

CWDM 1470~1610 nm Band Laser Diode

PD-LD Inc. offers a complete selection of CWDM DFB Lasers for the O+E+S+C+L+B regions. These units are available in ready-to-use, fiber-coupled packages, including FC, ST, and SC receptacles, as well as fiber-pigtailed units.

The InGaAsP laser diodes offered by PD-LD are of proven design and manufacture; the standard wavelengths are centered at 1470, 1490, 1510, 1530, 1550, 1570, 1590 and 1610nm. Fiber-coupled CW (continuous-wavelength) output powers range from 0.1 - 2 mW, depending on the fiber type and desired performance level. Tracking error over OTR -40 to +85C is +/-1.0 dB maximum.

The introduction by leading optical fiber manufacturers of new fiber varieties suited for operations from 1470 to 1610 nm require the use of the complete spectrum of CWDM lasers. Using these new fibers with PD-LD's offering 8 CWDM wavelengths provides 50% more spectrum than previously available. PD-LD's lasers are excellent sources for cost effective coarse wave division multiplexing, using directly modulated lasers and relaxing stringent DWDM filter specifications, which reduce the overall system cost. PD-LD's CWDM lasers are suitable for both digital and analog modulation. The intrinsically fast rise and fall time of 150 psec allow them to be used in digital applications require data rates of 3.125GB/s or in analog schemes which must operate at 3 GHz.



Features

- Internal Monitor Photo Detector
- Compact, reliable receptacle & coax fiber-coupled package
- 0.1 - 2.0 mW singlemode (9/125)
- 30dB minimum side mode suppression
- 0.2nsec typical rise/fall time
- 0.1nm/degree C wavelength stability
- Internal Dual Stage Optical Isolator

The standard lasers are specified for a center wavelength tolerance of +/-3 nm at 25 degrees C. These DFB lasers have a wavelength temperature coefficient of 0.10 nm/degree C.

PD-LD coaxially fiber pigtailed laser diodes are assembled using X-Y-Z active alignment to ensure consistent optical coupling efficiency. Each module is constructed using at least 18 laser weld points so that mechanical stability is precisely maintained. Using this assembly approach guarantees that fiber to chip alignment is constant despite changes in ambient temperature from -40 to +85 C.

Fiber pigtailed modules are available with all industry style connectors: FC, SC, ST, LC in both PC and APC polish. Special connectors are also available upon request.

Optional board- or panel-mount flanges are available for pigtailed devices; contact PD-LD Sales. Also, PD-LD Inc. will package these lasers with optical isolators if desired. Isolation is typically 40 dB at 25C, and 30 dB min over -40 to 85C. PD-LD assemblies are built using an active micro-positioning system and laser welding process ensuring a reliable and well constructed product.

PD-LD offers two popular pin-outs for DFB lasers to address various existing PCB layouts.

[†]Examples only; most device/package combinations available. Changes to specifications may be made without notice. 11-11 CWDM14~16. Rev1

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PD-LD Part No. ¹	Wavelength (nm)			Pin-out	Threshold Current (mA)		Operating Current (mA)		Monitor PD Current (mA)	
	Min.	Typ.	Max.		Typ.	Max.	Typ.	Max.	Min.	Typ.
Continuous Wavelength InGaAsP Lasers @ 25C 1mW . Isolated units have 30dB min. isolation at 25C.										
PL14AC0011FAA-0-1-01	1467	1470	1473	"H"	10	15	40	55	InGaAs 0.1 0.8	
PL14AD0011FAA-0-1-01	1487	1490	1493	"H"	10	15	40	55	InGaAs 0.1 0.8	
PL15BK0011FAA-0-1-01	1507	1510	1513	"H"	10	15	40	55	InGaAs 0.1 0.8	
PL15BL0011FAA-0-1-01	1527	1530	1533	"H"	10	15	40	55	InGaAs 0.1 0.8	
PL15BN0011FAA-0-1-01	1547	1550	1553	"H"	10	15	40	55	InGaAs 0.1 0.8	
PL15BP0011FAA-0-1-01	1567	1570	1573	"H"	10	15	40	55	InGaAs 0.1 0.8	
PL15BQ0011FAA-0-1-01	1587	1590	1593	"H"	10	15	40	55	InGaAs 0.1 0.8	
PL16K0011FAAG-0-1-01	1607	1610	1613	"H"	10	15	40	55	InGaAs 0.1 0.8	

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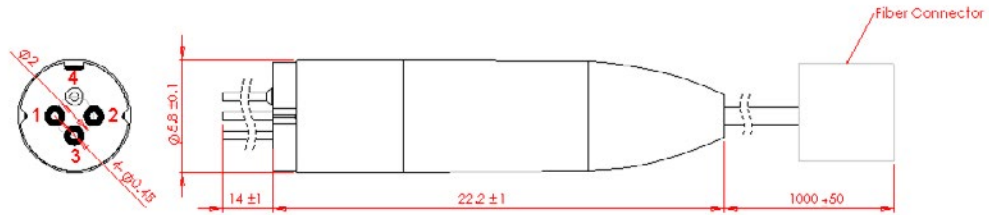
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CWDM DFB Laser Diodes Electrical and Optical Characteristics 25 C 2 mW						
	Symbol	MIN.	TYP.	MAX	Units	Test Condition
Laser Diode						
Power	P _O	1.0	-	-	mW	I _F = I _{OP}
Threshold Current	I _{TH}	-	10	15	mA	25°C
Threshold Current @70C	I _{TH}		20	40	mA	
Operating Current	I _{OP}	-	40	55	mA	I _F = I _{OP}
Differential Efficiency		0.08	0.10		mW/mA	0 to 70°C
Operating Voltage	V _{OP}	-	1.2	1.5	V	I _F = I _{OP}
Peak Wavelength	Lambda	Lambda-3	Lambda	Lambda+3	nm	25°C
Side Mode Suppression, DFB	S _r	33	35	-	dB	CW, P ₀ =2mW
Temp. Coefficient DFB		-	-	<0.1	nm/°C	0 to 70°C
Rise/Fall Time	t _r , t _f	-	0.12	0.15	nsec	10~90%
Monitor Diode						
Output	I _{MD}	0.1	-	-	mA	I _F = I _{OP} , P _O
Dark Current	I _{D(MD)}	-	0.01	0.1	μA	V _{R(MD)} =5V
Capacitance	C _(MD)	-	6	15	pF	V _{R(MD)} =5V, f=1MHz
Tracking Error		-1		+1	dB	APC, 0 to 70°C
Absolute Maximums						
Operating Temp	Top	0		70	°C	
Storage Temp	Tstg	-40		100	°C	
Fiber Output Power	Po Max			3.0	mW	
Forward Current LD	I _f			80	mA	At 70°C
Reverse Voltage LD	V _r			2	V	
Reverse Voltage PD	V _{rp}			15	V	
Forward Current PD	I _{pd}			2	mA	
Lead Soldering Temp	Stemp			260	°C	10 seconds max

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Physical Dimensions (mm) & Pin Connection



Coaxial-Pigtailed Laser Diode Package

Consult PD-LD for Available Board Mount (10181 or 10198) or Panel Mount Brackets (10219)

PIN	H Style Pin-out
1	PD ANODE
2	LD CATHODE
3	PD CATHODE
4	LD ANODE/CASE

Ordering Information

Lasers - Pigtailed

PLWWWPPPFCCB-0-V-LL

L = Laser

WWW=Wavelength and Pin-out

PPP = Fiber-Coupled Power

0.5 = 0.5 mW (500 μ W)

001 = 1.0 mW

002 = 2.0 mW

V = Version

0 = Standard / No Isolator

I = With Single Stage Isolator

F = Fiber Type

1 = 9/125 SMF

B = Bracket Type

A = None

B = Panel Mount

G = Board Mount

O=Orientation Of leads with respect to bracket

0=None

A=Bracket Shipped Loose (pigtailed units only)

Specify orientation as required

LL = Length in meters (01,02,0.5 act.) (pigtailed devices only)

CC = Connector Type

ST = ST/PC

EA = E2000

TA = ST/APC

D4 = D4

SC = SCPC

BC = Biconic

SA=SC/APC

MU style

FC = FC/PC

OO = No Connector

FA = FC/APC

FU = FC/UPC

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