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Data Sheet
Rev 01.1221

850nm Single Mode Polarization Locked VCSEL TO-46 Package

VCT-F85A32-SPL

Description

The Lasermate VCT-F85A32-SPL is an 850nm wavelength, typical 2mW output power, CW operating mode, single longitudinal mode and single transverse mode, polarization locked Vertical Cavity Surface Emitting Laser (VCSEL) diode in TO-46 package designed for use in sensing applications.

Features

- 850nm VCSEL diode
- Gaussian beam profile
- Single transverse and longitudinal mode
- Built-in monitor PD with common anode pinout
- In TO-46 package with flat window
- Polarization locked emission (No polarization switching below operating current 8mA)
- Bandwidth >1GHz

Applications

- Consumer electronics
- Sensing

Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	125	°C	
Operating Temperature	-20	65	°C	
Lead Solder Temperature		260	°C	10 seconds
Continuous Forward Current		8	mA	
Continuous Reverse Voltage		5	V	

Electro-Optical Characteristics (T_a=25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		1.5		mA	CW
Slope Efficiency	η		0.4		W/A	I_f=6mA
Optical Output Power	P_o	1.5	2		mW	I_f=6mA
Side Mode Suppression Ratio	SMSR	20			dB	I_f=6mA
Peak Wavelength	λ_P	840	850	860	nm	I_f=6mA
Beam Divergence	Θ	12	15	18	°	I_f=6mA (1/e^2)
Forward Voltage	V_f	1.75	2.0	2.25	V	I_f=6mA
Dynamic Resistance	R_d		55		Ohm	
Monitor Current	I_m		25		uA	I_f=6mA
Dark Current	I_d			20	nA	P_0=0mW, V_R=10V
PD Reverse Voltage	BVR_{PD}	35			V	P_0=0mW, IR=100uA
PD Capacitance	C		16		pF	V_R=3V, f=1MHz

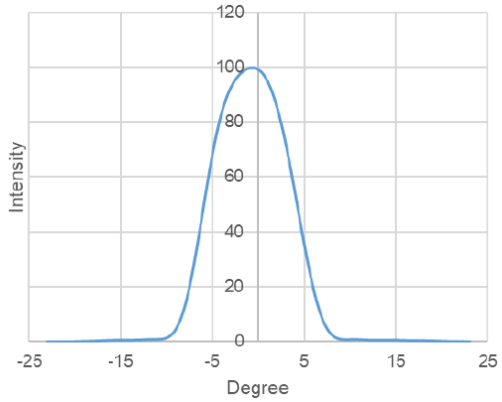
Note: VCT-F85A32-SPL may become multimode if the operating current >6mA.

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
P_o Temperature Coefficient			-0.65		%/°C	Ta=25~65°C/I_F=6mA
V_F Temperature Coefficient			-2.5		mV/°C	Ta=25~65°C/I_F=6mA
λ_P Temperature Coefficient			0.065		nm/°C	Ta=25~65°C/I_F=6mA

Typical Characteristics

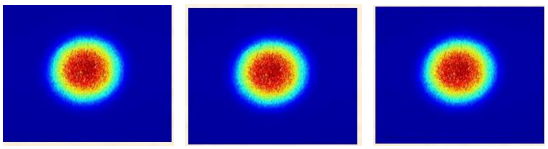
Beam Divergence

Operation Current at 6mA



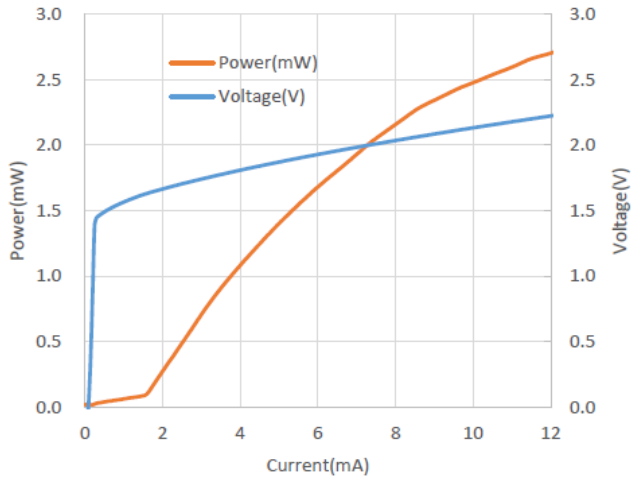
Full angle is around 15 degrees.

Gaussian Beam Profile

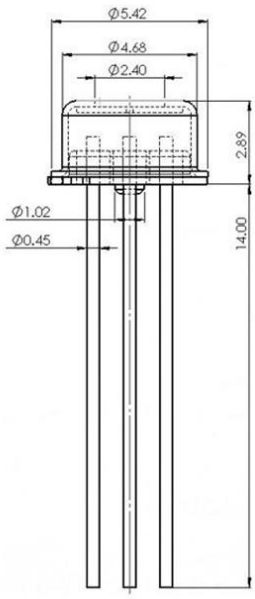


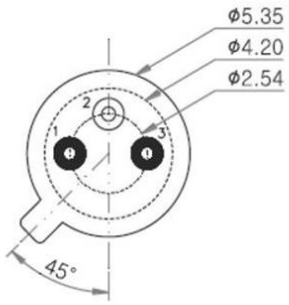
4mA 6mA 8mA

LIV Curve



Outline Dimensions (unit: mm)





Bottom View

Pin out:

Pin Number	Function
1	K_{VCSEL}
2	A_{VCSEL} / K_{PD}
3	A_{PD}

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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