LD4B
Laser Diodes for Business

LD4B-1591-DFB-10G-10

OVERVIEW

Laser diode coupled to an optical fiber and packaged into a hermetic case.

MAIN FEATURES

- Wavelength: 1591 nm
- Cavity type: DFB
- Optical power in CW mode in single-mode fiber: 10 mW
- Instantaneous linewidth ~1 MHz
- Data rate 10 Gbps
- RF Bandwidth 12 GHz
- Package types: coaxial, coaxial with bracket
- Built-in monitor photodiode

ORDERING INFORMATION

LD4B-1591-DFB-10G-10-X-X-X-X-X-X

Case type

COAX: compact coaxial (low duty cycle pulse mode only)
COAXB: compact coaxial with a bracket
TH: compact coaxial with a bracket compatible to Thorlabs mount

Pinout code

12: see more details on page 5

Fiber type

SM1: SM, G.657.A1, Corning SMF-28 Ultra, furcation tubing ∅0.9 mm or **BSM1** ∅0.25mm
SM3: SM, G.657.B3, Corning ClearCurve ZBL, furcation tubing ∅0.9 mm or **BSM3** ∅0.25mm
SMP13: PM, Corning PM1300, PANDA type, furcation tubing ∅0.9 mm
Other type on request

Connector type

FU: FC/UPC (SM1, SM3)
FA: FC/APC (SM1, SM3, SMP13)
SU: SC/UPC (SM1)
SA: SC/APC (SM1)
N: no connector (scissors cut)
Other type: on request

Test measurements

CW: CW mode (electro-optical parameters at T=25+/-5 C and spectrum)
P: Pulse mode (pulse duration 5 us, duty cycle 1%, at T=25+/-5 C)
CWP: both CW and pulse mode

Fiber length

0.5: 500+/-50 mm
1.0: 1000+/-100 mm
Other length on request

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ABSOLUTE MAXIMUM RATINGS

Parameter		Value	Unit	Conditions
Laser diode CW forward current	I_{max}	105	mA	CW, T = 25°C
Laser diode reverse voltage	V_{RL}	2	V	
Photodiode reverse voltage	V_{RP}	15	V	
Photodiode forward current	I_{RP}	5	mA	
Operating temperature*	T_{op}	-40 - +85	°C	Coaxial package
Storage temperature	T_{stg}	-40 - +85	°C	
Soldering temperature	T_{sold}	260	°C	Max. 5 seconds

*Operating temperature is defined by the case temperature. It is necessary to ensure sufficient heat dissipation so that the module's maximum operating temperature is not exceeded. Operation at elevated temperatures reduces the lifetime of the laser diode.

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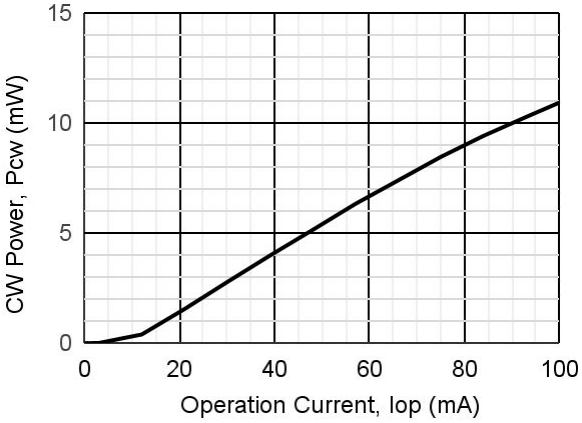
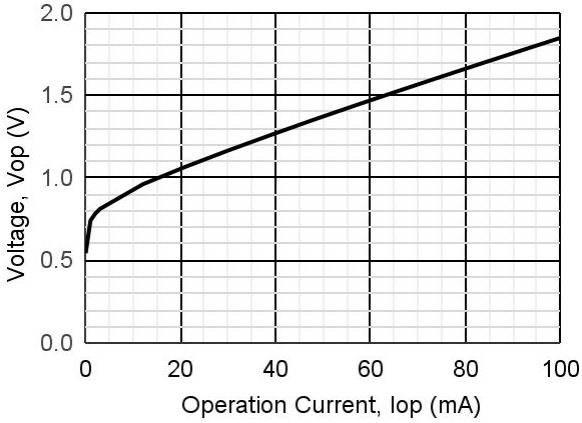
ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)

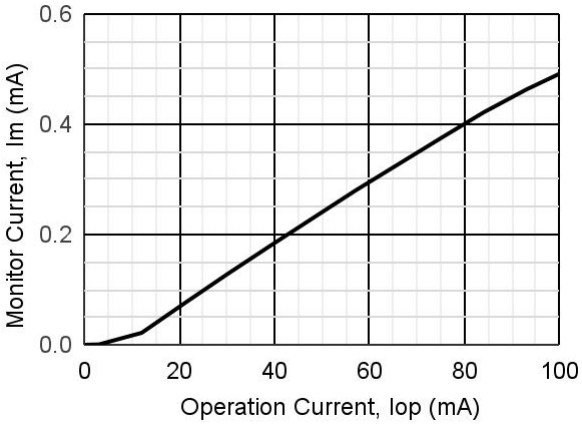
Parameter		MIN	TYP	MAX	Unit	Conditions
Optical power (CW)	P_{cw}	10	12		mW	CW, I_{op} = 100 mA
Mean wavelength	λ	1586	1591	1596	nm	CW, I_{op} = 100 mA
Spectral width, OSA	Δλ		0.1		nm	CW, I_{op} = 100 mA, OSA
Instantaneous linewidth	Δf		1		MHz	CW, I_{op} = 100 mA, self-delayed heterodyne method
Wavelength-temperature coefficient	dλ/dT		0.11		nm/°C	CW, I_{op} = 100 mA
Side-mode suppression ratio	SMSR	40	55		dB	CW, I_{op} = 100 mA
Threshold current	I_{th}		9	15	mA	CW
Slope efficiency	S_e	0.11	0.15		mW/mA	CW, SM1
Operating voltage	V_{op}		1.8	2.0	V	CW, I_{op} = 100 mA
Monitor current	I_m	0.1	1.0	3.0	mA	CW, I_{op} = 100 mA, V_r = 5 V
Tracking error	ER		0.5	1.0	dB	CW, I_{op}(25C)=25 mA, I_m = const
Dark current (PD)	I_d			100	nA	V_R = 5V
Polarization extinction ratio	PER	20			dB	CW, SMP13
Series resistance	Rs		9	15	Ohm	Iop = Ith + 20 mA
Bandwidth	BW	10	12		GHz	Iop = Ith + 20 mA

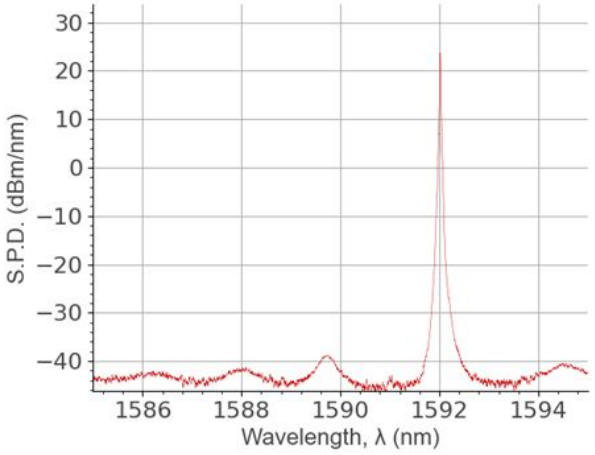
Tracking error ER = max |10 lg [P(T)/P(25C)]|, I_m= const, T = T_{min}÷ T_{max}

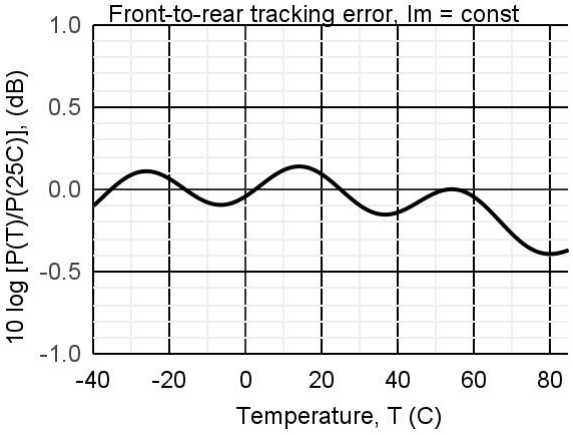
LD4B-1591-DFB-10G-10











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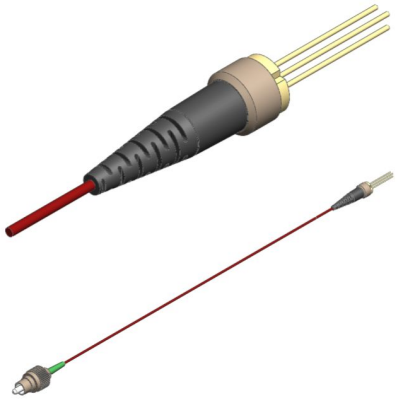
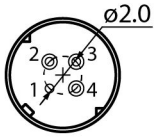
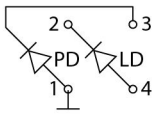


COAX

BACK VIEW

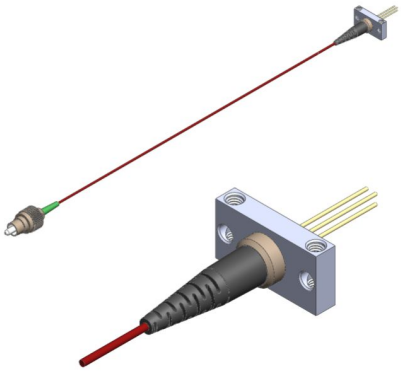


PINOUT
#12



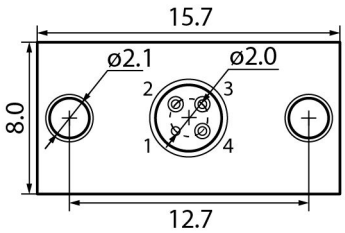
Download more information

Drawing | 3D model | Application Notes



COAXB

BACK VIEW



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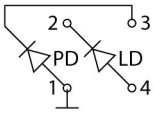

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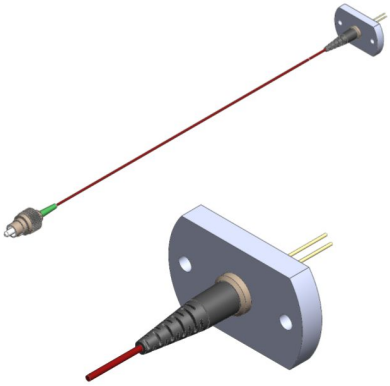
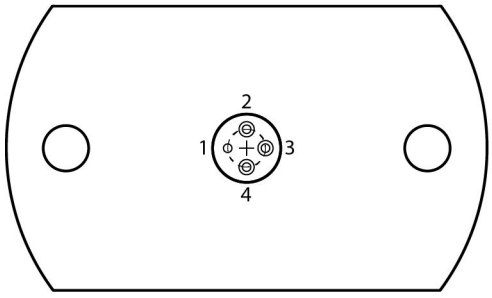
Drawing | 3D model | Application Notes

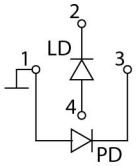


PACKAGE TH

BACK VIEW



PINOUT
#12
Thorlabs Pin Code G
mPD not used



Compatible to Thorlabs LDM9LP mount

Download more information

Drawing | 3D model | Application Notes

Characteristics, data, materials and structures specified in this datasheet are subject to change without notice. Please refer to the latest specification before use of the products.

Safety and handling cautions

1. Avoid smashing and burning of the module. Avoid storing and using the module in conditions where water, organic solvents or aggressive acids or bases may contact the module or where there is a possibility of exposure to corrosive gases, explosive gases, dust, salinity or other harsh conditions. The module should be disposed as special industrial waste.
2. Exceeding absolute maximum ratings even for a short time can cause permanent damage of the module.
3. The module is sensitive to and can be broken by ESD (static electricity).

Conflict Minerals Policy Statement

LD4B achieves business objectives and customer needs with social responsibility. We do not support or contribute to the violence and human rights violations associated with the mining of conflict minerals coming from Conflict Regions according to US "Dodd-Frank Act". When possible, our suppliers' conflict mineral statements are reviewed. We do not directly purchase Conflict Minerals from any source and do not knowingly procure any parts and products containing Conflict Minerals from Conflict Regions.

RoHS Compliance Statement

Restriction of Hazardous Substances (RoHS) directive (Directive 2011/65/EC amended with Directive (EU) 2015/863) is the directive aimed at reducing the harmful environmental impact of waste electrical equipment by restricting the use of known dangerous substances. Based on information received from our supply sources, LD4B hereby states that the banned substances listed in the RoHS directive are not found in the parts and materials used above the threshold level listed other than exceptions approved by the European Commission.

REACH Compliance Statement

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) is a European Union regulation 1907/2006/EC that addresses the production and use of chemical substances, and their potential impacts on human health and the environment. Based on information received from our supply sources, LD4B hereby states compliance of the parts and materials used in manufacturing to REACH regulation. LD4B does not manufacture or import any substances or preparations as defined under REACH.