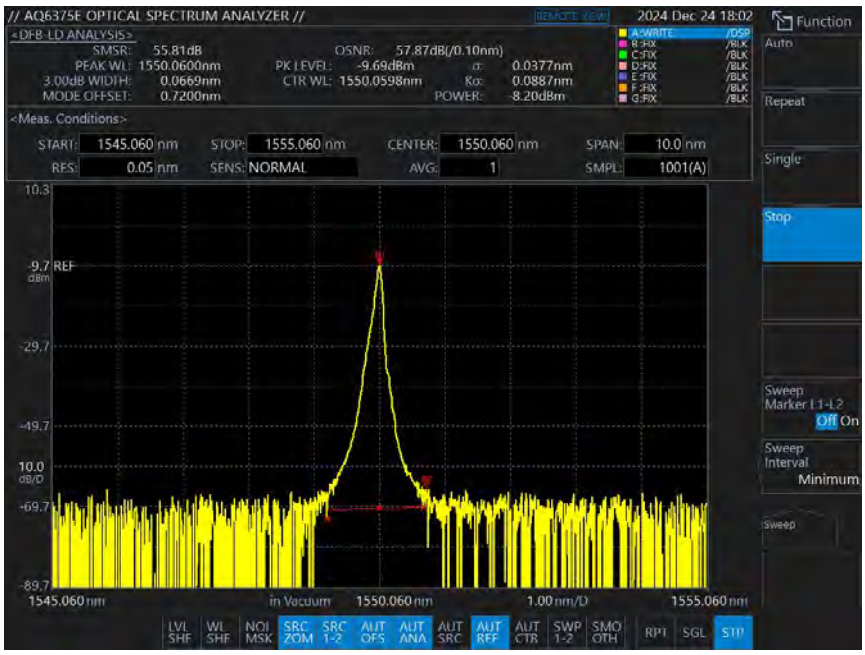
E/O Characteristics

Conditions: P= 20°C, IOP=2.0mA, unless otherwise stated (p = Chip Back Temperature, controlled by TEC).

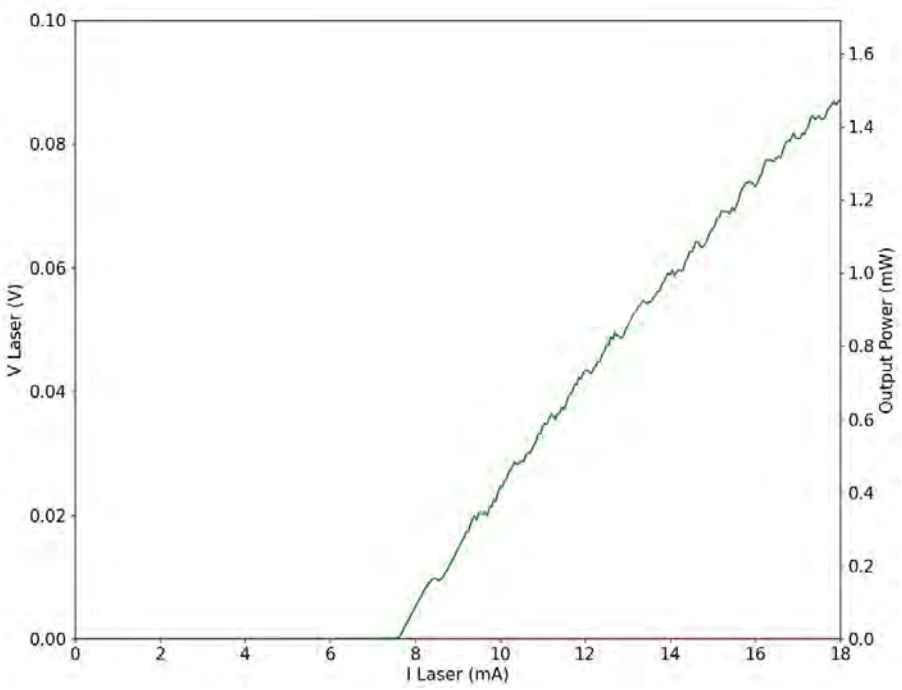
Parameter	Symbol	Value			Unit
		Min	Typical	Max	
Peak light output power @25°C	P	1.0	1.6		mW
Operating bias current.	Iop	0	18	25	mA
Operating temperature range	Top	-40	25	85	°C
Threshold current	Ith		8	18	mA
Slope efficiency (CW, TC = 25°C)	Se	0.14	0.18		mW/mA
Laser driving voltage	VCC	0	1.5	2.5	V
Resistance	RS		50		Ω
Central wavelength (Please indicate the required central wavelength in the purchase order.)	Δλ	1530	1550	1580	nm
Side mode suppression ratio	SMSR	30	40		dB
Width (-3db full width at half maximum), continuous bias =IOP.	σ			300	MHz
Relative intensity noise	RIN			-128	dB/Hz
Tec voltage	VTEC		0.35	1.5	V
Tec current	ITEC		0.05	0.6	A

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

Optical Spectrum data(Testing Condition@15deg,10mA)

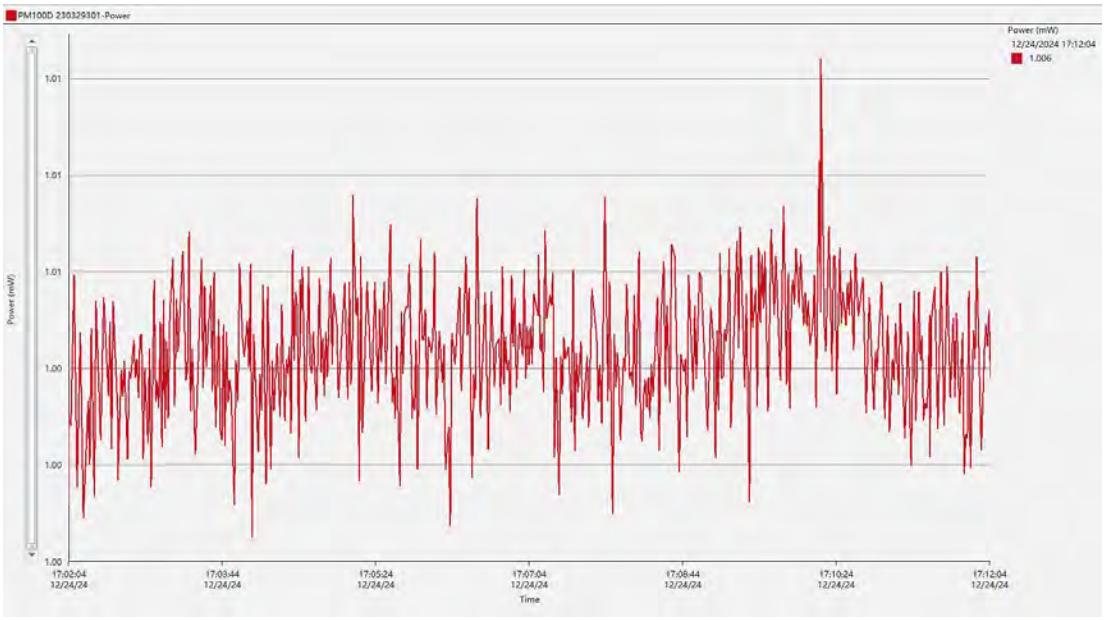


L-I Curve(T@25°C)

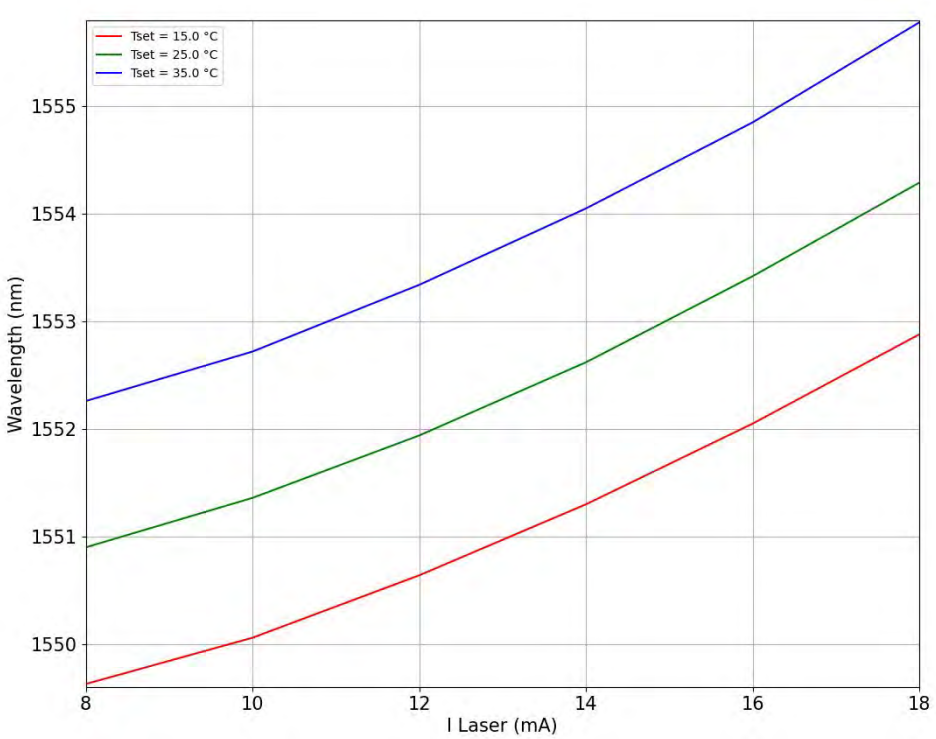


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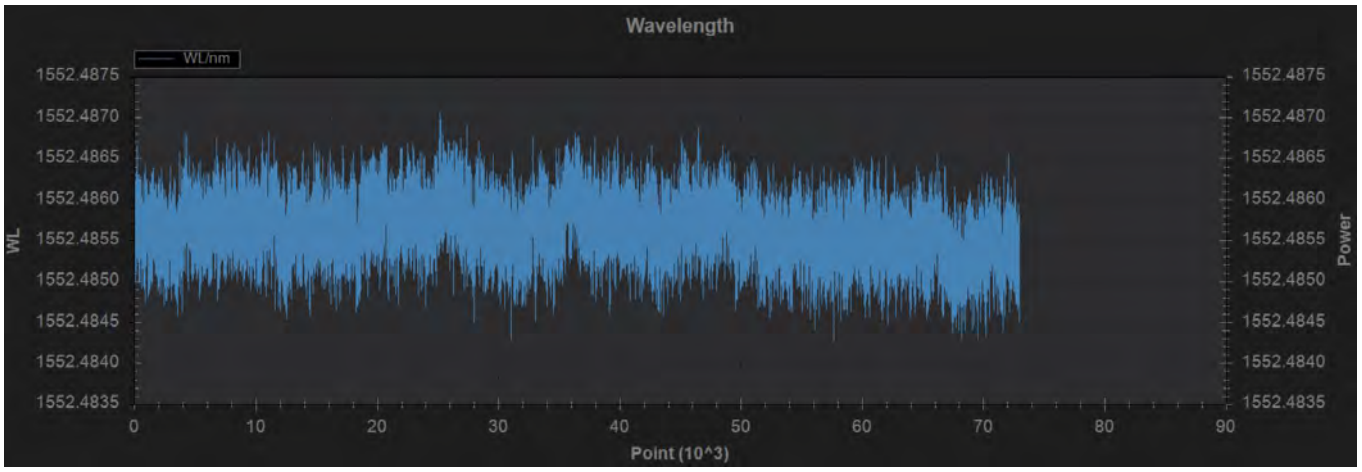
Power Stability



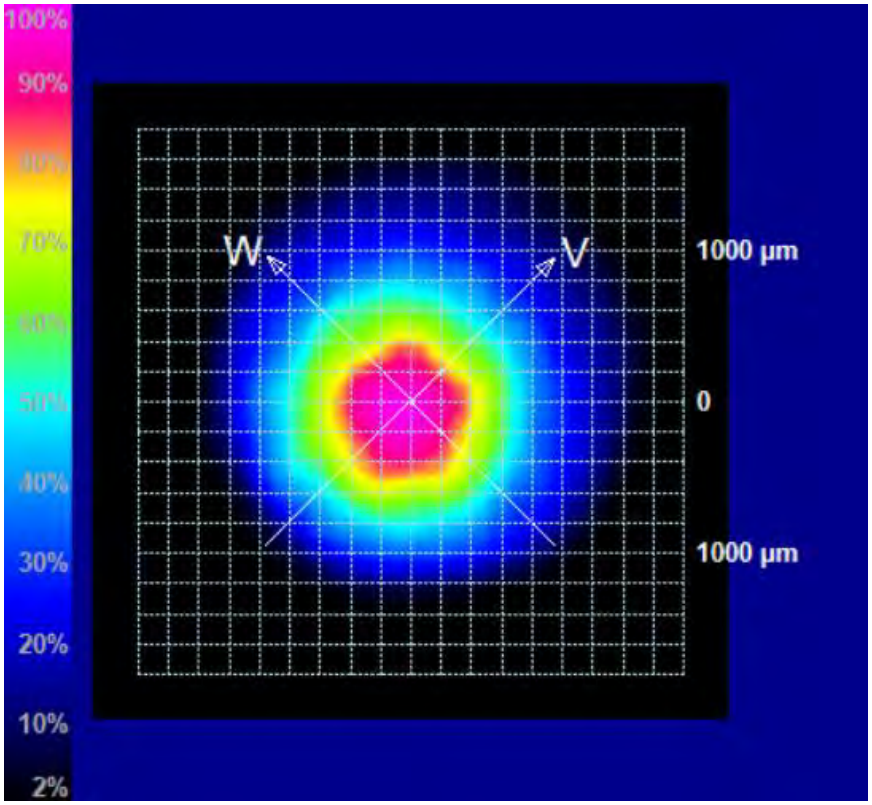
Wavelength Tunability



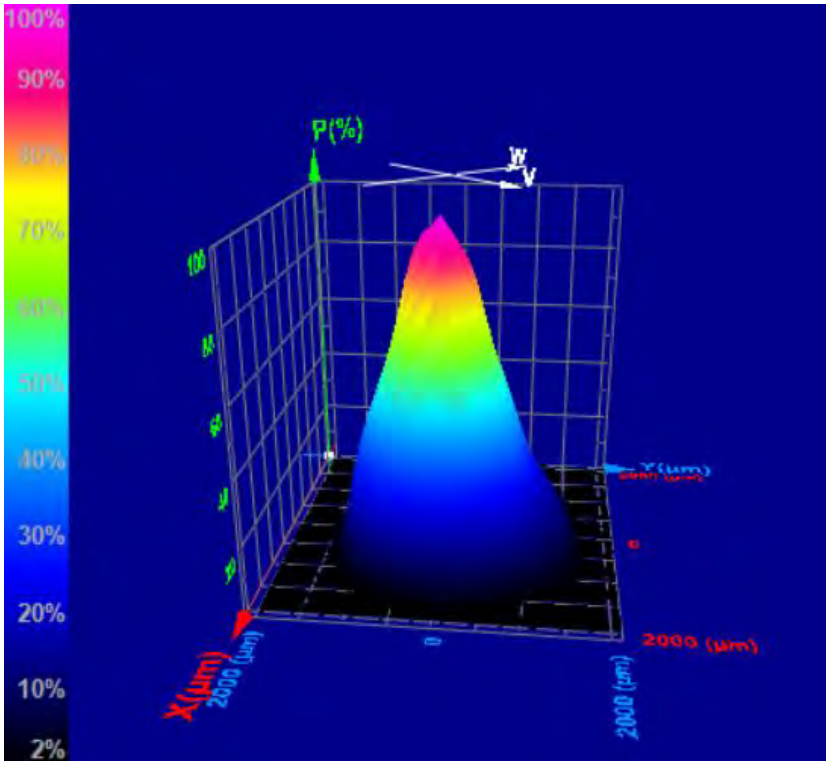
Wavelength Stability(1.949pm)



Beam Quality 2D/3D

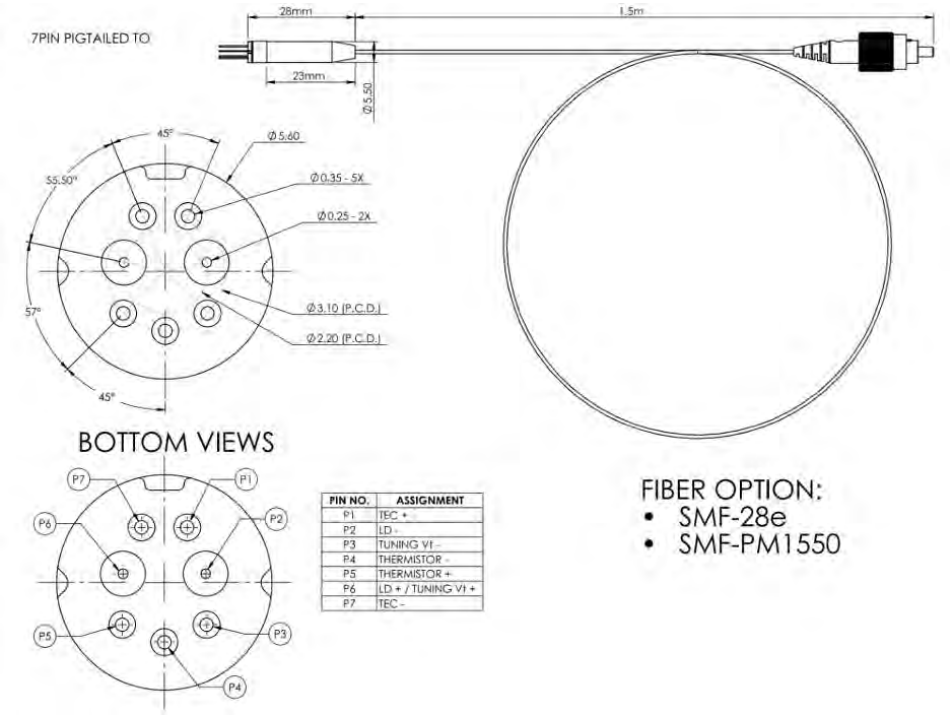


2D



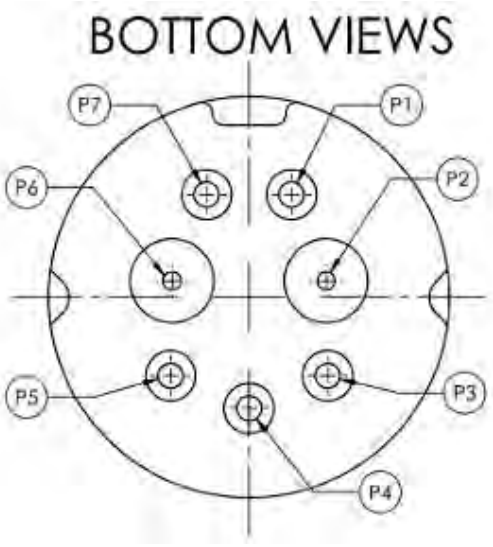
3D

Package Size



TO package Bottom side View (Unit in mm)

Pin definition



PIN NO.	ASSIGNMENT
P1	TEC +
P2	LD -
P3	TUNING Vf -
P4	THERMISTOR -
P5	THERMISTOR +
P6	LD + / TUNING Vf +
P7	TEC -

Absolute Maximum Ratings

Item	Unit	Min	Typ	Max
Store Temperature	°C	-40	25	125
Chip Temperature	°C	+10	25	40
Operating Current	mA	0	12	18.0
Forward Voltage	V	0.8	1.2	1.8
TEC Current	mA	-150	-	+300
Soldering Temperature*	°C	100	130	260
Electrical Power Dissipation	mw	-	-	1.5

(*TEC temperature must be below 150°C)

Application

- TDLAS measuring gas system
- Face recognition
- Lidar
- Data center, cloud computing

Ordering Info

PL-VCSEL-W□□□□-☆-A8▽

□□□□: Wavelength

0760: 760nm

0795: 794.7nm

*****

1310: 1310nm

1567: 1567nm

☆ : TEC

0: Without TEC

1: With TEC

▽: Wavelength Tolerance

1: ±0.5nm

2: ±1.5nm