



VCT-F85A31-OH

850nm 8mW VCSEL Diode in TO-46 Package

Data Sheet

Description

The Lasermate VCT-F85A31-OH is a high-power 850nm Vertical-Cavity Surface-Emitting Laser (VCSEL) diode designed for continuous-wave (CW) operation, delivering a typical output power of 8mW and housed in a TO-46 metal can package with a flat window. This VCSEL supports 1Gbps data transmission and includes a built-in monitor photodiode (cathode common type), making it ideal for Gigabit Ethernet, fiber channel, and precision sensing systems. It combines compact packaging with high optical performance for advanced optoelectronic applications.

Features

- 850nm VCSEL diode
- Typical output power: 8mW (CW)
- Supports 1Gbps data rate
- Built-in monitor photodiode (cathode common)
- Flat window TO-46 can package
- High reliability and optical stability

Applications

- High-speed data communications
- Gigabit Ethernet
- Fiber channel
- Optical sensing systems

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

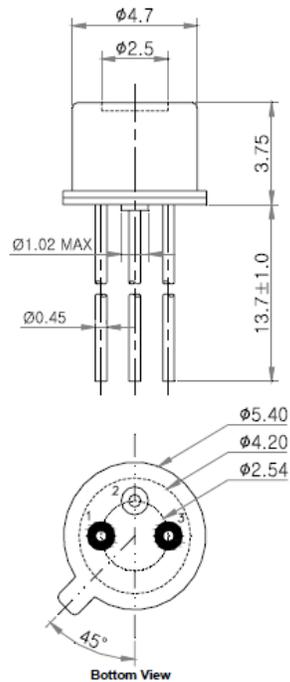
Electrical-Optical Characteristics (T_a=25°C unless otherwise stated)

Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I _{th}		5		mA	CW
Slope Efficiency	η		0.54		W/A	I _r =20mA
Optical Output Power	P _o		8		mW	I _r =20mA
Peak Wavelength	λ _P	840	850	860	nm	I _r =20mA
Spectral Bandwidth (RMS)	Δλ			0.85	nm	I _r =20mA
Beam Divergence	Θ		29		deg	I _r =20mA, Full width 1/e ²
Forward Voltage	V _f		2.0	2.3	V	I _r =20mA
Breakdown Voltage	V _b		-10		V	
Series Resistance	R _s		20	30	Ohm	I _r =20mA
Monitor Current	I _m	0.1		1	mA	P _o =8mW
Dark Current	I _d			10	nA	P _o =0mW, V _R =5V
PD Reverse Voltage	BVR _{PD}	40			V	P _o =0mW, I _R =10uA
PD Capacitance	C			50	pF	V _R =0V, f=1MHz
				20		V _R =5V, 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 _o =8mW
η Temperature Coefficient	Δη/ΔT		-0.5		%/°C	T _a =0 to 70°C, I _r =20mA
λ Temperature Coefficient	Δλ/ΔT		0.06		nm/°C	T _a =0 to 70°C, I _r =20mA



Outline Dimensions (unit: mm)**Pin Configuration**

Pin Number	Function
1	LD Anode
2	LD Cathode/PD Anode
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.