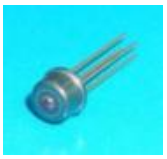
VCT-A85A4x-3M
2.5Gbps 850nm VCSEL in TO-46 Package

Data Sheet



Description

The Lasermate VCT-A85A4x-3M is an 850nm wavelength, Vertical Cavity Surface Emitting Laser (VCSEL) diode in TO46 package with cap lens designed for use in 2.5Gbps datacom applications.

Features

- Industry TO-46 package with cap lens for multimode fiber communication
- Packaged with attenuating coating and monitoring PD
- High coupling efficiency for multi-mode fibers
- High performance of noise and jitter characteristics
- Wide operation temperature range -40°C to 85°C
- Common cathode or common anode pin

Applications

- Designed for 1.25/2.5 Gbps data rate operation
- High speed Data communications
- Gigabit ethernet
- Fiber channel

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-A85A41-3M	2.5Gbps 850nm VCSEL TO-46, Cap Lens, Common Cathode Pin
VCT-A85A42-3M	2.5Gbps 850nm VCSEL TO-46, Cap Lens, Common Anode Pin

Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	125	°C	
Operating Temperature	-10	85	°C	
Lead Solder Temperature		260	°C	10 seconds
Continuous Forward Current		12	mA	
Continuous Reverse Voltage		5	V	10uA

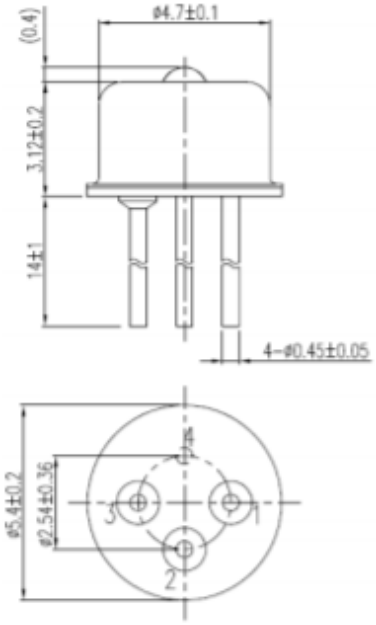
Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		2	2.75	mA	
Slope Efficiency	η	0.08	0.12	0.16	mW/mA	I_F=6 mA
Wavelength	λ_P	830	850	860	nm	I_F=6 mA (2)
Forward Voltage	V_F	1.6	1.8	2.1	V	I_F=6 mA
Rise Time (20%~80%)	Tr		0.10	0.15	ns	Ibias=6mA
Fall Time (20%~80%)	Tf		0.13	0.15	ns	Ibias=6mA
Series Resistance	R_S	30	45	60	Ω	I_F =6 mA
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	I_F =6 mA
Relative Intensity Noise	RIN		-130	-122	dB/Hz	I_F =6 mA, f=1GHz
Monitor Current	I_M	200		800	uA	P_o=500uW
PD Capacitance	C_{PD}		6	10	pF	V_R=3V, f=1MHz

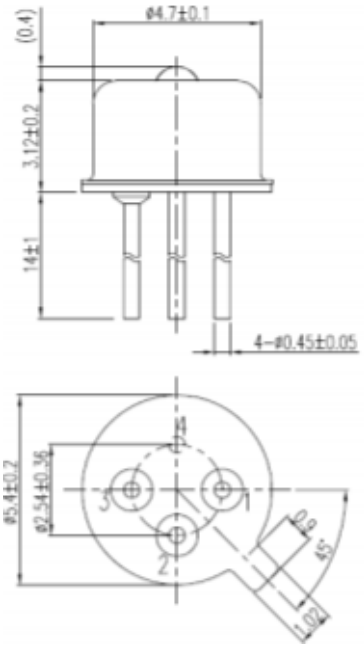
Notes:

1. All parameters except mentioned are measured at I_F=6 mA, 25°C, CW.
2. Minimum and Maximum values are valid over the entire ambient temperature range.

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I_{th} Temperature Variation	ΔI_{th}			2.0	mA	T_A=0~70°C
			0.6			T_A=-40~25°C
				1.5		T_A=25~85°C
V_F Temperature Coefficient	$\Delta VF/\Delta T$		-2.5		mV/°C	T_A=0~70°C, I_F=6 mA
η Temperature Coefficient	$\Delta\eta/\Delta T$	-0.6			%/°C	T_A=0~70°C, I_F=6 mA
λ_P Temperature Coefficient	$\Delta\lambda P/\Delta T$		0.06		nm/°C	T_A=0~70°C, I_F=6 mA

Outline Dimensions (unit: mm)





Pin Configuration

VCT-A85A41-3M	
Pin Number	Function
1	VCSEL Anode
2	VCSEL Cathode/PD Anode
3	PD Cathode
4	Case

Pin Configuration

VCT-A85A42-3M	
Pin Number	Function
1	VCSEL Cathode
2	VCSEL Anode/PD Cathode
3	PD Anode
4	Case

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.