

LD4B-639-FP-80

OVERVIEW

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

MAIN FEATURES

- Wavelength: 639 nm
- Cavity type: Fabry-Perot
- Optical power in CW mode in single-mode fiber: 80 mW
- Package types: coaxial, coaxial with bracket, 14 pins DIL, 14 pins BTF
- Built-in monitor photodiode

ORDERING INFORMATION

LD4B-639-FP-80-X-X-X-X-X-X

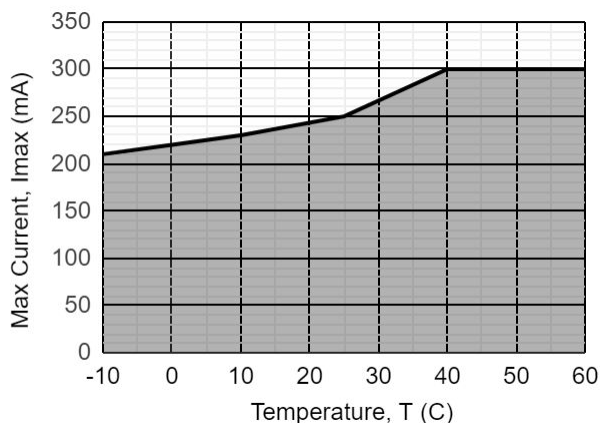
Case type	_____
COAX: compact coaxial (low duty cycle pulse mode only)	
COAXB: compact coaxial with a bracket	
TH: compact coaxial with a bracket compatible to Thorlabs mount	
DIL: common 14-pins DIL for active thermal stabilization (TEC and thermistor)	
DILRAD: 14-pins DIL for active thermal stabilization (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	_____
SM04: SM, Coherent 630-HP , furcation tubing Ø0.9 mm	
SMP04: PM, Coherent PM630-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 (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)	
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 forward current*	I_{max}	250	mA	CW, $T = 25^{\circ}C$
Laser diode forward current*	I_{pmax}	300	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}	-20 - +60	$^{\circ}C$	
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 $R_t = 10\ k\Omega$.

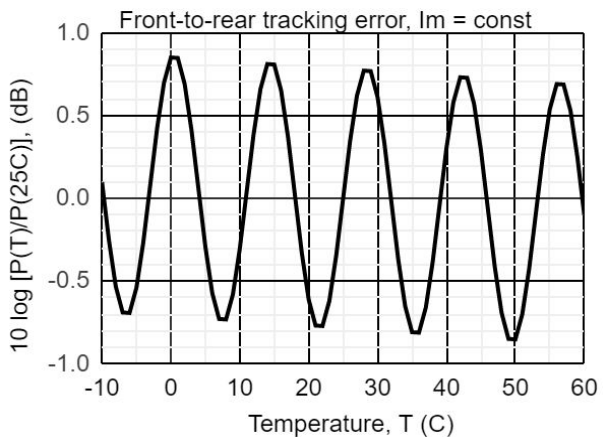
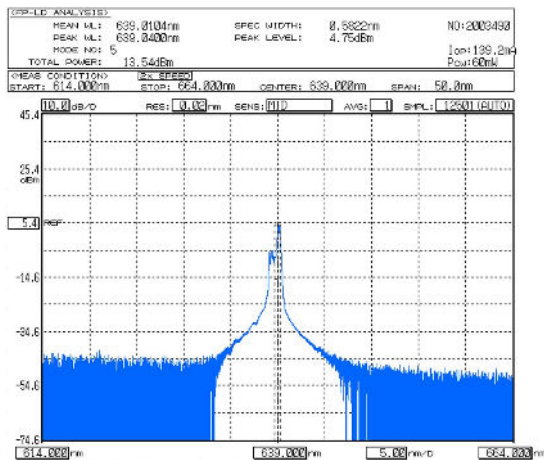
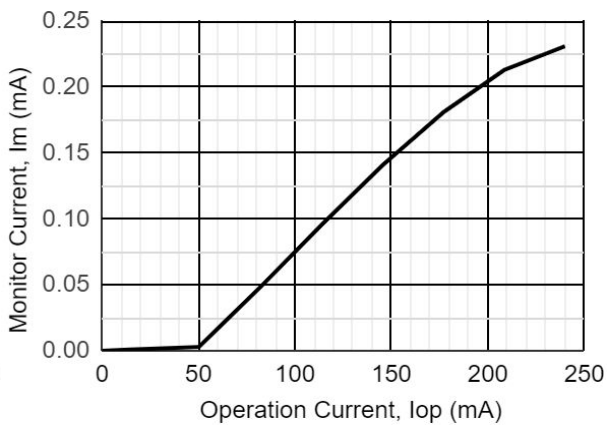
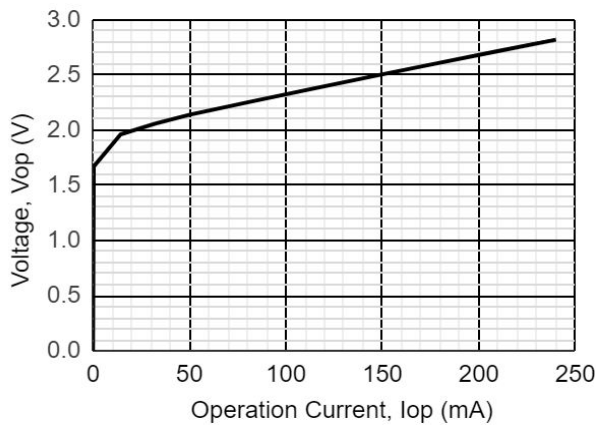
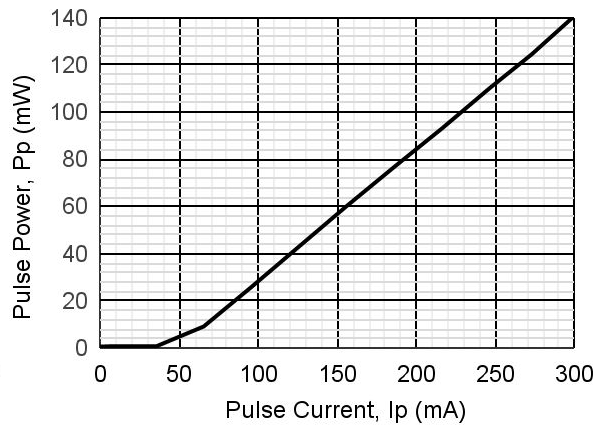
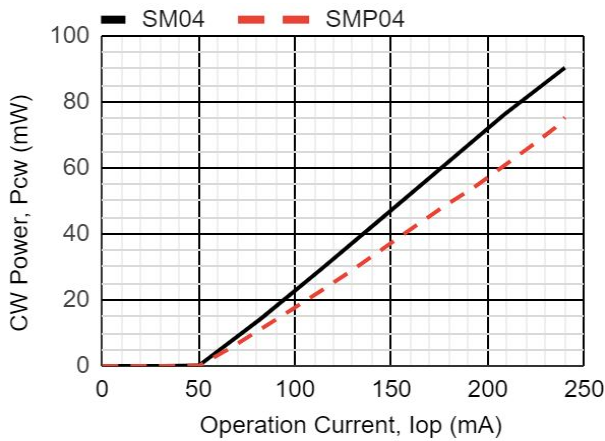
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ELECTRICAL-OPTICAL CHARACTERISTICS (T = 25 °C)

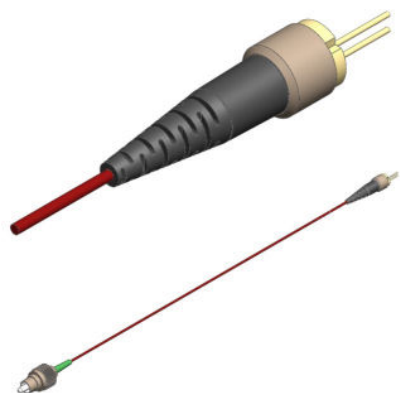
Parameter		MIN	TYP	MAX	Unit	Conditions
Optical power (CW)	P _{cw}	80	90		mW	CW, I _{op} = 240 mA, SM04
		70	80			CW, I _{op} = 240 mA, SMP04
Optical power (pulse)	P _p	120	130		mW	Pulse, I _p = 280 mA, duration 5 us, duty cycle 1%
Mean wavelength	λ	633	639	643	nm	CW, I _{op} = 240 mA
Spectral width	Δλ		1	3	nm	CW, I _{op} = 240 mA
Wavelength-temperature coefficient	dλ/dT		0.17		nm/°C	CW, I _{op} = 240 mA
Threshold current	I _{th}		50	80	mA	
Slope efficiency	S _e	0.42	0.47		mW/mA	CW, SM04
Operating voltage	V _{op}		2.8	3.3	V	CW, I _{op} = 240 mA
Monitor current	I _m	0.2	0.5	1.3	mA	CW, I _{op} = 240 mA, V _r = 5 V
Polarization extinction ratio	PER	17				CW, I _{op} = 240 mA, SMP04
Tracking error	ER		0.8	1.5	dB	CW, I _{op} (25C)=42 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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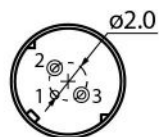


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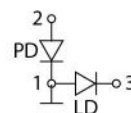
COAX

BACK VIEW

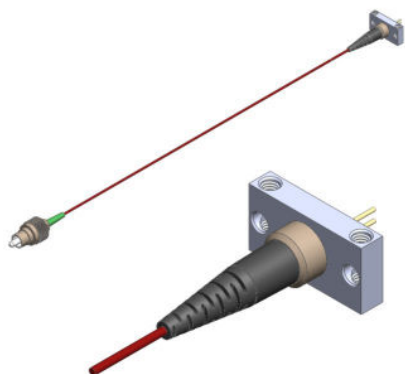
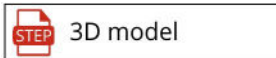
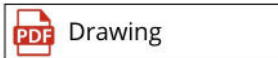


PINOUT

#3

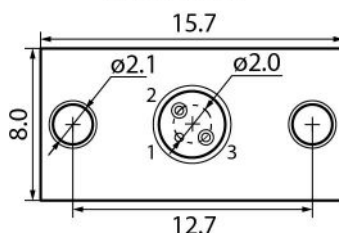


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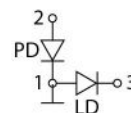
COAXB

BACK VIEW

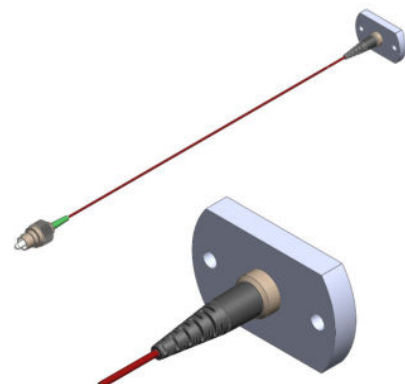
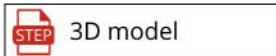
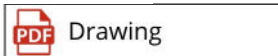


PINOUT

#3

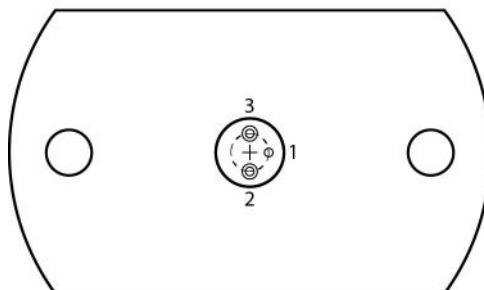


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PACKAGE TH

BACK VIEW



PINOUT

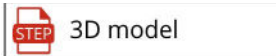
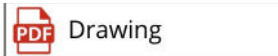
#3

Thorlabs Pin Code A

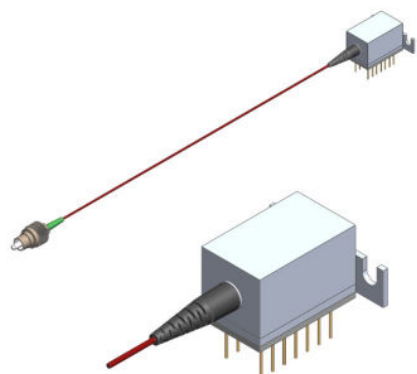


Compatible to Thorlabs LDM9LP mount

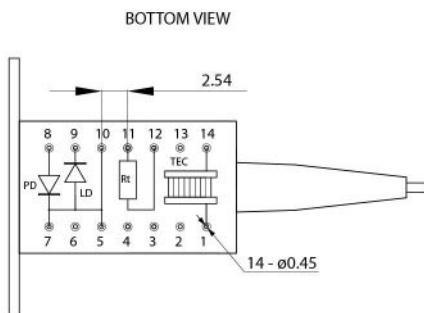
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DIL



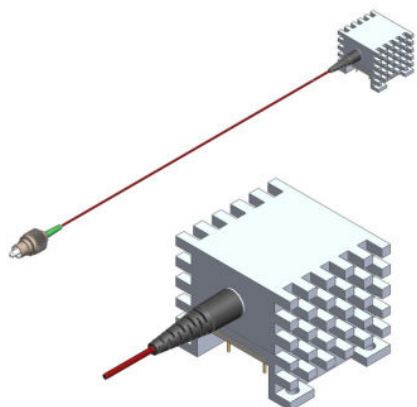
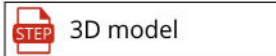
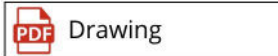
PINOUT #2, #3

- 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

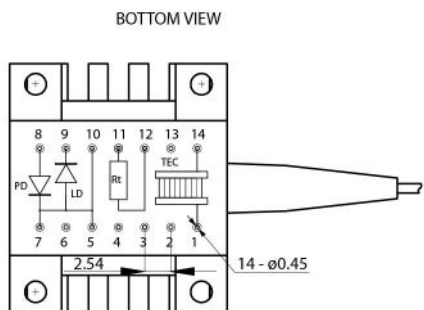
TEC HP: $I_{max} = 1.4A$, $U_{max} = 3.9V$, $Q_{max} = 3.3W$,
AC R = 2.0 Ohm, $\Delta T_{max} = 69K$

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

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DILRAD



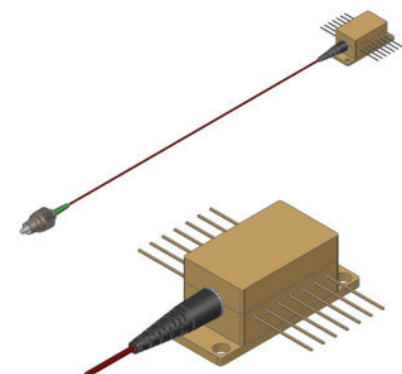
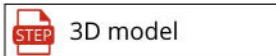
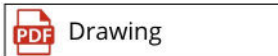
PINOUT #2, #3

- 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

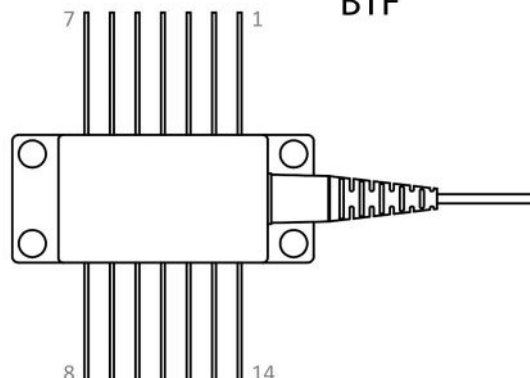
TEC HP: $I_{max} = 1.4A$, $U_{max} = 3.9V$, $Q_{max} = 3.3W$,
AC R = 2.0 Ohm, $\Delta T_{max} = 69K$

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

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BTF

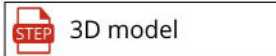
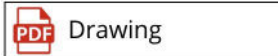


- 1. TEC+
- 2. Thermistor
- 3. NC
- 4. NC
- 5. Thermistor
- 6. NC
- 7. NC
- 8. NC
- 9. NC
- 10 LD/SLD Anode
- 11. LD/SLD Cathode
- 12. NC
- 13. Case Ground
- 14. TEC -

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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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.