



VCT-A85A31-OH

850nm 10mW VCSEL Diode in TO-46 Package

Data Sheet

Description

The Lasermate VCT-A85A31-OH is a high-speed 850nm Vertical-Cavity Surface-Emitting Laser (VCSEL) diode designed for continuous-wave (CW) operation with a 10mW output power, housed in a TO-46 metal can package with an integrated ball lens. Optimized for data transmission applications, the device supports data rates up to 1Gbps and features a built-in monitor photodiode (cathode common type). With excellent beam quality, spectral stability, and compact construction, this VCSEL is ideal for Gigabit Ethernet, fiber channel, and high-speed optical sensing systems requiring precision alignment and high coupling efficiency.

Features

- 850nm VCSEL
- Output power: 10mW (CW)
- Supports 1Gbps high-speed data transmission
- Integrated ball lens for collimated beam
- Built-in monitor photodiode (cathode common type)
- TO-46 metal can package
- High reliability and excellent optical coupling

Applications

- High-speed data communications
- Gigabit Ethernet
- Fiber channel
- Precision optical sensing

Absolute Maximum Ratings

Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	100	°C	
Operating Temperature	0	70	°C	
Lead Solder Temperature		260	°C	10 seconds
Continuous Forward Current		30	mA	
Continuous Reverse Voltage		5	V	10uA

Electrical-Optical Characteristics (T_a=25°C unless otherwise stated)

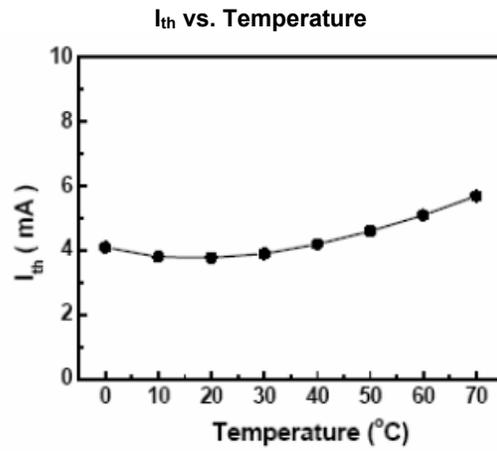
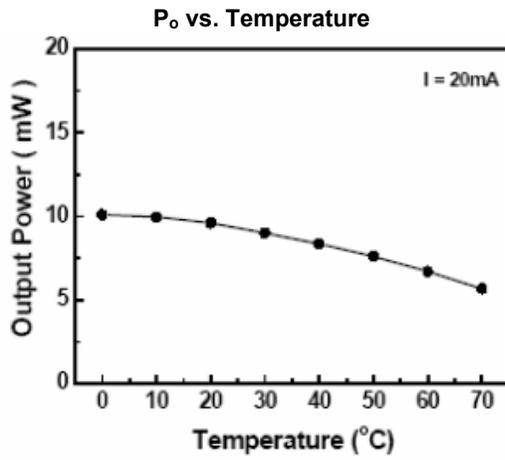
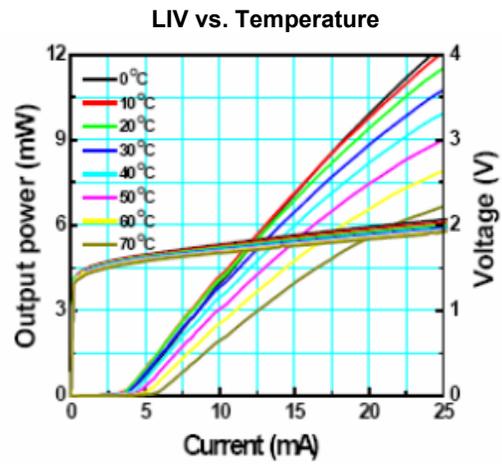
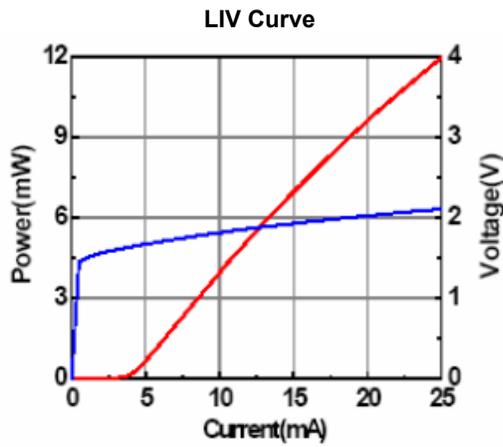
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I _{th}		5		mA	CW
Slope Efficiency	η	0.2	0.4		W/A	I _f =20mA
Optical Output Power	P _o		10		mW	I _f =20mA
Peak Wavelength	λ _P	840	850	860	nm	I _f =20mA
Spectral Bandwidth (RMS)	Δλ			0.85	nm	I _f =20mA
Forward Voltage	V _f		2.0	2.3	V	I _f =20mA
Breakdown Voltage	V _b		-10		V	
Dynamic Resistance	R _d		20	30	Ohm	I _f =20mA
Monitor Current	I _m		0.1		mA	P ₀ =10mW
Dark Current	I _d			20	nA	P ₀ =0mW, V _R =3V
PD Reverse Voltage	BVR _{PD}	30	115		V	P ₀ =0mW, I _R =10uA
PD Capacitance	C			100	pF	V _R =0V, f=1MHz
				55		V _R =3V, f=1MHz

Thermal Characteristics

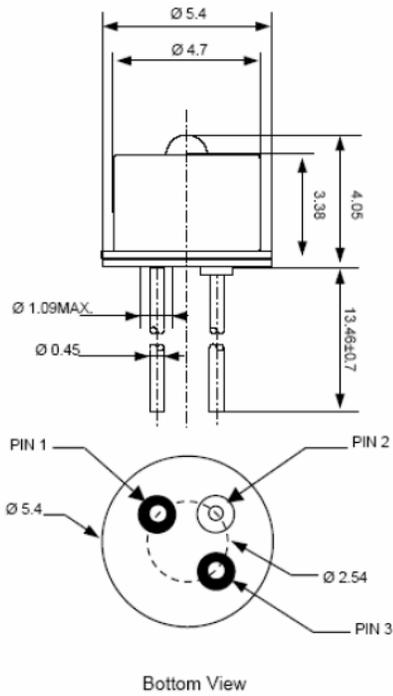
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I _{th} Temperature Variation	ΔI _{th}		2.5		mA	T _a =0 to 70°C
I _m Temperature Variation	ΔI _{PD} /ΔT		0.2		%/°C	P ₀ =10mW
η Temperature Coefficient	Δη/ΔT		-0.5		%/°C	T _a =0 to 70°C, I _f =20mA
λ Temperature Coefficient	Δλ/ΔT		0.06		nm/°C	T _a =0 to 70°C, I _f =20mA



Typical Characteristics



Outline Dimensions (unit: mm)



Pin Configuration

Pin Number	Function
1	LD Anode
2	LD Cathode/PD Anode, Case
3	PD Cathode

Additional Notes

- The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.
- Specifications are subject to change without notice.