



TLC-P85A4x6-3

2.5Gbps 850nm VCSEL LC-TOSA with Monitor PD

Data Sheet



Description

The Lasermate TLC-P85A4x6-3 is an 850nm Vertical Cavity Surface Emitting Laser (VCSEL) LC-TOSA module designed for 2.5Gbps multimode fiber communication. This transmitter optical sub-assembly integrates a pre-aligned LC-type receptacle for efficient coupling with 50/125 μ m multimode fiber and offers options for common cathode or common anode configurations. With compact form factor compatibility, excellent temperature stability from -10°C to $+85^{\circ}\text{C}$, and integrated monitor photodiode, it is ideal for high-speed, short-reach optical applications.

Features

- 850nm VCSEL for multimode fiber applications
- Pre-aligned LC receptacle (50/125 μ m MMF)
- Data rate: DC to 2.5Gbps
- Operating temperature: -10°C to $+85^{\circ}\text{C}$
- Compatible with small form factor (SFF) transceivers
- Optional common cathode or common anode pinout

Applications

- 2.5Gbps short-reach optical communication
- Optical transceiver modules
- High-speed optical data links
- Industrial and telecom optical networking

Ordering Information

Part Number	Description
TLC-P85A416-3	2.5Gbps 850nm VCSEL LC-TOSA with Monitor PD, Common Cathode Pin
TLC-P85A426-3	2.5Gbps 850nm VCSEL LC-TOSA with Monitor PD, Common Anode Pin

Absolute Maximum Ratings

Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	100	°C	
Operating Temperature	-10	85	°C	
Lead Solder Temperature		260	°C	10 seconds
Continuous Forward Current		20	mA	
Continuous Reverse Voltage		10	V	

Electro-Optical Characteristics

Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		1.5	2.5	mA	
Forward Voltage	V_F	1.6	1.8	2.1	V	$I_F=6$ mA
Slope Efficiency	η	0.05	0.08	0.12	mW/mA	$I_F=6$ mA
Series Resistance	R_S	30	45	60	Ω	$I_F=6$ mA
Wavelength	λ_P	830	850	860	nm	$I_F=6$ mA ⁽³⁾
Rise/Fall Time	tr/TF			0.15	ns	$I_F=6$ mA
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	$I_F=6$ mA
Relative Intensity Noise	RIN		-130	-120	dB/Hz	$I_F=6$ mA, f=1GHz
PD Monitor Current	I_M	200		800	uA	$V_R=5V$, $P_{OC}=350\mu W$ ⁽²⁾
PD Dark Current	I_d			20	nA	$V_R=5V$
PD Capacitance	C_M		12		pF	$V_{im}=0V$

Notes:

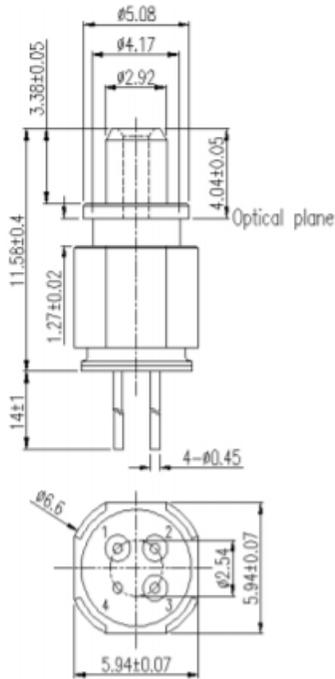
1. All parameters except mentioned are measured at $I_F=6$ mA, 25°C, CW.
2. P_{OC} =Coupled Optical Power, measured with a multi-mode 50/125um fiber and ambient temperature 25°C.
3. Minimum and Maximum values are valid over the entire ambient temperature range.

Thermal Characteristics

Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I_{th} Temperature Variation	ΔI_{th}	-1.5		2	mA	$T_A=0\sim 70^\circ C$
η Temperature Coefficient	$\Delta\eta/\Delta T$	-0.6	-0.25		%/°C	$T_A=0\sim 70^\circ C$, $I_F=6$ mA
λ_P Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.06		nm/°C	$T_A=0\sim 70^\circ C$, $I_F=6$ mA



Outline Dimensions (unit: mm)



Pin Configuration

TLC-P85A416-3		TLC-P85A426-3	
Number	Function	Number	Function
1	VCSEL Anode	1	VCSEL Cathode
2	VCSEL Cathode/PD Anode	2	VCSEL Anode/PD Cathode
3	PD Cathode	3	PD Anode
4	Case	4	Case

Note: Specifications are subject to change without notice.