

LD4B formerly **LASERS.COM**
www.LD4B.com Coupling Light to Your Success

This product is sold and serviced in North America by:



LASER LAB SOURCE

a division of Research Lab Source Inc.

LaserDiodeSource.com | LaserLabSource.com | LaserDiodeControl.com

800.887.5065
contact@LaserLabSource.com

LD4B-685-FP-20

OVERVIEW

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

MAIN FEATURES

- Wavelength: 685 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
- Built-in monitor photodiode

ORDERING INFORMATION

LD4B-685-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

Pinout code _____

3: see more details on page 5

Fiber type _____

SM04: SM, [Coherent 630-HP](#), furcation tubing Ø0.9 mm
SMP04: PM, [Coherent PM630-HP](#), furcation tubing Ø0.9 mm
 Other type on request

Connector type _____

FU: FC/UPC (SM04, SMP04)
FA: FC/APC (SM04, SMP04)
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 _____

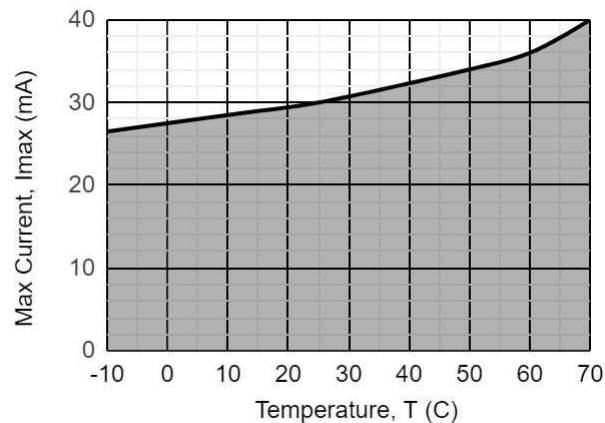
0.5: 500+/-50 mm
1.0: 1000+/-100 mm
 Other length on request

LD4B-685-FP-20

ABSOLUTE MAXIMUM RATINGS

Parameter		Value	Unit	Conditions
Laser diode forward current*	I_{max}	70	mA	CW, T = 25°C
Laser diode reverse voltage	V_{RL}	2	V	
Photodiode reverse voltage	V_{RP}	30	V	
Operating temperature**	T_{OP}	-10 - +60	°C	Coaxial package
Operating temperature**	T_{OP}	-40 - +60	°C	DIL package (Tst = 25°C)
Storage temperature	T_{stg}	-20 - +60	°C	
Soldering temperature	T_{sold}	260	°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.

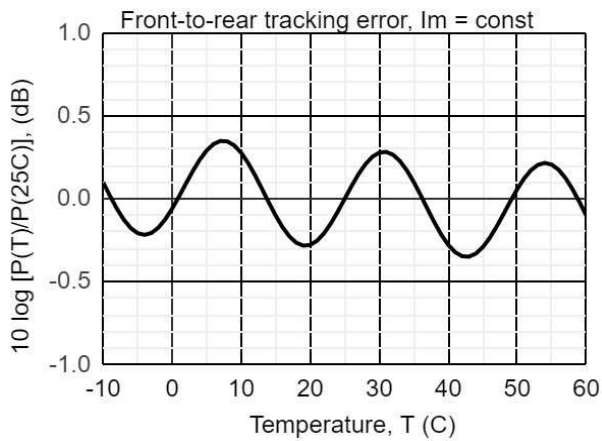
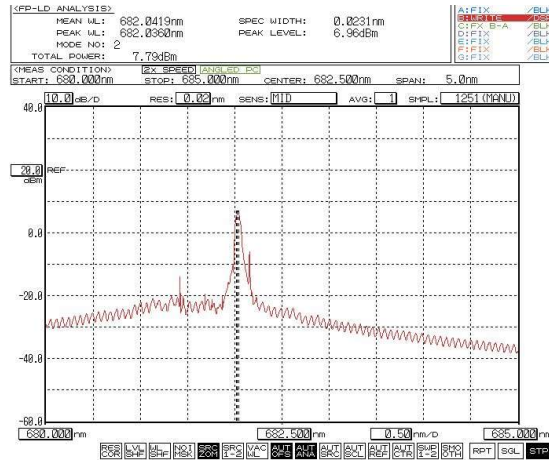
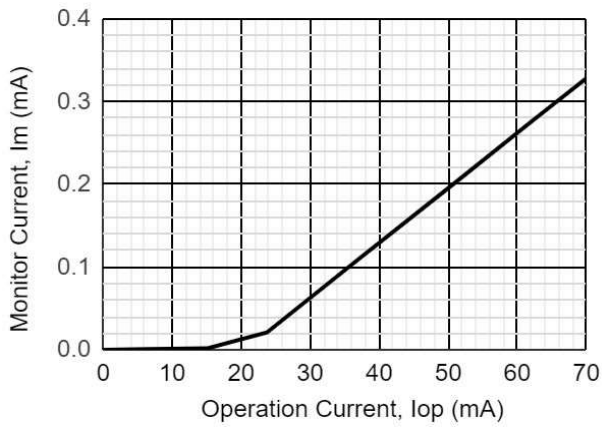
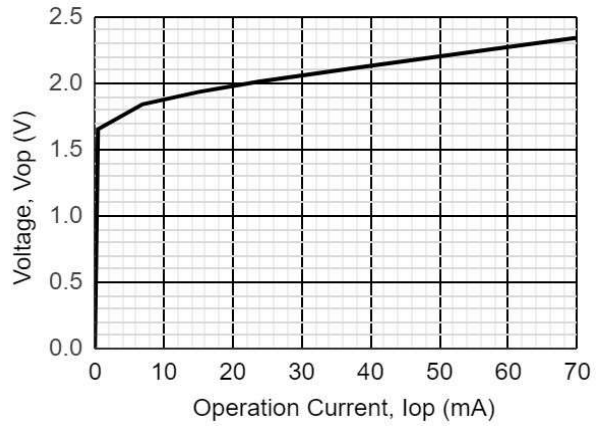
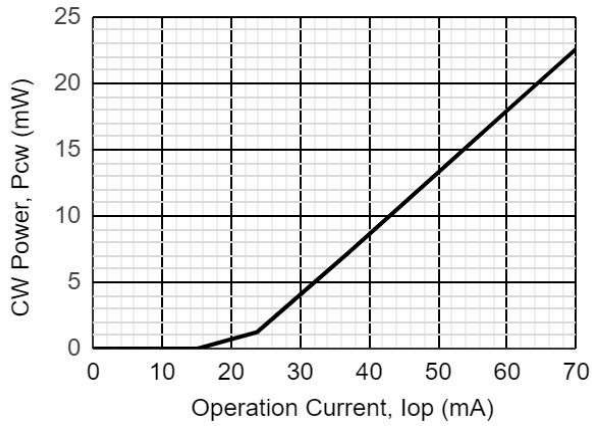
Operating temperature for the DIL-14-pins case T with TEC is defined for internal temperature stabilization at Tst = 25°C that corresponds to thermistor resistance Rt = 10 kOhm.

LD4B-685-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} = 65 mA, SM04
Mean wavelength	λ	675	685	695	nm	CW, I _{op} = 65 mA
Spectral width	Δλ		1	3	nm	CW, I _{op} = 65 mA
Wavelength-temperature coefficient	dλ/dT		0.18		nm/°C	CW, I _{op} = 65 mA
Threshold current	I _{th}		25	45	mA	
Slope efficiency	S _e	0.44	0.50		mW/mA	CW, SM04
Operating voltage	V _{op}		2.3	3.0	V	CW, I _{op} = 65 mA
Monitor current	I _m	0.1	0.5	2.5	mA	CW, I _{op} = 65 mA, V _r = 5 V
Polarization extinction ratio	PER	17				CW, I _{op} = 65 mA, SMP04
Tracking error	ER		0.4	0.8	dB	CW, I _{op} (25C)=26 mA, I _m = const T = -10 ~ +50 C

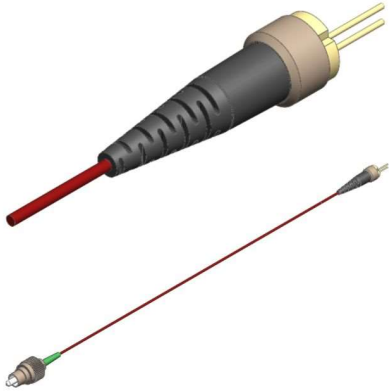
Tracking error ER = max |10 lg [P(T)/P(25C)]|, I_m = const, T = T_{min} ÷ T_{max}

LD4B-685-FP-20

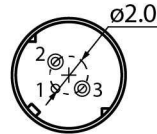


LD4B-685-FP-20

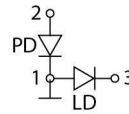
COAX



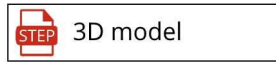
BACK VIEW



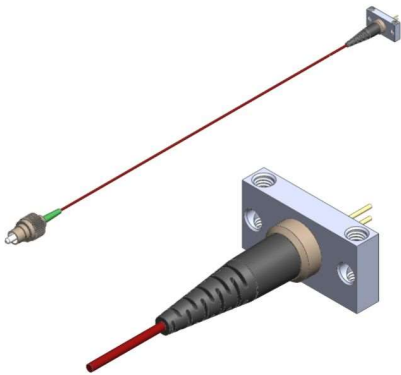
PINOUT
#3



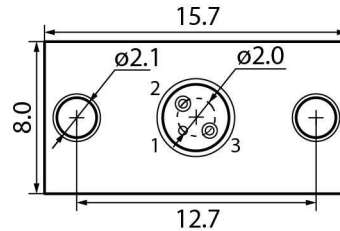
Download more information



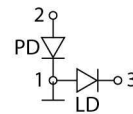
COAXB



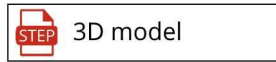
BACK VIEW



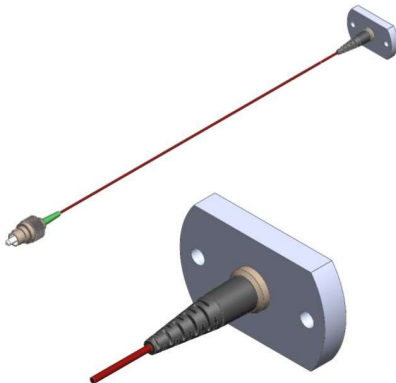
PINOUT
#3



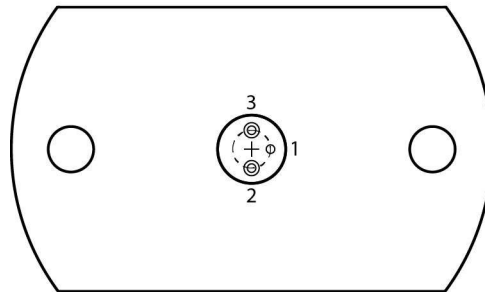
Download more information



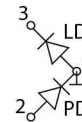
PACKAGE TH



BACK VIEW

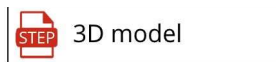
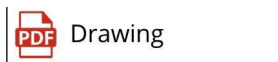


PINOUT
#3
Thorlabs Pin Code A

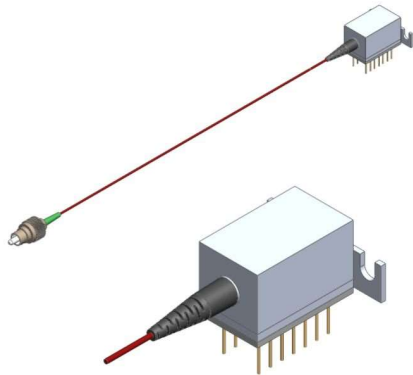


Compatible to Thorlabs LDM9LP mount

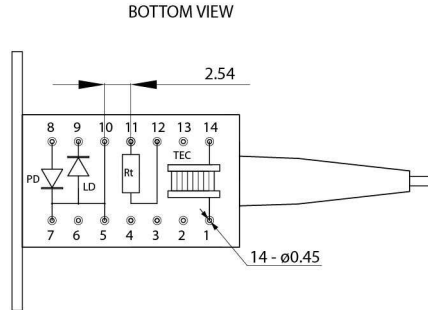
Download more information



LD4B-685-FP-20



DIL

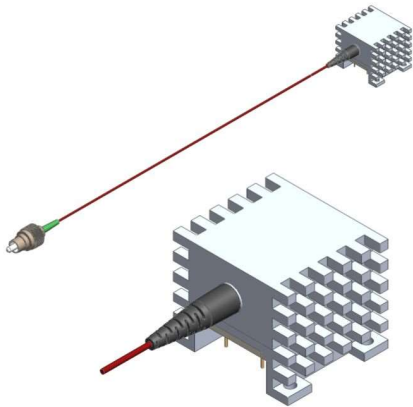
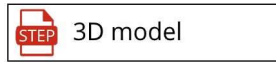
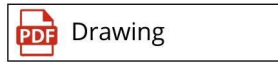


- PINOUT #2, #3
- 1.TEC Anode
 - 2.-
 - 3.-
 - 4.-
 - 5.LD Anode
 - 6.-
 - 7.PD Cathode, LD Anode
 - 8.PD Anode
 - 9.LD Cathode
 - 10.LD Anode
 - 11.Thermistor
 - 12.Thermistor
 - 13.-
 - 14.TEC Cathode

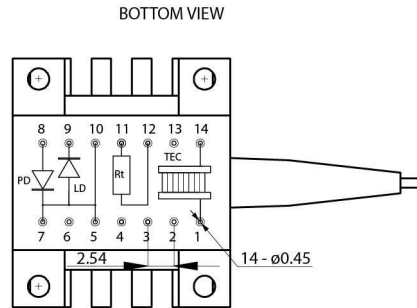
TEC HP: $I_{max} = 1.4A$, $U_{max} = 3.9V$, $Q_{max} = 3.3W$,
AC R = 2.0 Ohm, $\Delta T_{max} = 69 K$

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

Download more information



DILRAD

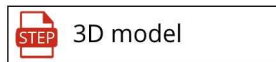
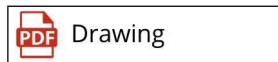


- PINOUT #2, #3
- 1.TEC Anode
 - 2.-
 - 3.-
 - 4.-
 - 5.LD Anode
 - 6.-
 - 7.PD Cathode, LD Anode
 - 8.PD Anode
 - 9.LD Cathode
 - 10.LD Anode
 - 11.Thermistor
 - 12.Thermistor
 - 13.-
 - 14.TEC Cathode

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

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

Download more information



LD4B-685-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).

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.