



VCT-F94A3x-SL

940nm 20mW Single Mode VCSEL in TO-46 Package

Data Sheet

Description

The Lasermate VCT-F94A3x-SL is a 940nm wavelength, 20mW output power, CW operating mode, single longitudinal mode and single transverse mode, SMSR 30dB (typical), Vertical Cavity Surface Emitting Laser (VCSEL) diode in TO-46 package with flat window designed for use in sensing applications.

Features

- 940nm 20mW VCSEL diode
- Single mode transverse and longitudinal mode
- High reliability
- Gaussian beam profile
- With built-in monitor PD
- Flat window type TO-46 can package

Applications

- Laser mouse
- Optical sensor applications
- Optical encoder
- Consumer electronics
- Illumination light source
- Proximity sensor light source
- Safety sensor

Product Overview

The following table lists the available part numbers, as well as the package type of each of the part numbers.

Part Number	Description
VCT-F94A31-SL	940nm Single Mode VCSEL TO-46, Flat Window, Common Cathode Pin
VCT-F94A32-SL	940nm Single Mode VCSEL TO-46, Flat Window, Common Anode Pin

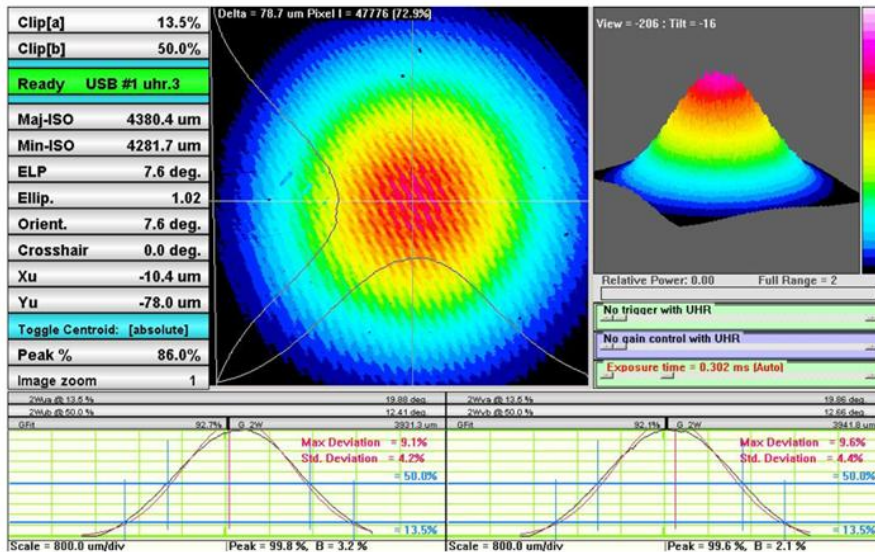
Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	85	°C	
Operating Temperature	0	70	°C	
Continuous Forward Current		40	mA	

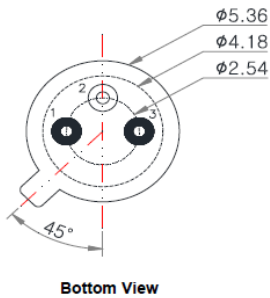
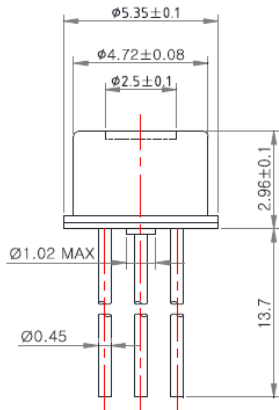
Electro-Optical Characteristics (T _a =25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I _{th}		7		mA	CW
Slope Efficiency	η		0.9		W/A	I _r =30mA
Optical Output Power	P _o		20.0		mW	I _r =30mA
Peak Wavelength	λ _P	930	940	950	nm	I _r =30mA
Beam Divergence	Θ		20		°	P _o =20mW (FWHM)
Operating Voltage	V _f		2.1	2.4	V	I _r =30mA
Dynamic Resistance	R _d		80		Ohm	I _r =30mA
Spectral Bandwidth (RMS)	Δλ			1	nm	I _r =30mA
Monitor Current	I _{PD}	0.01		1.0	mA	I _r =30mA
Side Mode Suppression Ratio	SMSR	20	30		dB	I _r =30mA

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
η Temperature Coefficient	Δη/ΔT		-0.5		%/°C	T _a =0 to 70°C, I _r =30mA
λ Temperature Coefficient	Δλ/ΔT		0.06		nm/°C	T _a =0 to 70°C, I _r =30mA

Typical Characteristics



Outline Dimensions (unit: mm)



Pin Configuration

VCT-F94A31-SL		VCT-F94A32-SL	
Pin Number	Function	Pin Number	Function
1	VCSEL Anode	1	VCSEL Cathode
2	PD Anode/VCSEL Cathode	2	VCSEL Anode/PD Cathode
3	PD Cathode	3	PD Anode

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.