



# High Speed 850nm 10mW VCSEL with Flat Window, TO-46 Package

VCT-F85A31-OH



## Description

The Lasermate VCT-F85A31-OH is an 850nm wavelength, 10mW output power, CW operating mode, Vertical Cavity Surface Emitting Laser (VCSEL) diode in TO-46 package with flat window designed for use in sensing and datacom applications.

## Features

- 10mW High power VCSEL
- 1Gbps data rate operation
- 850nm wavelength range
- Built-in monitor PD with cathode common type
- Flat window TO-46 can package

## Applications

- High speed Data communications
- Gigabit ethernet
- Fiber channel
- Sensing

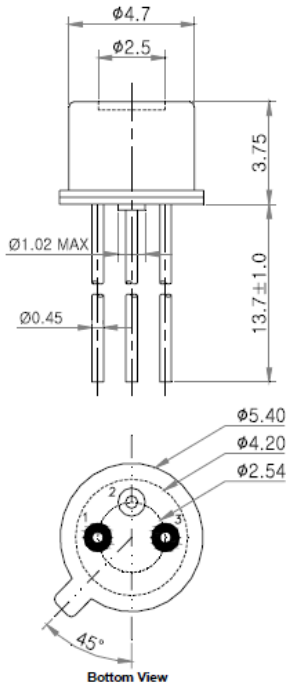
## Specifications

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

Electro-Optical Characteristics (T <sub>a</sub> =25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I <sub>th</sub>		5		mA	CW
Slope Efficiency	η	0.2	0.4		W/A	I <sub>f</sub> =20mA
Optical Output Power	P <sub>o</sub>		8		mW	I <sub>f</sub> =20mA
Peak Wavelength	λ <sub>p</sub>	840	850	860	nm	I <sub>f</sub> =20mA
Spectral Bandwidth (RMS)	Δλ			0.85	nm	I <sub>f</sub> =20mA
Beam Divergence	Θ		29		deg	I <sub>f</sub> =20mA, Full width 1/e <sup>2</sup>
Forward Voltage	V <sub>f</sub>		2.0	2.3	V	I <sub>f</sub> =20mA
Breakdown Voltage	V <sub>b</sub>		-10		V	
Series Resistance	R <sub>s</sub>		20	30	Ohm	I <sub>f</sub> =20mA
Monitor Current	I <sub>m</sub>	0.1		1	mA	P <sub>o</sub> =8mW
Dark Current	I <sub>d</sub>			10	nA	P <sub>o</sub> =0mW, V <sub>R</sub> =5V
PD Reverse Voltage	BVR <sub>PD</sub>	40			V	P <sub>o</sub> =0mW, I <sub>R</sub> =10uA
PD Capacitance	C			50	pF	V <sub>R</sub> =0V, f=1MHz
				20		V <sub>R</sub> =5V, f=1MHz

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I <sub>th</sub> Temperature Variation	$\Delta I_{th}$		2.5		mA	T <sub>a</sub> =0 to 70°C
I <sub>PD</sub> Temperature Variation	$\Delta I_{PD}/\Delta T$		0.2		%/°C	P <sub>o</sub> =8mW
$\eta$ Temperature Coefficient	$\Delta \eta/\Delta T$		-0.5		%/°C	T <sub>a</sub> =0 to 70°C, I <sub>f</sub> =20mA
$\lambda$ Temperature Coefficient	$\Delta \lambda/\Delta T$		0.06		nm/°C	T <sub>a</sub> =0 to 70°C, I <sub>f</sub> =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.



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