TLC-P85A846-25M
25Gbps 850nm VCSEL LC-TOSA with Flexible Circuit

Data Sheet

Description

The Lasermate TLC-P85A846-25M is an 850nm Vertical Cavity Surface Emitting Laser (VCSEL) LC-TOSA featuring an integrated flexible printed circuit (FPC) designed for high-speed data transmission at up to 25.78Gbps. This module supports a wide operating temperature range from -40°C to 85°C, making it suitable for demanding environments. It features an isolated pinout between the laser diode (LD) and monitor photodiode (PD) and includes an internal thermal resistor to compensate for low temperature operation, ensuring stable performance across temperature variations.

Features

- 850nm VCSEL LC-TOSA with flexible circuit attached
- Optimized for fiber optic applications
- Supports data rates up to 25.78Gbps
- Isolated pinout between LD and monitor PD
- Wide operating temperature range: -40°C to 85°C
- Internal thermal resistor for low temperature compensation

Applications

- 25Gbps high-speed data transmission
- Telecom and data center networks
- Industrial and outdoor fiber optic links
- High-reliability fiber optic communication systems

Specifications

Absolute Maximum Ratings

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

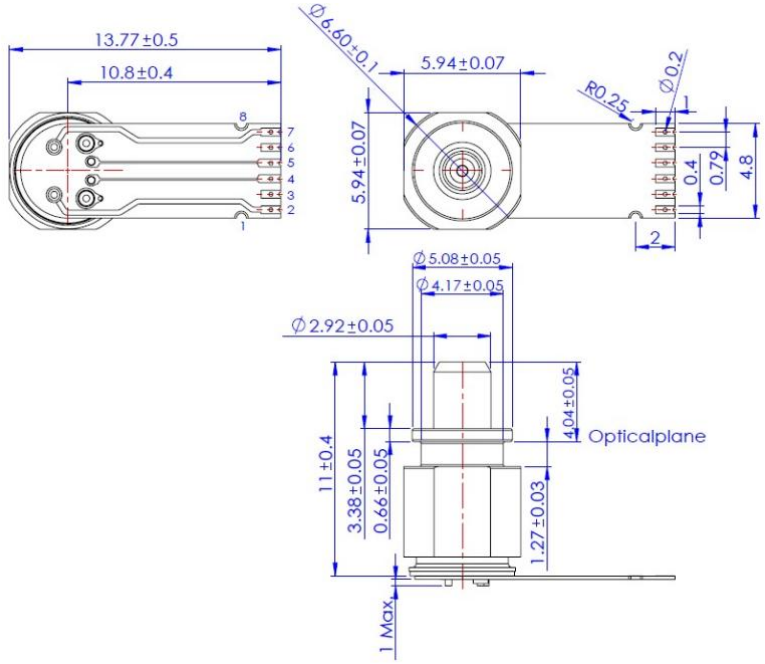
Electro-Optical Characteristics

Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		0.7	1.2	mA	T_A=25 ºC
Slope Efficiency	η		0.14		mW/mA	I_F=6.5 mA
Wavelength	λ_P	840	850	860	nm	I_F=6.5 mA
Forward Voltage	V_F		2.2		V	I_F=6.5 mA
Series Resistance	R_S		100		Ohm	I_F =6.5 mA, T_A= 25 ºC
Relative Intensity Noise	RIN			-128	dB/Hz	I_F =6.5 mA, f= 1GHz
Spectral width (RMS)	$\Delta\lambda$			0.6	nm	I_F =6.5 mA, T_A= 0~85 ºC
Monitor Current	I_M		100		uA	V_R=5 V, I_F =6.5 mA
PD Dark Current	I_d			20	nA	V_R=5 V, T_A=25 ºC
PD Capacitance	C_M		12		pF	V_R=3 V, f= 1MHz

Thermal Characteristics

Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
η Temperature Coefficient	$\triangle\eta/\triangle T$		-0.6		%/ ºC	T_a=-40~85ºC, I_F=6.5mA
λ_P Temperature Coefficient	$\triangle\lambda_P/\triangle T$		0.07		nm/ ºC	T_a=-40~85ºC, I_F=6.5mA

Outline Dimensions (unit: mm)



Pin Configuration

Number	Function
1	MPD Anode/Heater Cathode
2	Heater Anode
3	MPD Anode/Heater Cathode
4	VCSEL Cathode
5	VCSEL Anode
6	MPD Anode/Heater Cathode
7	MPD Cathode
8	MPD Anode/Heater Cathode

Note: Specifications are subject to change without notice.