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This product is sold and serviced in North America by:



LASER LAB SOURCE

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800.887.5065
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LD4B-1550-DFB-2.5G-20

OVERVIEW

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

MAIN FEATURES

- Wavelength: 1550 nm
- Cavity type: DFB
- Optical power in CW mode in single-mode fiber: 20 mW
- Instantaneous linewidth < 500 kHz
- Data rate 2.5 Gbps
- Package types: coaxial, coaxial with bracket, 14 pins DIL
- Built-in monitor photodiode

ORDERING INFORMATION

LD4B-1550-DFB-2.5G-20-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
DIL: common 14-pins DIL for active thermal stabilization (TEC and thermistor)
DILRAD: 14-pins DIL for active thermal stabilization (TEC and thermistor) with wall radiator

Pinout code _____

2: see more details on page 5

Fiber type _____

SM1: SM, G.657.A1, [Corning SMF-28 Ultra](#), furcation tubing Ø0.9 mm or **BSM1** Ø0.25mm
SM3: SM, G.657.B3, [Corning ClearCurve ZBL](#), furcation tubing Ø0.9 mm or **BSM3** Ø0.25mm
MM5: MM, [50/125.OM3](#), furcation tubing Ø0.9 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)

Fiber length _____

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

LD4B-1550-DFB-2.5G-20**ABSOLUTE MAXIMUM RATINGS**

| Parameter | | Value | Unit | Conditions |
|-----------------------------------|-------------------|-----------|------|--------------------------------------|
| Laser diode CW forward current | I _{max} | 140 | mA | CW, T = 25°C |
| Laser diode pulse forward current | I _{pmax} | 450 | mA | 10 us, duty cycle 1% |
| Laser diode reverse voltage | V _{RL} | 2 | V | |
| Photodiode reverse voltage | V _{RP} | 30 | V | |
| Photodiode forward current | I _{RP} | 5 | mA | |
| Operating temperature* | T _{op} | -40 - +85 | °C | Coaxial package |
| Operating temperature* | T _{op} | -40 - +60 | °C | DIL package (T _{st} = 25°C) |
| 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.

Operating temperature for the DIL-14-pins case T with TEC is defined for internal temperature stabilization at T_{st} = 25°C that corresponds to thermistor resistance R_t = 10 kOhm.

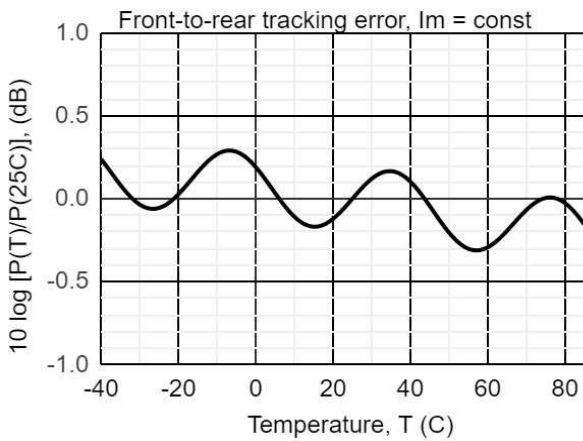
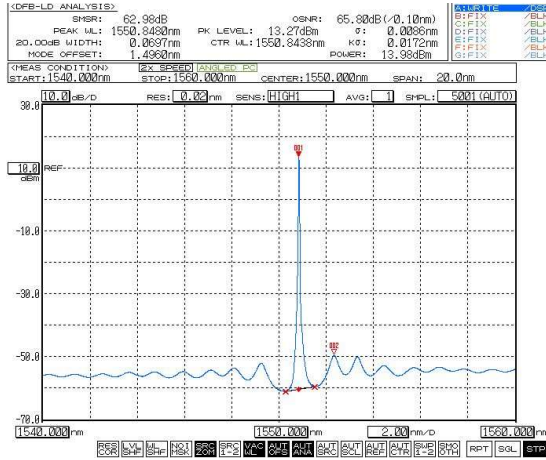
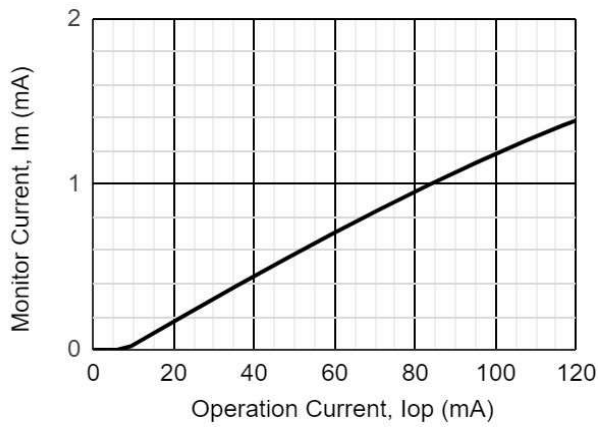
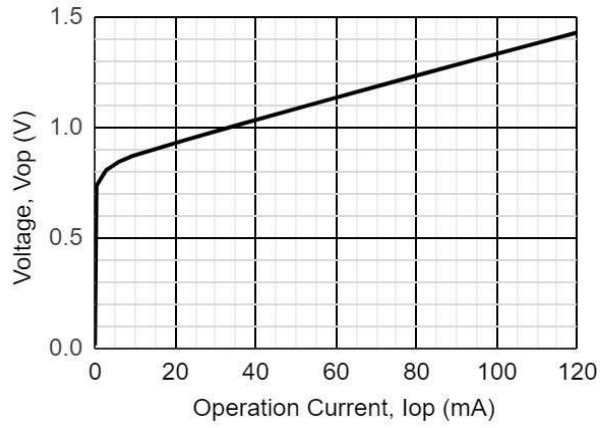
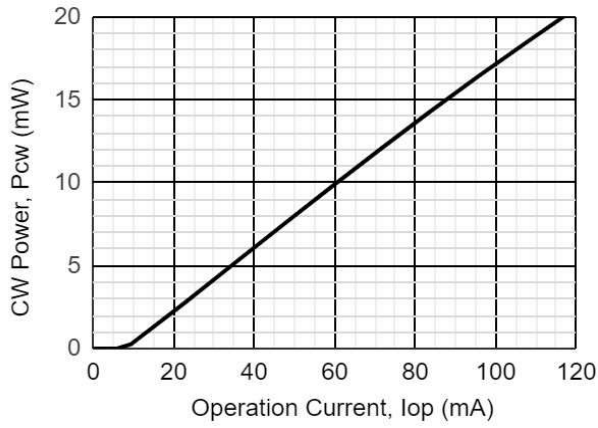
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ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)

| Parameter | | MIN | TYP | MAX | Unit | Conditions |
|------------------------------------|---------------------------------|------|------|------|-------|--|
| Optical power (CW) | P _{cw} | 20 | 22 | | mW | CW, I _{op} = 120 mA, SM1 |
| Mean wavelength | λ | 1547 | 1550 | 1553 | nm | CW, I _{op} = 120 mA |
| Spectral width, OSA | Δλ | | 0.09 | | nm | CW, I _{op} = 120 mA, OSA |
| Instantaneous linewidth | Δf | | | 500 | kHz | CW, I _{op} = 120 mA, self-delayed heterodyne method |
| Wavelength-temperature coefficient | dλ/dT | | 0.12 | | nm/°C | CW, I _{op} = 120 mA |
| Side-mode suppression ratio | SMSR | 45 | 55 | | dB | CW, I _{op} = 120 mA |
| Threshold current | I _{th} | | 8 | 12 | mA | CW |
| Slope efficiency | S _e | 0.12 | 0.15 | | mW/mA | CW, SM1 |
| Operating voltage | V _{op} | | 1.4 | 1.8 | V | CW, I _{op} = 120 mA |
| Monitor current | I _m | 1.0 | 2.0 | 5.0 | mA | CW, I _{op} = 120 mA, V _r = 5 V |
| Tracking error | ER | | 0.5 | 1.0 | dB | CW, I _{op} (25C)=25 mA, I _m = const |
| Rise and fall time | t _r , t _f | | 80 | 120 | ps | 20%-80%, coaxial package |
| Resonance frequency | f _r | | 6 | | GHz | 2.5 Gbps, I _b =I _{th} +15 mA |
| Capacitance (mPD) | C _t | | 10 | 20 | pF | V _R = 5 V, f = 1 MHz |
| Dark current (PD) | I _d | | | 100 | nA | V _R = 5V |

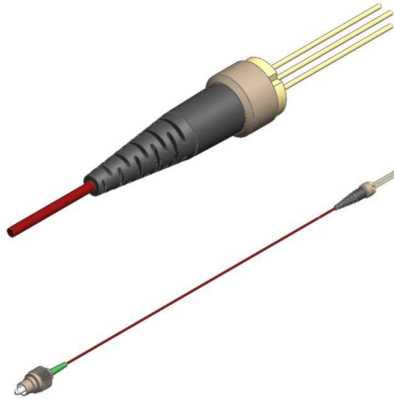
Tracking error ER = max |10 lg [P(T)/P(25C)]|, I_m = const, T = T_{min} ÷ T_{max}

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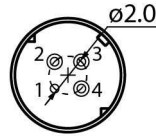


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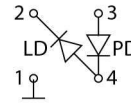
COAX



BACK VIEW



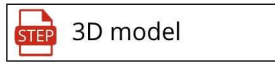
PINOUT
#2



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Drawing

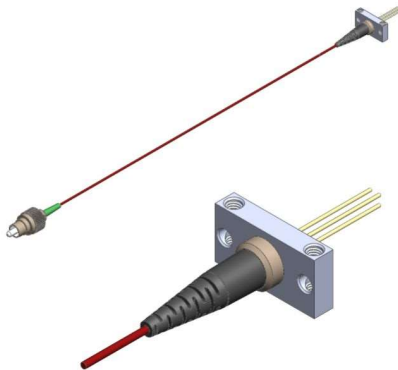


3D model

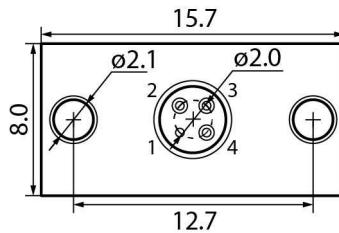


Application Notes

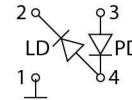
COAXB



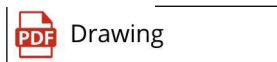
BACK VIEW



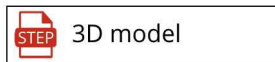
PINOUT
#2



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Drawing

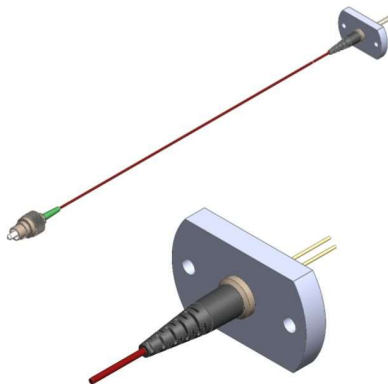


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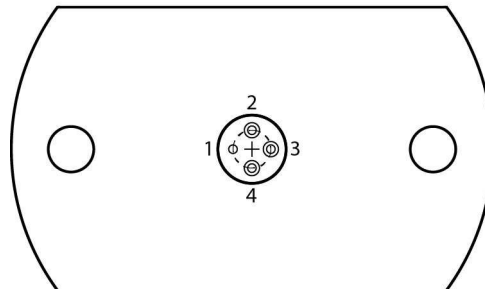


Application Notes

PACKAGE TH

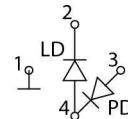


BACK VIEW



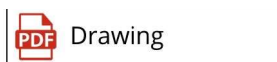
PINOUT
#2

Thorlabs Pin Code G
mPD not used



Compatible to Thorlabs
LDM9LP mount

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Drawing

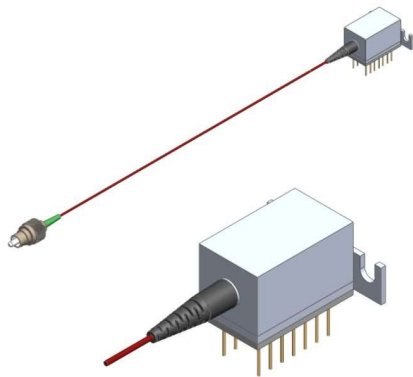


3D model

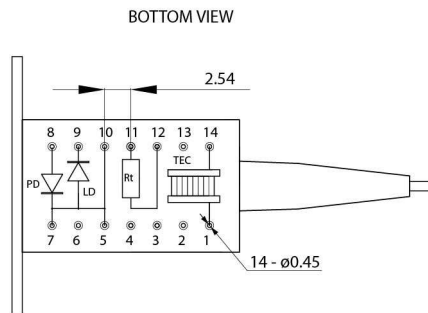


Application Notes

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DIL



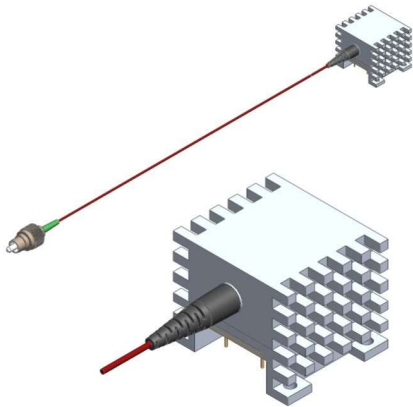
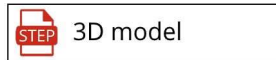
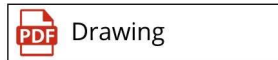
PINOUT #2, #3

- 1.TEC Anode
- 2.-
- 3.-
- 4.-
- 5.LD Anode
- 6.-
- 7.PD Cathode, LD Anode
- 8.PD Anode
- 9.LD Cathode
- 10.LD Anode
- 11.Thermistor
- 12.Thermistor
- 13.-
- 14.TEC Cathode

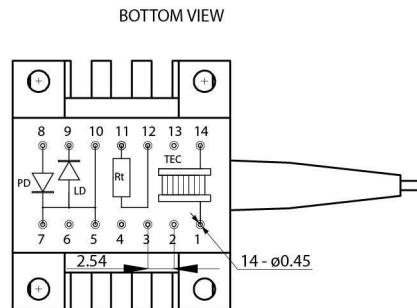
TEC LP: $I_{max} = 0.7A$, $U_{max} = 3.9V$, $Q_{max} = 1.4W$,
 AC R = 4.7 Ohm, $\Delta T_{max} = 72 K$

Thermistor:
 $R_t = 10 * EXP(3600 * \{1/T[K] - 1/298\})$ kOhm

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DILRAD



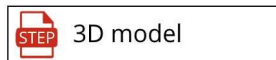
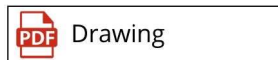
PINOUT #2, #3

- 1.TEC Anode
- 2.-
- 3.-
- 4.-
- 5.LD Anode
- 6.-
- 7.PD Cathode, LD Anode
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- 9.LD Cathode
- 10.LD Anode
- 11.Thermistor
- 12.Thermistor
- 13.-
- 14.TEC Cathode

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Download more information



LD4B-1550-DFB-2.5G-20

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, UAB 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, UAB 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, UAB hereby states compliance of the parts and materials used in manufacturing to REACH regulation. LD4B, UAB does not manufacture or import any substances or preparations as defined under REACH.