

Product Specification

500Mbps 850nm optical transmitter module

MLD2305-405 MLD2305-415

PRODUCT FEATURES

- High power output
- Data rates from DC to 500Mbps
- Emitting Window Diameter of 50 μ m
- Double Lens: Ball Lens & Focusing Lens
- High Reliability



The MLD2305-4x5 uses a high-performance laser diode designed to meet performance requirements for 500Mbps data communication over multimode optical fiber. Applications include Ethernet, Fiber Channel and ATM protocols. The optical assembly is designed to interface either 50 μ m or 62.5 μ m multimode fiber

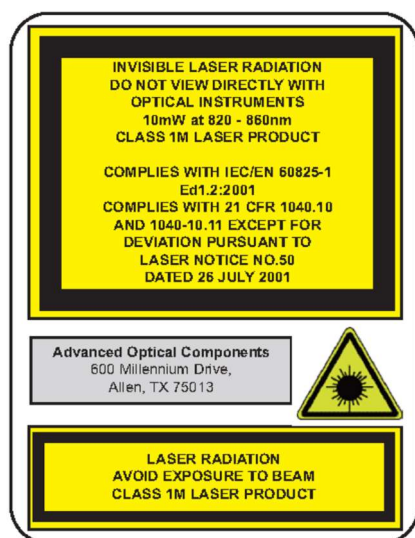
PRODUCT SELECTION

Part Number	Description
MLD2305-405	Differentially Driven, attenuated, ST
MLD2305-415	Differentially Driven, attenuated, FC

I. Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to +85°C
Case Operating Temperature	-40 to +85°C
Lead Solder Temperature	260°C, 10 sec.
Reverse Power Supply Voltage	5V
Max continuous forward current	100mA
ESD Exposure (Human Body Model)	225V ¹

¹Heel and wrist straps must be used on a properly grounded workstation



Notice

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

Notice

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product

II. Electro-Optical Characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise stated)

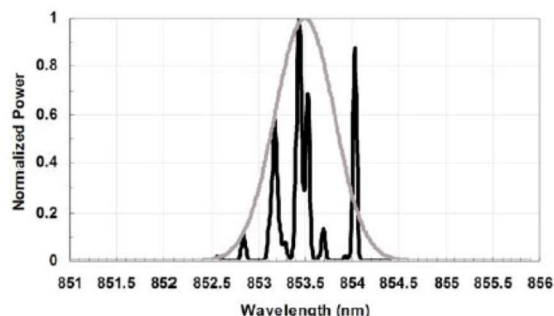
Laser Parameters	Test Condition	Symbol	Min.	Typ.	Max.	Units	Notes
Fiber coupled optical power	$I_F=100\text{mA}$ peak	P_{OC}	1.5	2		mW	
Coupling Efficiency	50/125um fiber	PO_PCT	65			%	1
Threshold Current		I_{TH}		1	1.5	mA	
Threshold Current Temperature Variation		ΔI_{TH}			1.5	mA	2
Slope Efficiency	$T_A=-40$ to 85°C	η	0.065	0.075	0.105	mW/mA	3
Slope Efficiency Temperature Variation	$P_{OC}=1.5\text{mW}$	$\Delta\eta/\Delta T$		-0.4		%/ $^{\circ}\text{C}$	
Peak Wavelength	$T_A=-40$ to 85°C	λ_P	840		860	nm	
λ_P Temperature Variation	$I_F=100\text{mA}$	$\Delta\lambda_P/\Delta T$		0.06		nm/ $^{\circ}\text{C}$	
RMS Spectral Bandwidth	$T_A=-40$ to 85°C	$\Delta\lambda$			0.4	nm	
Laser Forward Voltage	$I_F=100\text{mA}$	V_F	1.5	1.8	2.2	V	
Laser Reverse Voltage	$I_F=100\text{mA}$	V_R	5	10		V	
Rise/Fall Time	$I_R=20\mu\text{A}$	T_R T_F			1 1	ns	4
Relative Intensity Noise	Bias above threshold 20%-80%	RIN_{12}			-128	dB/Hz	5
Series Resistance	$I_F=100\text{mA}$	R	35	50	75	Ohms	
Series Resistance Temperature Variation	$I_F=100\text{mA}$	$\Delta R/\Delta T$		-0.2		%/ $^{\circ}\text{C}$	
Total Capacitance	$I_F=100\text{mA}$	C_T			0.5	pF	
Encircled Flux Diameter	$I_F=100\text{mA}$	EF					

Notes:

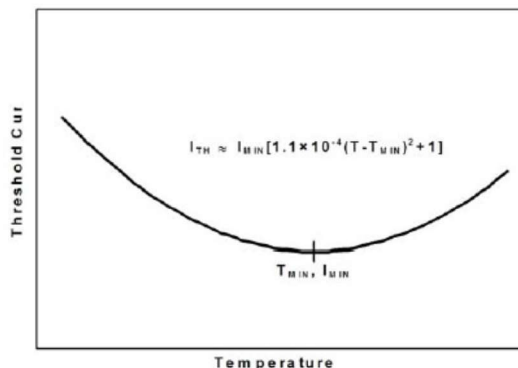
1. PO_PCT is defined as the ratio of the coupled power into a 50/125 um fiber to the total power output from the optical front end as measured on a large area detector.
2. Operation outside of the specified range may result in the threshold current exceeding the maximums defined in the electro-optical characteristics table. DITH is the maximum deviation from the 25°C value.
3. Slope efficiency is defined as $\Delta PO/\Delta I_F$ at a total power output of 2mW. Slope efficiency is intentionally lowered to the value shown by attenuation.
4. Rise and fall times are sensitive to drive electronics. Rise and fall times are measured 20%-80% using a 500MHz square wave AC coupled to the laser diode using a bias-T.
5. The DC current is adjusted to achieve a minimum OMA of -4dBm. Corrections are made for finite detector bandwidth.
6. Encircled flux is measured per TIA-455-203.
7. To prevent laser diode damage, short the laser diode anode and cathode during BVR testing

III. Typical Performance Curves

RMS Spectral Width is defined and measured using TIA-455-127



Threshold Current vs. Temperature: Threshold current varies parabolically with temperature; thus it can be nearly constant for a limited temperature range.



IV. Environmental Specifications

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Case Operating Temperature	T_{op}	-40		85	°C	
Storage Temperature	T_{sto}	-40		85	°C	

V. Mechanical Specifications

(Dimensions are in mm)

PIN	Description
1	CASE
2	LDK
3	LDA

