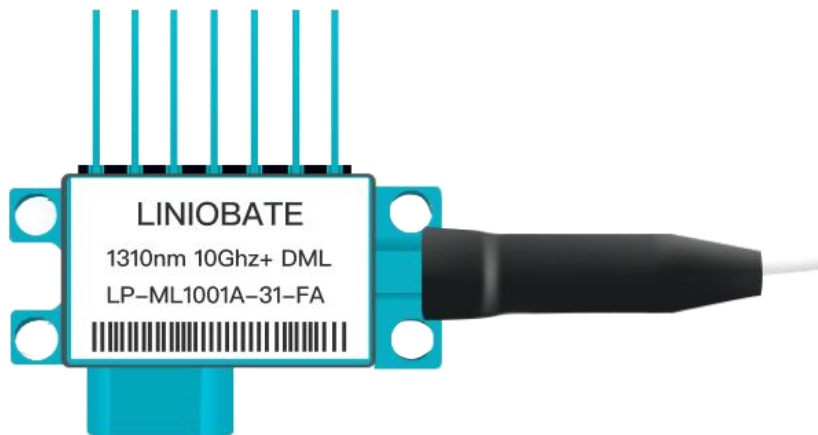


1310 nm High-Speed 18GHz+ directly-modulated lasers



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LINIOBATE
Power Next Gen Photon

Overview

Microwave Distributed Feedback (DFB) Laser provides exceptional performance for linear fiber optics communications in very wide bandwidth applications. ML1001 linear fiber optic lasers are an excellent alternative to using coaxial cable systems to transmit 10 MHz to 18 GHz signals. They offer significant improvements in reliability of microwave communications networks by transmitting the RF signal in its original format. Liniobate offers DFB lasers with a 3dB frequency response bandwidth above 18 GHz for applications that rely on high-speed direct modulation. These lasers are offered in standard 7-pin butterfly package with RF (K) connector, internal thermoelectric cooler, isolator, and polarization maintaining (PM) fiber pigtail with FC/APC connectors. Other configurations (no-isolator, single mode fiber, etc) are available upon request.

Features

- High-Dynamic-Range
- 10 MHz to 18 GHz Bandwidth
- Low threshold current
- High output power
- 7pin butterfly package with SMA connector
- Operating case temperature: -40 to 85 °C

Standard Specifications

Optical and Electrical Specification (Tc=25°C)						
Parameter	Symbol	Min	Typ	Max	Units	Note
Optical Output Power	P	8	10		dBm	1
Thershold current	I _{th}		10		mA	-
Operation current	I _{op}		55	100	mA	
Operation voltage	V _{op}		1.5	2.5	V	-
Peak wavelength	λ	-	1310	-	nm	Any in O-band
Slope efficiency	SE	0.2			W/A	
Side-mode suppression ratio	SMSR	30			dB	
Rative Intensity Noise	RIN		-150	-130	dB/Hz	
Bandwidth (-3dB, I=60mA)	S21		20		Ghz	-
Return loss	S11		-10	-6	dB	
Input 1 dB Compression			18		dBm	
Thermistor Resistance	R _{th}		10		Kohm	@25C, NTC, Beta 3930k
TEC current	I _t			1.2	A	2
TEC voltage	V _t			2.5	V	2
Capacitance (PD)	C _t			20	pF	

Monitoring current	Im	0.05		2.0	mA	
Dark current (PD)	Id			50	nA	
Capacitance (PD)	Ct			20	pF	
Optical Isolation	ISO		30		dB	No isolator option
Polarization Extinction ratio	PER	17	20	25	dB	
Optical output connector	NA	FC/APC (PM Key aligned to slow axis)				
RF input connector	NA	K102F/2.92 mm (K) Female				
Input Impedance Matching	Ω		50		ohm	

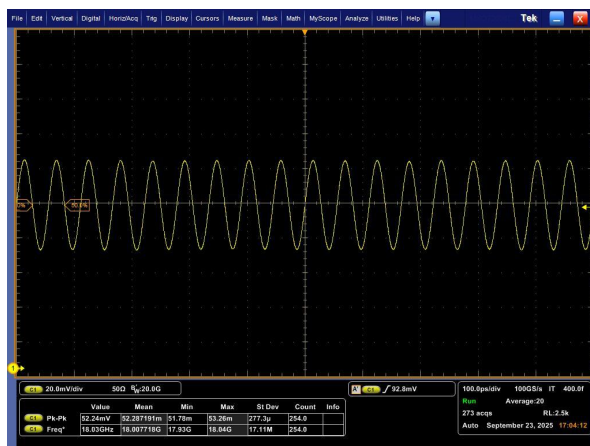
Notes: All laser chips come from wafers that have been certified using a representative lot of devices that must achieve an acceptable yield for burn-in.

1. Laser temperature set 25C, bias current at 55mA;
2. Operation case temperature -5~75°C

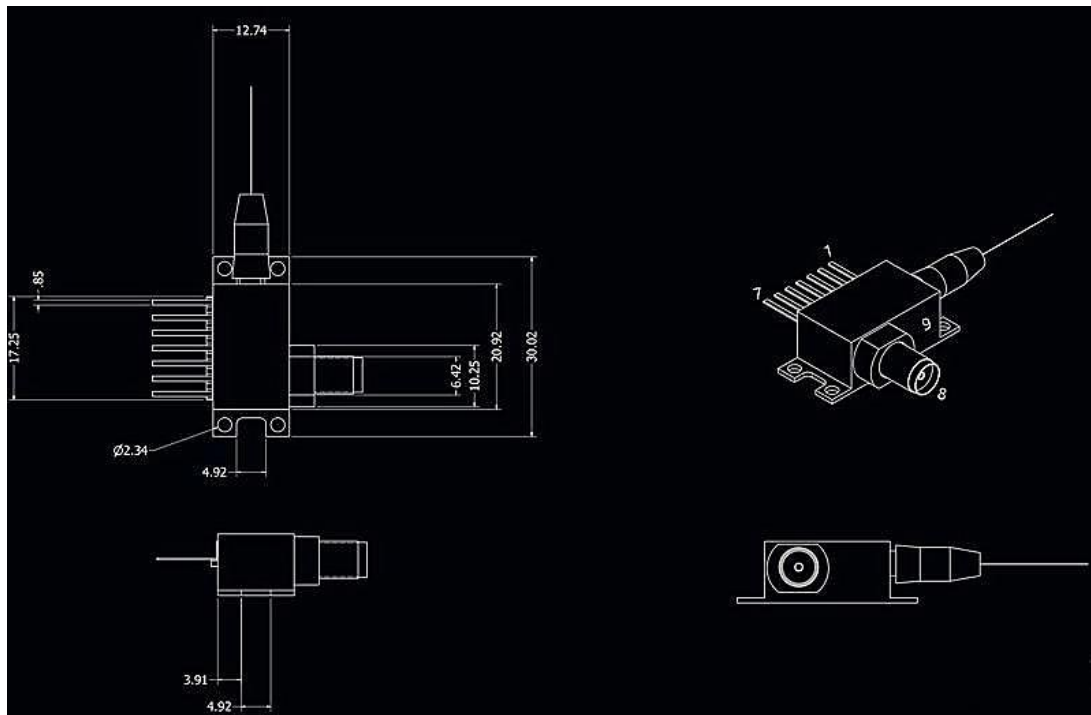
Performance Specifications

Absolute Maximum Ratings				
Parameter	Symbol	Min.	Max.	Unit
Laser diode forward current	If		120	mA
Laser diode reverse voltage	V		1	V
Front power	Pf		20	dBm
PD reverse voltage	V		15	V
Forward current (PD)	Im		2	mA
Operation temperature	To	-40	+85	°C
Storage temperature	Ts	-40	+85	°C
Storage relative humidity	Sr		85	%

Typical Data



Dimensions and Pin definitions (Unit in mm)



Ordering info

PN# LP-ML1001C-31-FA 1310 nm High-Speed 18GHz+ directly-modulated lasers

FC/APC Connector, Output Fiber: PM1310 fibers with Slow axis alignment, PER > 18dB, Modulation Bandwidth: >20GHz, Output Power: >8dBm, RF input connector: 2.92 mm (K) Female, With Isolator