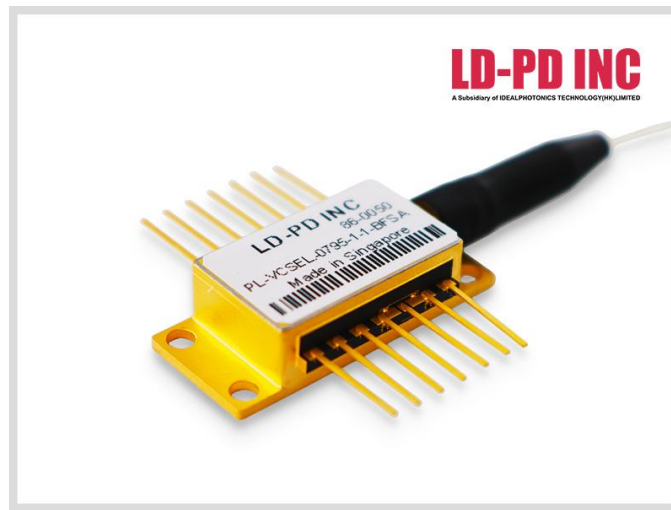# 795nm VCSEL Laser diode

Description

The PL-VCSEL-795-1-1-SA-14BF is a vertical emitting MOVPE grown GaAsP/AlGaAs Single Mode diode laser. The chips Packaged with 14pin Butterfly Package. Wavelength tuning can be achieved via laser current and temperature tuning. package with TEC and PD Built in. Our 850 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

Application

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

Laser Specifications

Condition:TO P = 20°C, IO P = 2.0 mA unless otherwise stated (TO P = chip backside temperature, controlled by the TEC)

Parameters	Symbol	Min	Typ	Max	Unit	Remark
Emission Wavelength	λR					795nm
Threshold current	ITH		1		mA	
Output Power	Popt		0.1	0.2	mW	
Threshold Voltage	UTH		1.8		V	
Driving Current	IOP			3	mA	Popt = 0.1 mW
Laser voltage	UOP		2		V	Popt = 0.1mW
Electro optic conversion rate	ηWP		12		%	Popt = 0.1mW
Slope efficiency	ηS		0.3		W/A	
Differential series resistance	RS		300	500	Ω	Popt = 0.1 mW
3dB bandwidth	v3dB	0.10			GHz	Popt = 0.1 mW Due to ESD protection diode
Relative intensity noise	RIN		-130	-120	dB/Hz	Popt = 0.1 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		25			dB	I = 2 mA
Beam divergence	θ	10		25	°	Popt = 0.1 mW, full width 1/e2
Spectral Width			100		MHz	Popt = 0.1 mW

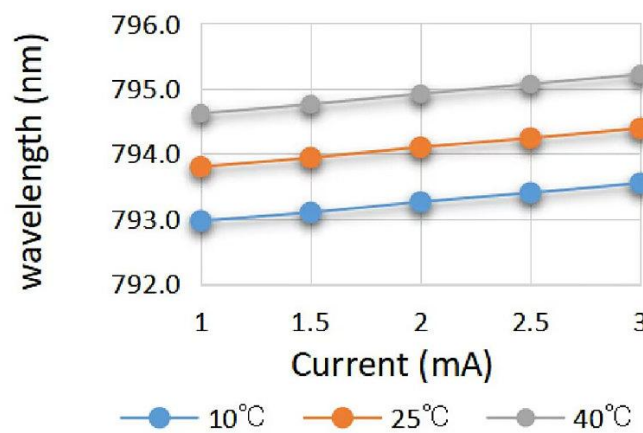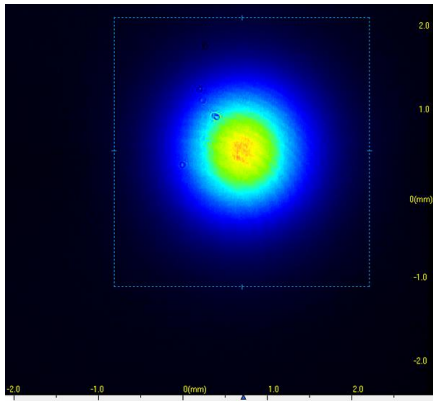| Tec Characteristics	Unit	Min	Typ	Max	Remark
Tec Current	mA	-150(Heating)		+300(Cooling)	Proper Heart Sink Required
NTC Thermistor Resistance	KΩ	9.5	10.0	10.5	T=25℃@10 KΩ
NTC Thermistor Resistance	KΩ		10/exp{3892-(1/289K-I/TOP)}		

Spectrum
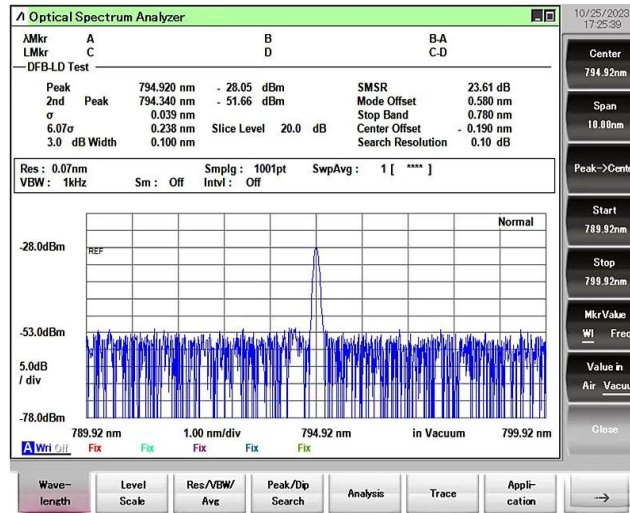
L-I Curve(T@25°C)
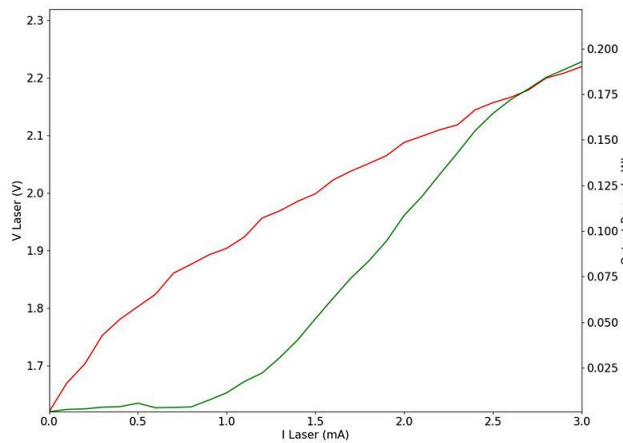
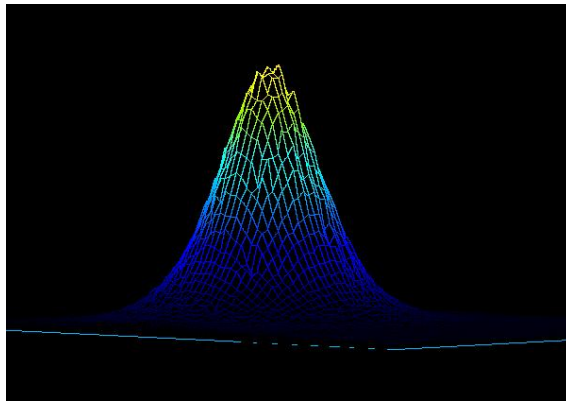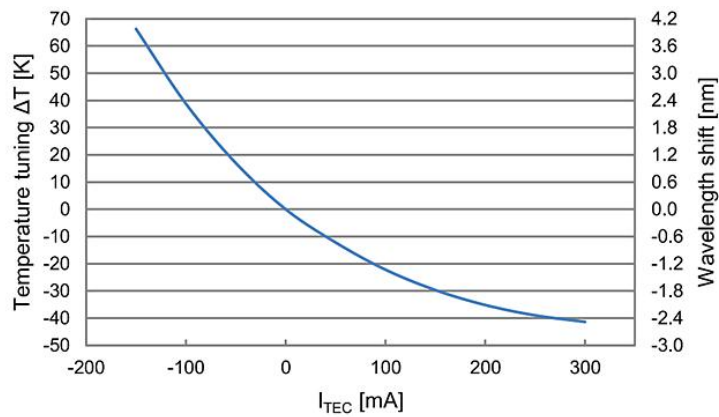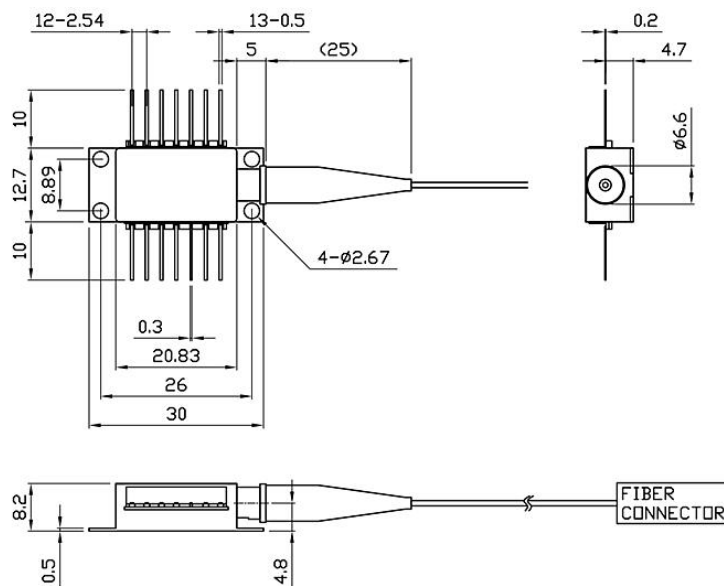# Tuning Characteristics

Beam Quality Profiler (2D/3D)

2D

3D

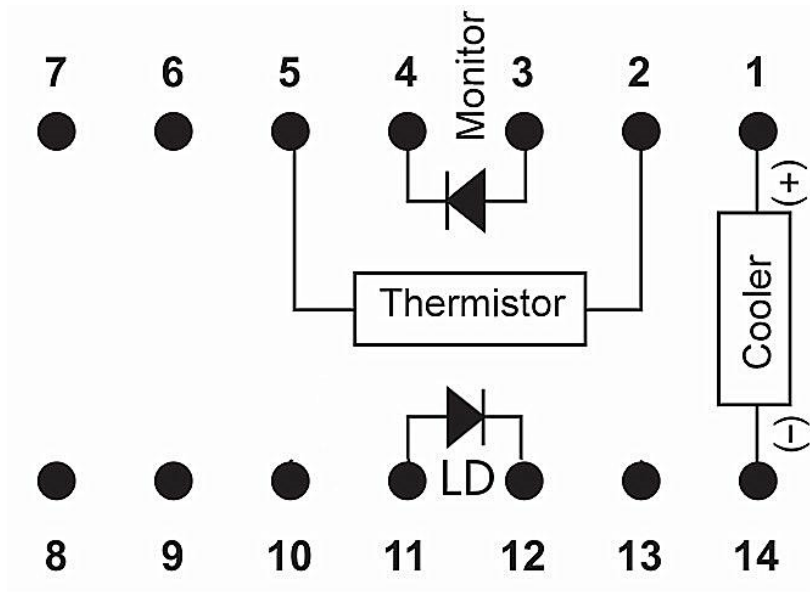# Temperature / wavelength tuning over TEC current*

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

Package Size

Pin definition

1	Thermoelectric Cooler (+)	8	N/C
2	Thermistor	9	N/C
3	PD Monitor Anode (-)	10	N/C
4	PD Monitor Cathode (+)	11	Laser Anode (+)
5	Thermistor	12	Laser Cathode (−)
6	N/C	13	N/C
7	N/C	14	Thermoelectric Cooler (−)

Absolute   Maximum Ratings

Item	Unit	Min	Typ	Max
Store Temperature	℃	-40	25	125
Chip Temperature	℃	+10	25	40
Operating Current	mA	0	2	3
Forward Voltage	V	0.8	1.2	1.8
TEC Current	mA	-150	-	+300
Soldering Temperature*	℃	100	130	270
Electrical Power Dissipation	mw	-	-	5

(*TEC temperature must be below 150°C)

Ordering Info

PL-VCSEL- □□□□-☆-▽-XXXX

□□□□：Wavelength

0760: 760nm

0795: 795nm

*****

1653.7: 1653.7nm

☆ ：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 HI780+ FC/APC

CPSA=Coaxial Package with HI780+ FC/APC

BFSP=Butterfly Package with HI780+ FC/PC

CPSP=Coaxial Package with HI780+ FC/PC

BFPP=PM Fiber+ FC/PC

BFPA=PM Fiber+ FC/APC