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LD4B-1570-DFB-2.5G-20

OVERVIEW

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

MAIN FEATURES

- Wavelength: 1570 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, 14 pins BTF
- Built-in monitor photodiode

ORDERING INFORMATION

LD4B-1570-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
BTF: 14-pins BTF type 1 (Pump) for active thermal stabilization (TEC and thermistor)

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

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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, BTF (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.

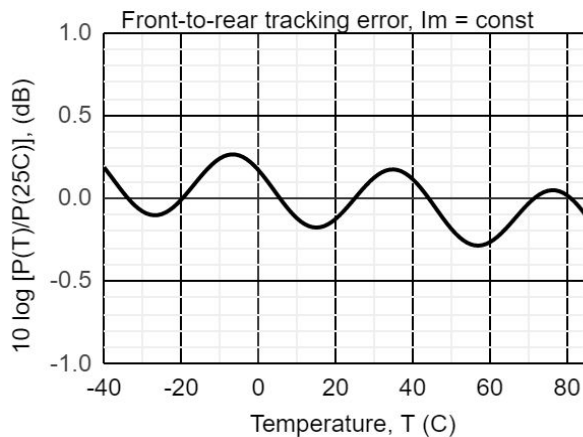
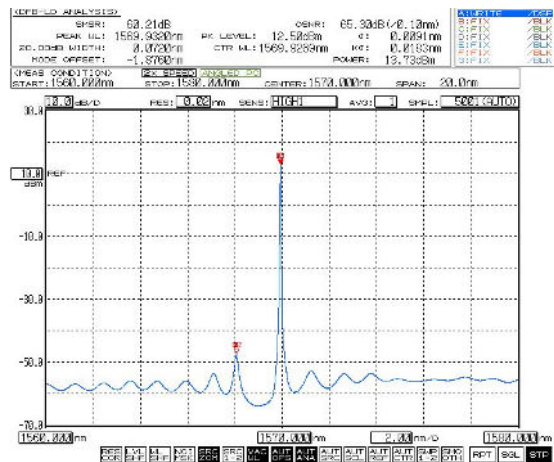
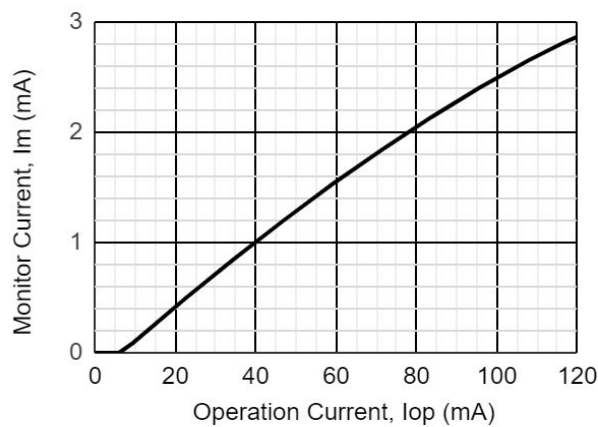
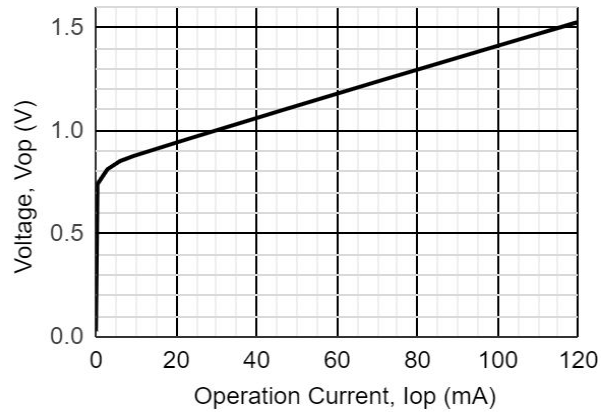
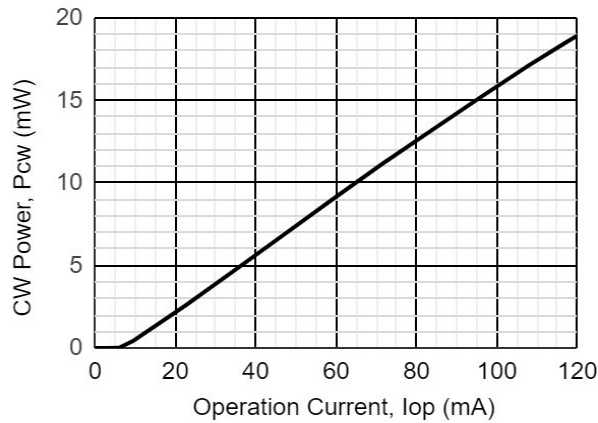
Operating temperature for the DIL, DILRAD and BTF 14-pins case T with TEC is defined for internal temperature stabilization at T_{st} = 25°C that corresponds to thermistor resistance R_t = 10 kOhm.

LD4B-1570-DFB-2.5G-20**ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)**

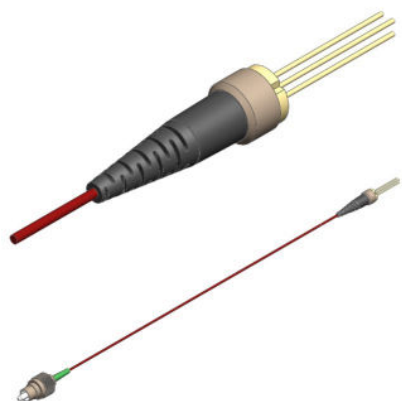
Parameter		MIN	TYP	MAX	Unit	Conditions
Optical power (CW)	P _{cw}	17	20		mW	CW, I _{op} = 120 mA, SM1
Mean wavelength	λ	1567	1570	1573	nm	CW, I _{op} = 120 mA
Spectral width, OSA	Δλ		0.09		nm	CW, I _{op} = 120 mA, OSA
Instantaneous linewidth	Δf			500	kHz	CW, I _{op} = 120 mA, self-delayed heterodyne method
Wavelength-temperature coefficient	dλ/dT		0.10		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	0.14		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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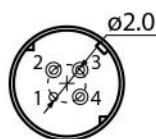


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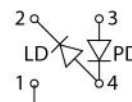


COAX

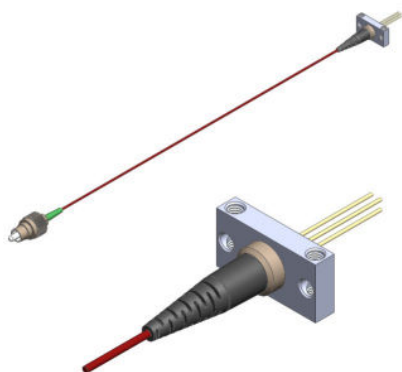
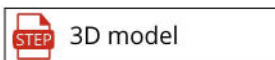
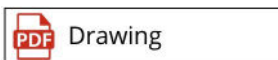
BACK VIEW



PINOUT
#2

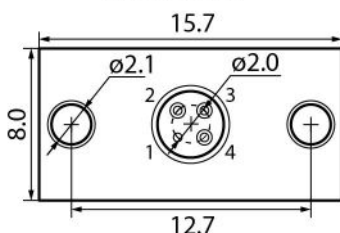


Download more information

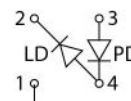


COAXB

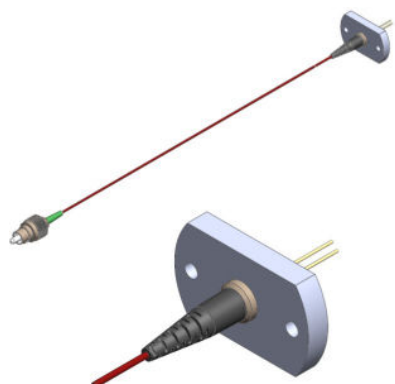
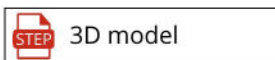
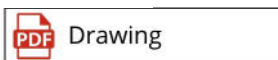
BACK VIEW



PINOUT
#2

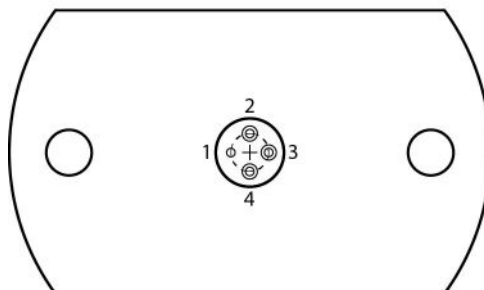


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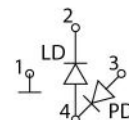
PACKAGE TH

BACK VIEW



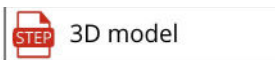
PINOUT
#2

Thorlabs Pin Code G
mPD not used

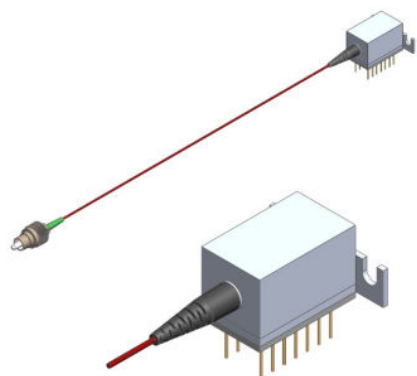


Compatible to Thorlabs
LDM9LP mount

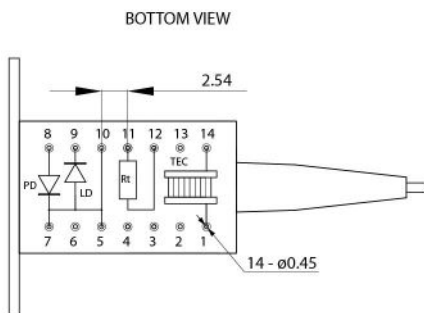
Download more information



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DIL



PINOUT #2, #3

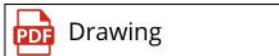
- 1.TEC Anode
- 2.-
- 3.-
- 4.-
- 5.LD Anode
- 6.-
- 7.PD Cathode, LD Anode
- 8.PD Anode
- 9.LD Cathode
- 10.LD Anode
- 11.Thermistor
- 12.Thermistor
- 13.-
- 14.TEC Cathode

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

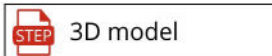
Thermistor:
 $R_t=10 \cdot \text{EXP}(3600 \cdot \{1/T[K]-1/298\})$ kOhm

Package limits RF bandwidth to 500 MHz

Download more information



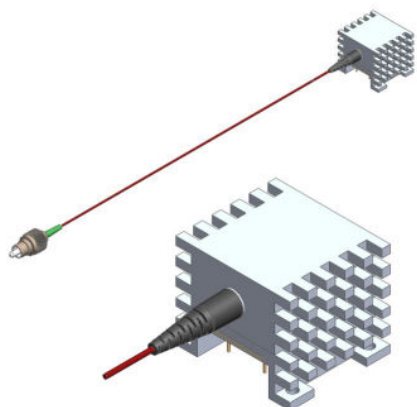
Drawing



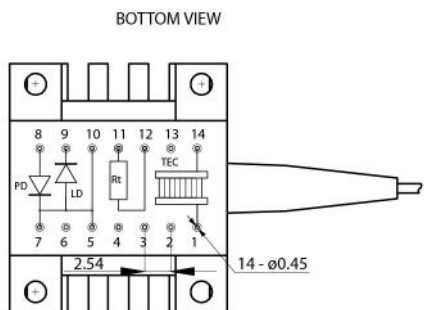
3D model



Application Notes



DILRAD



PINOUT #2, #3

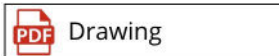
- 1.TEC Anode
- 2.-
- 3.-
- 4.-
- 5.LD Anode
- 6.-
- 7.PD Cathode, LD Anode
- 8.PD Anode
- 9.LD Cathode
- 10.LD Anode
- 11.Thermistor
- 12.Thermistor
- 13.-
- 14.TEC Cathode

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

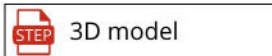
Thermistor:
 $R_t=10 \cdot \text{EXP}(3600 \cdot \{1/T[K]-1/298\})$ kOhm

Package limits RF bandwidth to 500 MHz

Download more information



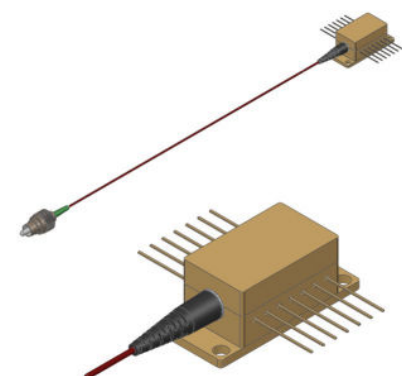
Drawing



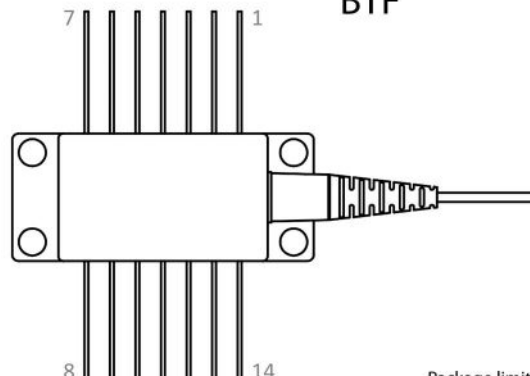
3D model



Application Notes



BTF

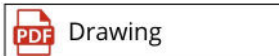


1. TEC+
2. Thermistor
3. NC
4. NC
5. Thermistor
6. NC
7. NC
8. NC
9. NC
- 10 LD/SLD Anode
11. LD/SLD Cathode
12. NC
13. Case Ground
14. TEC -

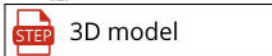
TEC LP: $I_{max}=0.7A$, $U_{max}=3.9V$, $Q_{max}=1.4W$,
 AC R = 4.7 Ohm, $\Delta T_{max}=72 K$

Package limits RF bandwidth to 500 MHz
 Thermistor:
 $R_t=10 \cdot \text{EXP}(3600 \cdot \{1/T[K]-1/298\})$ kOhm

Download more information



Drawing



3D model



Application Notes

LD4B-1570-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.

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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.