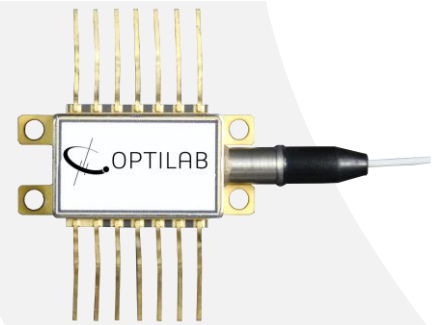




DFB-1550A-PM



DEVICE

DFB Laser Diode, 1550 nm, Up to 60 mW, PM Output

OVERVIEW

The Optilab DFB-1550A-PM is a single frequency laser coupled with Polarization Maintaining fiber at 1550 nm in a standard 14-pin butterfly package. Built with Distributed Feed-Back Grating (DFB) as cavity reflector and Multi-Quantum Well (MQW) as the active layer, it provides a pure, single longitudinal mode, and extremely stable wavelength source up to 60 mW of output optical power with a high Side Mode Suppression Ratio (SMSR). This laser can be used in applications such as a CW seeding the external modulation and coherence interferometry, or directly modulation for signal transmission. The standard 14-pin butterfly package integrates a TEC, a thermistor, a back facet power monitor PD and an output isolator. Mode hop free version available upon request. Contact Optilab for more information.

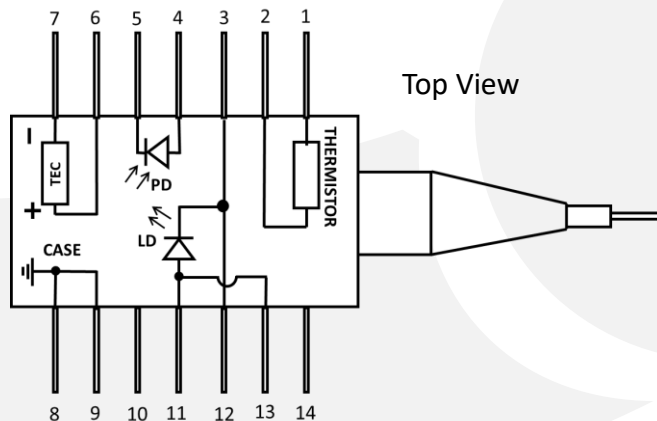
FEATURES

- Polarization maintaining output
- High polarization extinction ratio
- High SMSR
- Up to 60 mW output power
- Low RIN noise
- Built in TEC & Thermistor

USE IN

- Seed Laser for External Modulation
- RF over Fiber (RToF)
- CW Laser Source
- General laboratory and research use

LASER DIODE PINOUT



Pin#	Description	Pin#	Description
1	Thermistor	8	Case GND
2	Thermistor	9	Case GND
3	LD-	10	N.C.
4	PD+	11	LD+
5	PD-	12	LD-
6	TEC+	13	LD+
7	TEC-	14	N.C.





DFB-1550A-PM

ABSOLUTE MAXIMUM RATING ($T_c = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Max	Unit
LD Forward Current	I_f	CW		350	mA
LD Reverse Voltage	V_r			2	V
PD Forward Current	I_{f_PD}			5	mA
PD Reversed Voltage	V_{PD}			10	V
TEC Voltage	V_{TEC}	CW	-4.2	4.2	V
TEC Current	I_{TEC}	CW	-1.8	1.8	A
Operation Case Temperature	T_c		-20	65	$^\circ\text{C}$
Storage Temperature	T_{st}		-40	85	$^\circ\text{C}$
Soldering Time	T_{sld}	$\leq 260\text{ }^\circ\text{C}$		10	sec

GENERAL SPECIFICATIONS ($T_c = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Laser Output Wavelength	λ		1548		1553	nm
Temperature Dependent Wavelength Drift Coefficient	$d\lambda/dT$			95		pm/ $^\circ\text{C}$
Laser Output Power	P_{op}	20 mW Option	20			mW
		30 mW Option	30			mW
		40 mW Option	40			mW
		50 mW Option	50			mW
		60 mW Option	60			mW
LD Forward Current*	I_{op}	P_{op}		250		mA
LD Forward Voltage*	V_f	P_{op}		2.1	2.5	V
LD Series Resistance	R_s			4	7	Ω
Threshold Current	I_{th}			7	15	mA
Monitor Current	I_{PD}	P_{op}	0.1		3	mA
Photodiode Dark Current	I_D			2	100	nA
Side Mode Suppression Ratio	SMSR	P_{op}	40	50		dB
Laser Linewidth	$\Delta\nu$	P_{op}		2	10	MHz
Optical Isolation	ISO		30			dB
Relative Intensity Noise	RIN	20~ 1000 MHz	-145			dB/Hz
Polarization Extinction Ratio	PER	Polarized along slow axis	17	20		dB
TEC Resistance	R_{tec}		1.1	1.6	2.1	Ω
Thermistor Resistance	R_{thm}		9.5	10	10.5	k Ω
Thermistor B Coefficient	B		3850	3950	4050	K

* Refer to the individual laser diode test report for operating parameters.



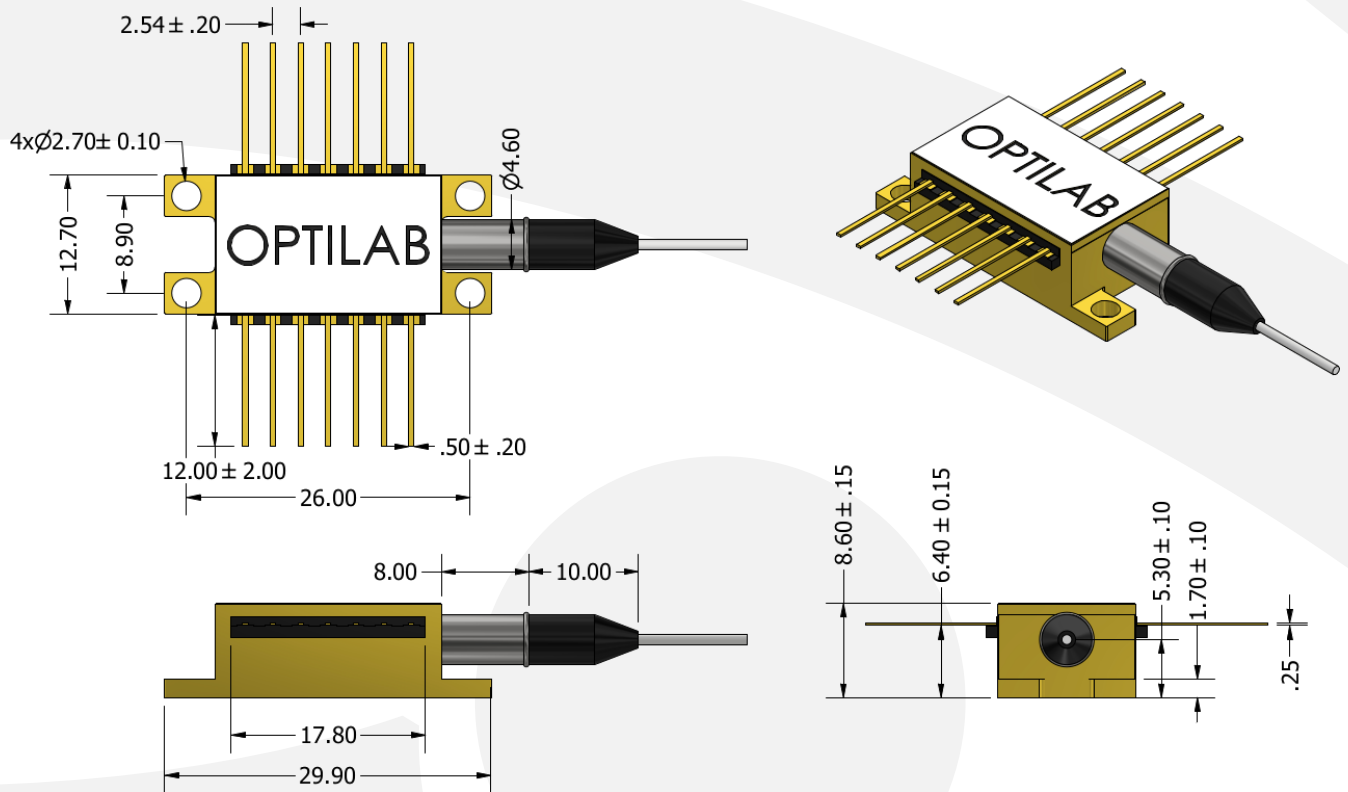


DFB-1550A-PM

FIBER SPECIFICATIONS

Parameter	Note	Min	Typ.	Max	Unit
Optical Connector	Slow axis aligned to Key		FC/APC		
Optical Fiber Type			Panda PM15		
Mode Field Diameter		10	10.5	11	μm
Cladding Diameter		122	125	128	μm
Buffer Diameter		380	400	420	μm
Loose Tube Diameter			900		μm
Fiber Length		0.9	1.2	1.5	m

MECHANICAL DRAWING



ORDERING OPTIONS

DFB-1550A-PM-XX

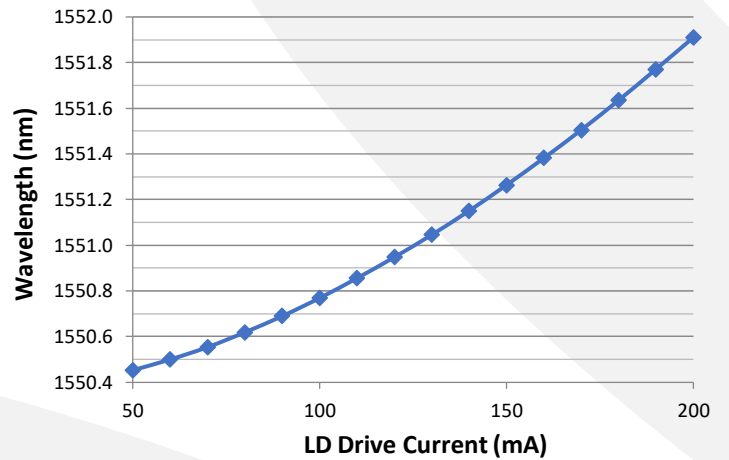
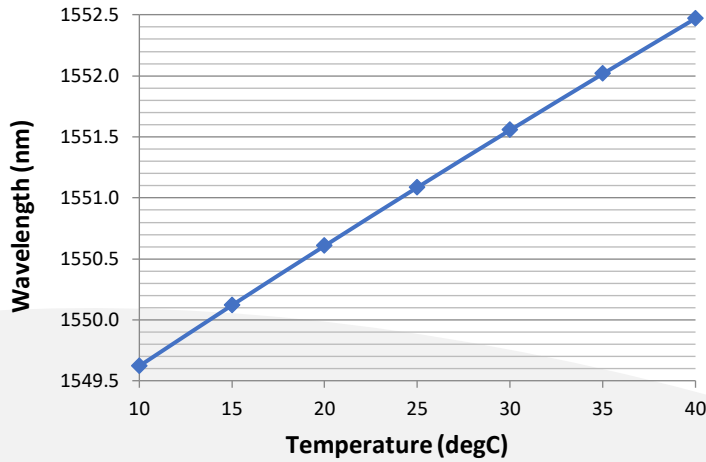
XX: Output Power in mW: 20, 30, 40, 50, 60





DFB-1550A-PM

LASER WAVELENGTH VS TEMPERATURE & LD DRIVER CURRENT



MATCHING LASER DRIVER

• ULDC-XXX-MC



The Optilab Universal Laser Diode Controller (ULDC) is designed to drive DFB-1550A-PM and other 14 pin butterfly laser diodes. It provides a stable and precise current source up to 500 mA in ULDC-500-MC and 1000 mA in ULDC-1000-MC, along with temperature control and monitoring function to the laser.

LASER SAFETY INFORMATION

All Versions of this laser are Class 1M laser product, tested according to IEC 60825-1:2014/EN 60825-1:2014 Single-mode fiber pigtail with FC/APC connectors (standard).

Wavelength = 1.5 μ m. Maximum power = 80 mW.

Because of size constraints, laser safety labeling (including an FDA class 1M label) is not affixed to the module but attached to the outside of the shipping carton.

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.

