



TLC-P85A4x6-4

4.25Gbps 850nm VCSEL LC-TOSA with Monitor PD

Data Sheet



Description

The Lasermate TLC-P85A4x6-4 is an 850nm VCSEL-based LC-TOSA (Transmitter Optical Sub-Assembly) engineered for 4.25Gbps multimode fiber communication. Designed for integration into small form factor (SFF) optical transceivers, the module features a pre-aligned LC-type receptacle, attenuating coating, and an integrated monitor photodiode (PD) for real-time optical power feedback. With a robust design supporting DC to 4.25Gbps operation and a wide temperature range of -10°C to $+85^{\circ}\text{C}$, it delivers consistent high-speed performance in demanding optical link applications.

Features

- 850nm VCSEL for multimode fiber communication
- Pre-aligned LC-type receptacle
- Integrated monitor photodiode and attenuating coating
- Data rate support from DC to 4.25Gbps
- Designed for SFF optical transceivers
- Operating temperature: -10°C to $+85^{\circ}\text{C}$
- Isolation pinout configuration

Applications

- 4.25Gbps high-speed optical communication
- Short-reach fiber optic transceivers
- Industrial and telecom data links
- Optical networking and interconnects

Ordering Information

Part Number	Description
TLC-P85A436-4	4.25Gbps 850nm VCSEL LC-TOSA with Monitor PD, Common Cathode Pin
TLC-P85A446-4	4.25Gbps 850nm VCSEL LC-TOSA with Monitor PD, Common Anode Pin

Specifications

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

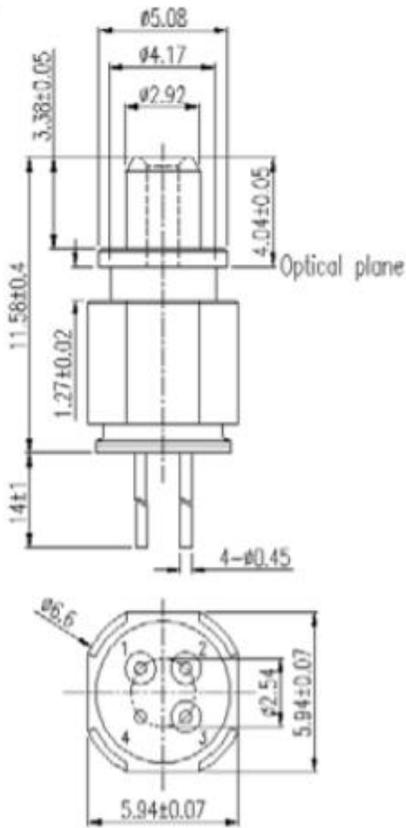
Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		1.5	2.75	mA	
Forward Voltage	V_F	1.6	1.8	2.1	V	$I_F=6$ mA
Slope Efficiency	η	0.05	0.08	0.12	mW/mA	$I_F=6$ mA
Wavelength	λ_P	830	850	860	nm	$I_F=6$ mA ⁽³⁾
Rise/Fall Time	tr/ta			90	ps	$I_F=6$ mA, ER=10dB
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	$I_F=6$ mA
PD Monitor Current	I_M	200		800	uA	$V_R=5$ V, $P_{OC}=350$ uW ⁽²⁾

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		1.5	mA	$T_A=0\sim 70$ °C
η Temperature Coefficient	$\Delta\eta/\Delta T$	-0.6		-0.1	%/°C	$T_A=0\sim 70$ °C, $I_F=6$ mA
λ_P Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.06		nm/°C	$T_A=0\sim 70$ °C, $I_F=6$ mA
Series Resistance	R_s	30	45	60	Ω	$T_A=25$ °C, $I_F=6$ mA
		20				$T_A=85$ °C, $I_F=6$ mA

Outline Dimensions (unit: mm)



Pin Configuration

TLC-P85A436-4		TLC-P85A446-4	
Number	Function	Number	Function
1	VCSEL Anode	1	VCSEL Cathode
2	VCSEL Cathode	2	VCSEL Anode
3	PD Cathode	3	PD Cathode
4	PD Anode/Case	4	PD Anode/Case

Additional Notes

- The VCSEL is a class 1M laser in the safety standard ANSI Z136.1 and should be treated as a potential eye hazard.
- Specifications are subject to change without notice.