



## VCT-A85A4x-3C

# High Speed 2.5Gbps 850nm VCSEL TO-46 Metal Can, Ball Lens, with Monitor PD, 0 to 85°C

### Description

The Lasermate VCT-A85A4x-3C 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

- Multi-mode 850nm VCSEL
- Ball lens type TO-46 package
- Low drive current and voltage
- Packaged with attenuating coating and back monitor photodiode
- High coupling efficiency for multi-mode fibers
- High performance of noise and jitter characteristics
- 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-A85A41-3C	2.5Gbps 850nm VCSEL TO-46, Cap Lens, Common Cathode Pin
VCT-A85A42-3C	2.5Gbps 850nm VCSEL TO-46, Cap Lens, Common Anode Pin



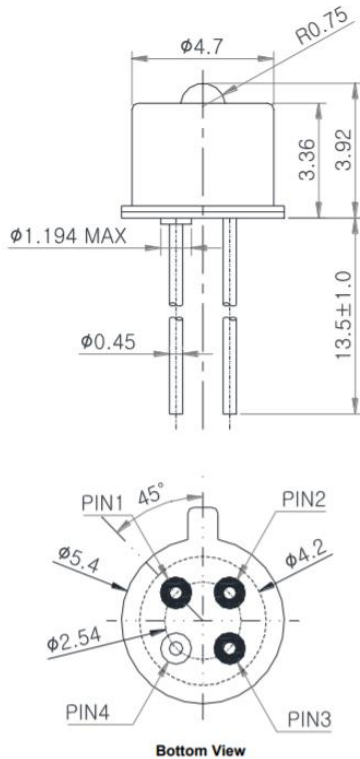
## Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	100	°C	
Operating Temperature	0	85	°C	
Lead Solder Temperature		260	°C	10 seconds
Continuous Forward Current		12	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>		1.5	3	mA	CW
Slope Efficiency	η	0.08	0.15	0.25	W/A	I <sub>f</sub> =7mA
Optical Output Power	P <sub>o</sub>		0.8		mW	I <sub>f</sub> =7mA
Peak Wavelength	λ	840	850	860	nm	I <sub>f</sub> =7mA
Spectral Bandwidth (RMS)	Δλ			0.85	nm	I <sub>f</sub> =7mA
Operating Voltage	V <sub>f</sub>		1.8	2.2	V	I <sub>f</sub> =7mA
Breakdown Voltage	V <sub>b</sub>		-10		V	
Rise and Fall Times	t <sub>r</sub>			130	ps	Prebias above threshold, 20%~80%
	t <sub>f</sub>			150		
Series Resistance	R <sub>s</sub>	20	35	55	Ohm	I <sub>f</sub> =7mA
Focal Length	F <sub>D</sub>		2.5		mm	
Monitor Current	I <sub>PD</sub>	0.1		1.0	mA	P <sub>o</sub> =0.8mW
Dark Current	I <sub>D</sub>			10	nA	P <sub>o</sub> =0mW, V <sub>R</sub> =5V
PD Reverse Voltage	BV <sub>RPD</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	ΔI <sub>th</sub>		1.5		mA	T <sub>a</sub> =0 to 85°C
η Temperature Coefficient	Δη/ΔT		-0.5		%/°C	T <sub>a</sub> =0 to 85°C, I <sub>f</sub> =7mA
λ Temperature Coefficient	Δλ/ΔT		0.06		nm/°C	T <sub>a</sub> =0 to 85°C, I <sub>f</sub> =7mA
R <sub>s</sub> Temperature Coefficient	ΔR <sub>s</sub> /ΔT		-3000		PPM/°C	
I <sub>PD</sub> Temperature Variation	ΔI <sub>PD</sub> /ΔT		0.2		%/°C	P <sub>o</sub> =0.8mW

## Outline Dimensions (unit: mm)



## Pin Configuration

VCT-A85A41-3C		VCT-A85A42-3C	
Number	Function	Number	Function
1	AVCSEL	1	KVCSEL
2	KVCSEL, A <sub>m</sub> -PD	2	AVCSEL, K <sub>m</sub> -PD
3	K <sub>m</sub> -PD	3	A <sub>m</sub> -PD
4	Case	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.
- The VCSEL is a class IIIb laser and should be treated as a potential eye hazard. Due to the size of the component, the applicable warning logotype, aperture label, and certification/identification label cannot be placed on the component itself.
- Specifications are subject to change without notice.