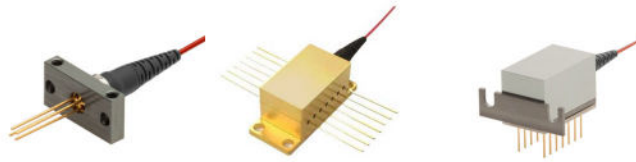


LD4B
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LD4B-850-FP-20

OVERVIEW

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

MAIN FEATURES

- Wavelength: 850 nm
- Cavity type: Fabry-Perot
- Optical power in CW mode in single-mode fiber: 20 mW
- Package types: coaxial, coaxial with bracket, 14 pins DIL, 14 pins BTF
- Built-in monitor photodiode

ORDERING INFORMATION

LD4B-850-FP-20-X-X-X-X-X-X

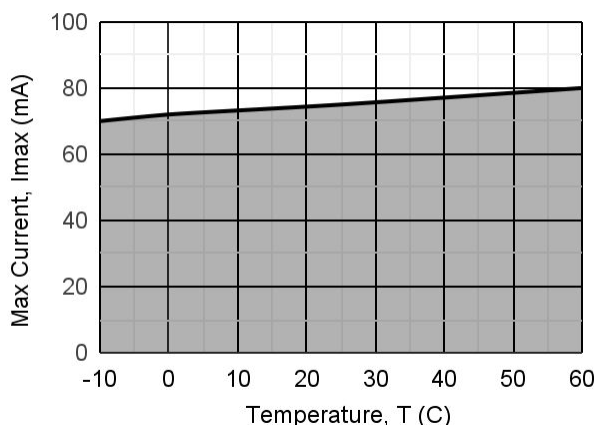
Case type	_____
COAX: compact coaxial (low duty cycle pulse mode only)	
COAXB: compact coaxial with a bracket	
TH: compact coaxial with a bracket compatible to Thorlabs mount	
DIL: common 14-pins DIL for active thermal stabilization (TEC and thermistor)	
DILRAD: 14-pins DIL for active thermal stabilization (TEC and thermistor) with wall radiator	
BTF: 14-pins BTF type 1 (Pump) for active thermal stabilization (TEC and thermistor)	
Pinout code	_____
3: see more details on page 5	
Fiber type	_____
SM05: SM, Corning HI-780 , furcation tubing Ø0.9 mm	
SMP05: PM, Coherent PM780-HP , furcation tubing Ø0.9 mm	
MM5: MM, 50/125_OM3 , furcation tubing Ø0.9 mm	
MM6: MM, 62.5/125_OM1 , furcation tubing Ø0.9 mm	
Other type on request	
Connector type	_____
FU: FC/UPC (SM05, SMP05)	
FA: FC/APC (SM05, SMP05)	
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	

LD4B-850-FP-20

ABSOLUTE MAXIMUM RATINGS

Parameter		Value	Unit	Conditions
Laser diode forward current*	I_{max}	77	mA	CW, $T = 25^{\circ}C$
Laser diode forward current*	I_{pmax}	140	mA	Pulse, 5 μs , duty cycle 1%, $T = 25^{\circ}C$
Laser diode reverse voltage	V_{RL}	2	V	
Photodiode reverse voltage	V_{RP}	30	V	
Operating temperature**	T_{OP}	-10 - +60	$^{\circ}C$	Coaxial package
Operating temperature**	T_{OP}	-40 - +60	$^{\circ}C$	DIL, BTF ($T_{st} = 25^{\circ}C$)
Storage temperature	T_{stg}	-40 - +85	$^{\circ}C$	
Soldering temperature	T_{sold}	260	$^{\circ}C$	Max. 5 seconds

*Maximal laser diode forward current depends on the operating temperature. Please, refer to the figure below.



**Operating temperature is defined by the case temperature. It is recommended to ensure sufficient heat dissipation so that the module's maximum operating temperature is not exceeded.

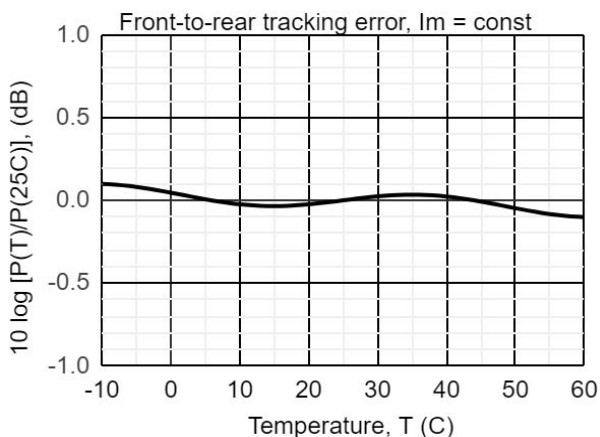
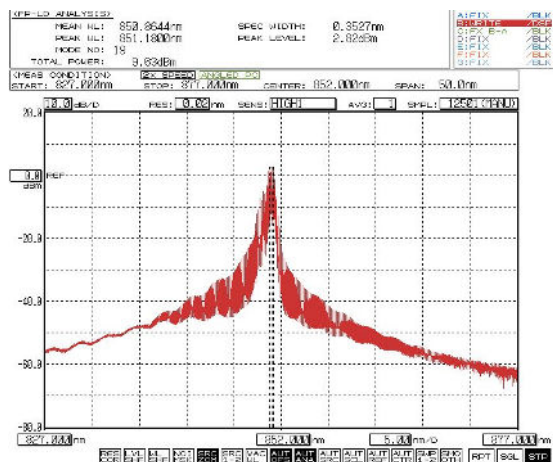
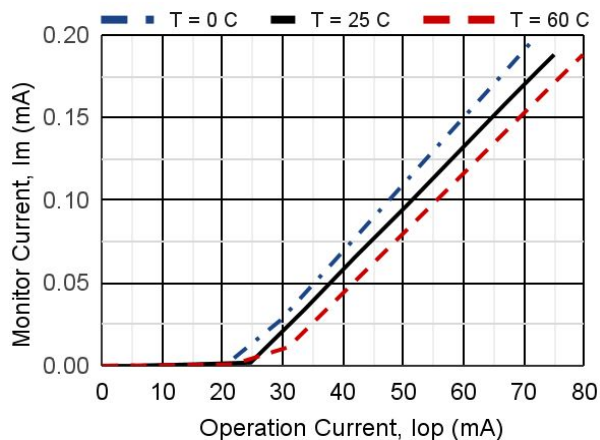
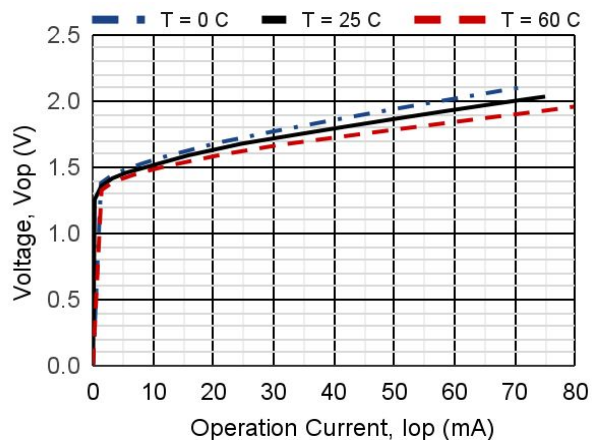
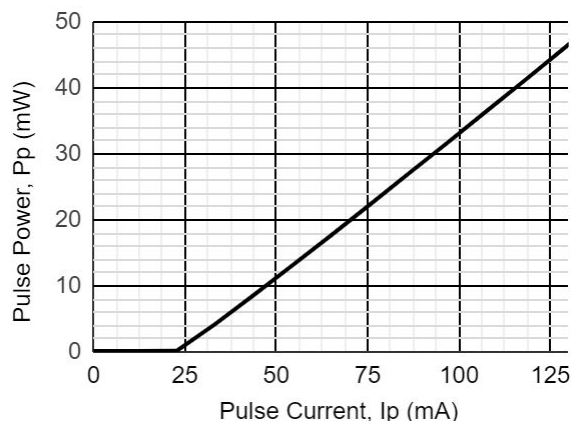
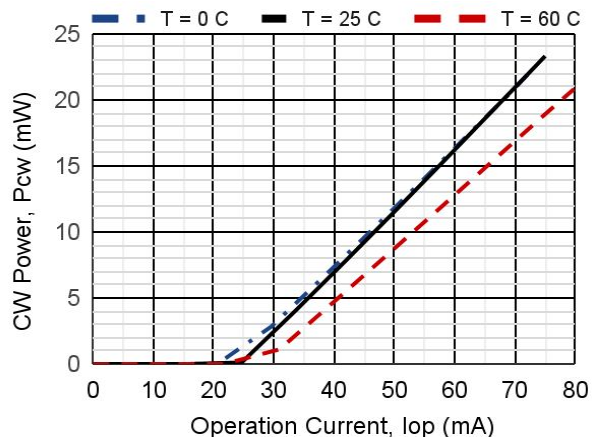
Operating temperature for the DIL, DILRAD and BTF 14-pins case T with TEC is defined for internal temperature stabilization at $T_{st} = 25^{\circ}C$ that corresponds to thermistor resistance $R_t = 10\text{ k}\Omega$.

LD4B-850-FP-20**ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)**

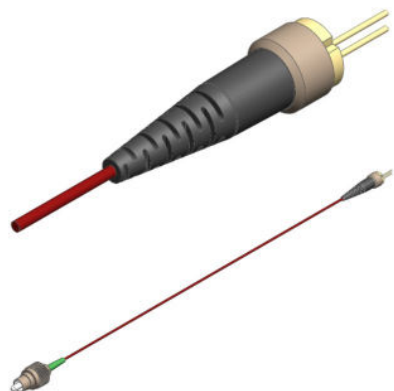
Parameter		MIN	TYP	MAX	Unit	Conditions
Optical power (CW)	P _{cw}	20	22		mW	CW, I _{op} = 75 mA, SM05
Optical power (pulse)	P _p	40	45		mW	Pulse, I _p = 130 mA, duration 5 us, duty cycle 1%
Mean wavelength	λ	840	850	860	nm	CW, I _{op} = 75 mA
Spectral width	Δλ		1	3	nm	CW, I _{op} = 75 mA
Wavelength-temperature coefficient	dλ/dT		0.26		nm/°C	CW, I _{op} = 75 mA
Threshold current	I _{th}		25	35	mA	
Slope efficiency	S _e	0.35	0.45		mW/mA	CW, SM05
Operating voltage	V _{op}		2.0	2.4	V	CW, I _{op} = 75 mA
Monitor current	I _m	0.1	0.2	0.5	mA	CW, I _{op} = 75 mA, V _r = 5 V
Polarization extinction ratio	PER	17				CW, I _{op} = 75 mA, SMP05
Tracking error	ER		0.3	0.6	dB	CW, I _{op} (25C)=30 mA, I _m = const T = -10 ~ +50 C

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

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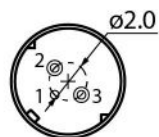


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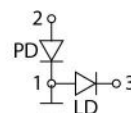


COAX

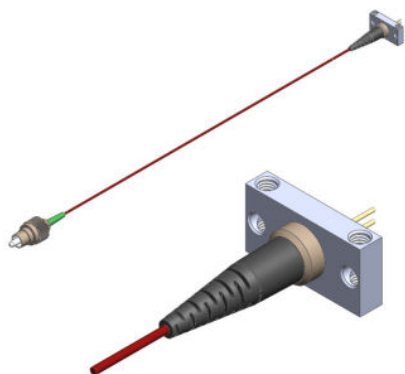
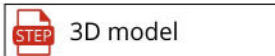
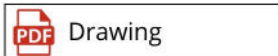
BACK VIEW



PINOUT
#3

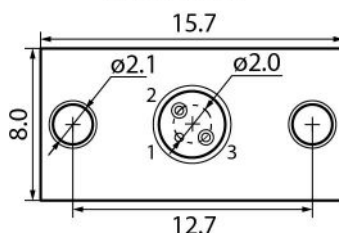


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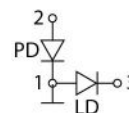


COAXB

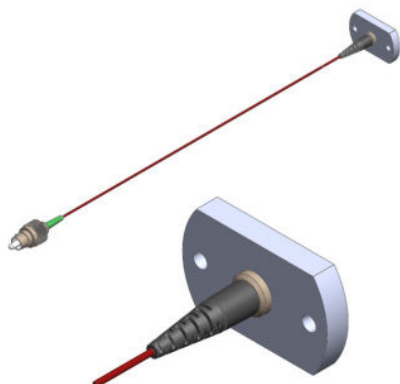
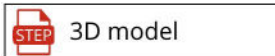
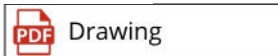
BACK VIEW



PINOUT
#3

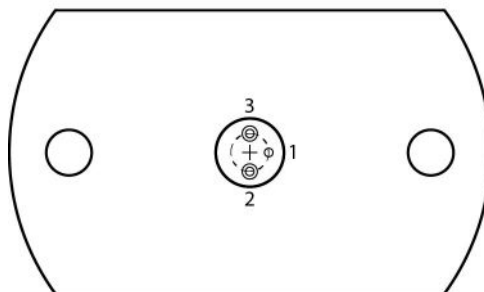


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PACKAGE TH

BACK VIEW



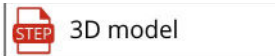
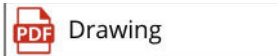
PINOUT
#3

Thorlabs Pin Code A

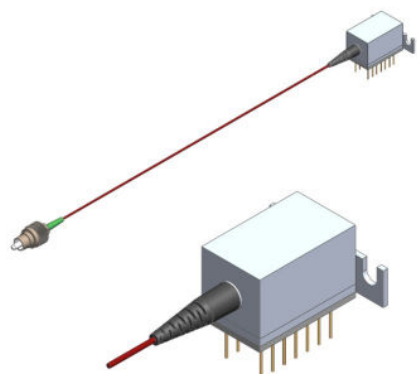


Compatible to Thorlabs LDM9LP mount

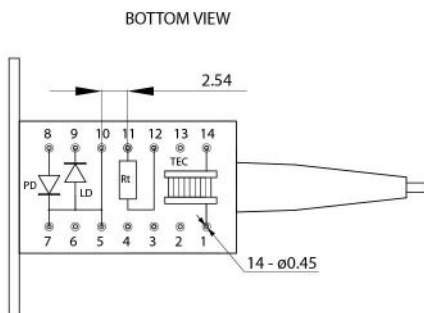
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DIL



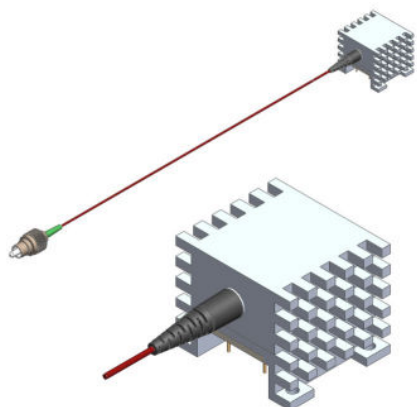
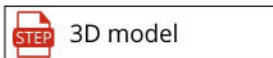
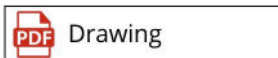
PINOUT #2, #3

- 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

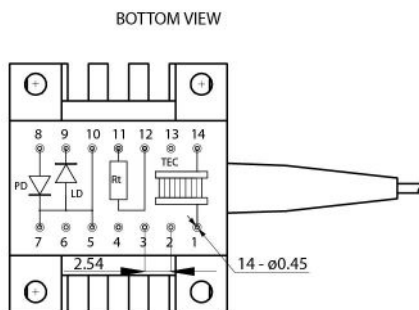
TEC HP: $I_{max} = 1.4A$, $U_{max} = 3.9V$, $Q_{max} = 3.3W$,
AC R = 2.0 Ohm, $\Delta T_{max} = 69K$

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

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DILRAD



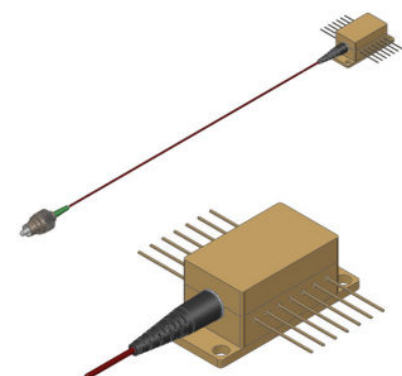
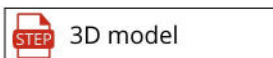
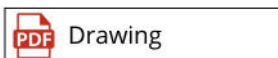
PINOUT #2, #3

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

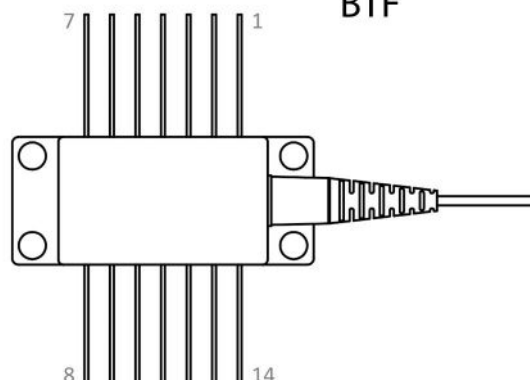
TEC HP: $I_{max} = 1.4A$, $U_{max} = 3.9V$, $Q_{max} = 3.3W$,
AC R = 2.0 Ohm, $\Delta T_{max} = 69K$

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

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BTF

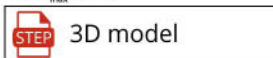
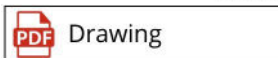


- 1. TEC+
- 2. Thermistor
- 3. NC
- 4. NC
- 5. Thermistor
- 6. NC
- 7. NC
- 8. NC
- 9. NC
- 10 LD/SLD Anode
- 11. LD/SLD Cathode
- 12. NC
- 13. Case Ground
- 14. TEC -

TEC HP: $I_{max} = 1.4A$, $U_{max} = 3.9V$, $Q_{max} = 3.3W$,
AC R = 2.0 Ohm, $\Delta T_{max} = 69K$

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

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LD4B-850-FP-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).

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