TLC-P85A4x6-3M
2.5Gbps 850nm VCSEL LC-TOSA (Wide Temperature Range)

Data Sheet

Description

The Lasermate TLC-P85A4x6-3M is an 850nm VCSEL-based LC-TOSA designed for high-speed 2.5Gbps data transmission over multimode fiber. Integrated with a monitor photodiode, it ensures stable optical output and precise power control. The device is housed in a pre-aligned LC receptacle for easy assembly into transceiver modules and supports a wide operating temperature range from -40°C to +85°C, making it suitable for harsh or industrial environments.

Features

- LC-type receptacle pre-aligned for 50/125μm multimode fiber
- Supports data rates from DC to 2.5Gbps
- Integrated monitor photodiode for power monitoring
- Wide operating temperature: –40°C to +85°C
- Common cathode or common anode configuration
- Compact and rugged TOSA form factor

Applications

- 2.5Gbps multimode fiber transceivers
- Data center optical interconnects
- Short-range fiber communication
- Industrial optical links requiring wide temperature tolerance

Ordering Information

Part Number	Description
TLC-P85A416-3M	2.5Gbps 850nm VCSEL LC-TOSA (Wide Temperature Range), Common Cathode Pin
TLC-P85A426-3M	2.5Gbps 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	

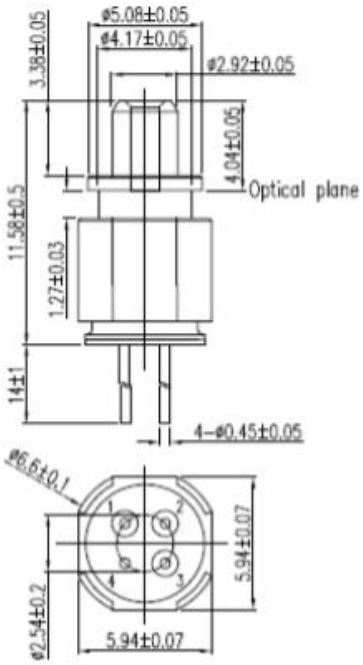
Electro-Optical Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		1.5	2.75	mA	
Forward Voltage	V_F	1.6	1.8	2.1	V	I_F=6 mA
Slope Efficiency	η	0.05	0.08	0.12	mW/mA	I_F=6 mA
Series Resistance	R_S	30	45	60	Ω	I_F =6 mA
Wavelength	λ_P	830	850	860	nm	I_F=6 mA (3)
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}=350uW (2)
PD Dark Current	I_d			20	nA	V_R=5V
PD Capacitance	C_M		12		pF	V_{rm}=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}			2.0	mA	T_A=0~70°C
				2.0		T_A=25~85°C
			-0.6			T_A=-40~25°C
η Temperature Coefficient	$\Delta\eta/\Delta T$	-0.7	-0.5		%/°C	T_A=25~85°C
				0.35		T_A=-40~25°C
λ_P Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.06		nm/°C	T_A=-40°C, I_F=6 mA
Series Resistance	R_S			65	Ω	T_A=-40°C, I_F=6 mA
		30				T_A=85°C, I_F=6 mA
PD Monitor Current Coefficient	ΔI_M			0.15	%/°C	T_A=25~85°C
				-0.15		T_A=-40~25°C

Outline Dimensions (unit: mm)



Pin Configuration

TLC-P85A416-3M		**TLC-P85A426-3M**	
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.