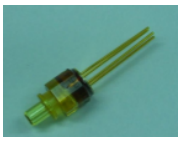
TLC-P85A4x6-4M

4.25Gbps 850nm VCSEL LC-TOSA (Wide Temperature Range)

Data Sheet



Description

The Lasermate TLC-P85A4x6-4M is an 850nm Vertical Cavity Surface Emitting Laser (VCSEL) LC-TOSA designed for 4.25Gbps multimode fiber data transmission. Built with a wide operating temperature range of -40°C to +85°C, this high-performance transmitter optical sub-assembly integrates a monitor photodiode (PD) and attenuating coating for consistent optical output monitoring and safety. The compact LC-type design supports small form factor transceivers and short-reach optical links, making it ideal for demanding industrial and data communication environments.

Features

- 850nm VCSEL for multimode fiber transmission
- Pre-aligned LC-type receptacle
- Integrated attenuating coating and monitor PD
- Data rate support from DC to 4.25Gbps
- Suitable for SFF transceivers
- Wide operating temperature range: -40°C to +85°C
- Isolation pinout configuration

Applications

- 4.25Gbps high-speed optical communication
- Optical interconnects and networking
- Harsh environment data links
- Industrial and telecom-grade SFF modules

Ordering Information

Part Number	Description
TLC-P85A436-4M	4.25Gbps 850nm VCSEL LC-TOSA (Wide Temperature Range), Common Cathode Pin
TLC-P85A446-4M	4.25Gbps 850nm VCSEL LC-TOSA (Wide Temperature Range), 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	

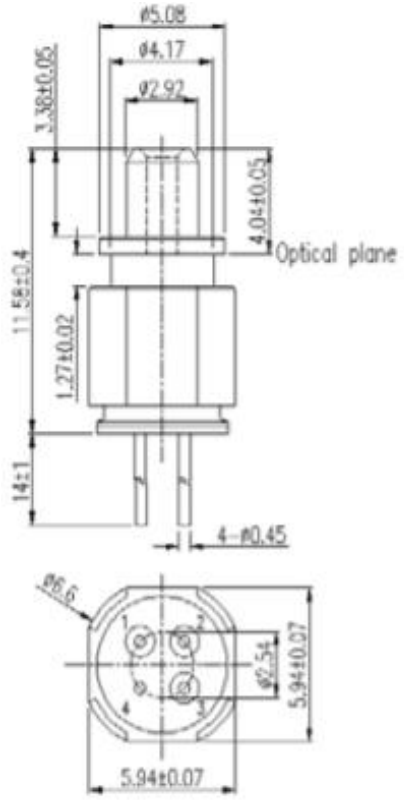
Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		1.5	2.75	mA	
Forward Voltage	V_F	1.6	1.8	2.1	V	I_F=6 mA
Slope Efficiency	η	0.05	0.08	0.12	mW/mA	I_F=6 mA
Wavelength	λ_P	830	850	860	nm	I_F=6 mA (3)
Rise/Fall Time	tr/tf			90	ps	I_F =6 mA, ER=10dB
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	I_F =6 mA
PD Monitor Current	I_M	200		800	uA	V_R=5V, P_{OC}=350uW (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}			2	mA	T_A=0~70°C
				2.5		T_A=25~85°C
				1		T_A=-40~25°C
η Temperature Coefficient	η			0.15	mW/mA	T_A=-40°C, I_F=6 mA
	η	0.02			mW/mA	T_A=85°C, I_F=6 mA
	$\Delta\eta/\Delta T$		-0.35		%/°C	T_A=-40~85°C, I_F=6 mA
Series Resistance	R_S	30	45	60	Ω	T_A=25°C, I_F=6 mA
				65		T_A=-40°C, I_F=6 mA
		20				T_A=85°C, I_F=6 mA

Outline Dimensions (unit: mm)



Pin Configuration

TLC-P85A436-4M		**TLC-P85A446-4M**	
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.