

1480 nm EDFA APPLICATION InGaAsP STRAINED MQW DC-PBH LASER DIODE MODULE

NDL7540PA

FEATURES

- **InGaAsP STRAINED MQW DC-PBH LASER DIODE**
- **HIGH OUTPUT POWER:**
K Rank $P_f = 100$ mW MIN at $I_f = 500$ mA CW
L Rank $P_f = 90$ mW MIN at $I_f = 500$ mA CW
- **INTERNAL OPTICAL ISOLATOR, THERMOELECTRIC COOLER AND InGaAs MONITOR PHOTO DIODE**
- **HERMETICALLY SEALED 14-PIN BUTTERFLY PACKAGE**
- **SINGLE MODE FIBER PIGTAIL**
- **WIDE OPERATING TEMPERATURE:**
 $T_c = -20$ to $+65^\circ\text{C}$

DESCRIPTION

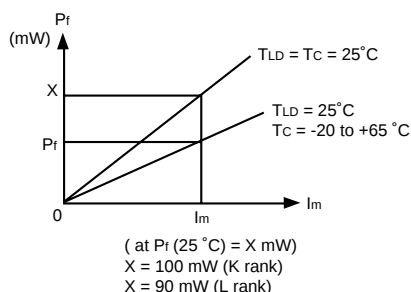
The NDL7540PA is a 1480 nm pumping laser diode module with optical isolator for an EDFA (ER Doped optical Fiber Amplifier) that can expand the transmission span and compensate optical losses. It has a newly developed strained Multiple Quantum Well (st-MQW) DC-PBH laser diode that features high output power, high efficiency and stable fundamental mode.

ELECTRO-OPTICAL CHARACTERISTICS ($T_{LD} = 25^\circ\text{C}$, $T_c = -20$ to $+65^\circ\text{C}$)

PART NUMBER			NDL7540PA		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I_{TH}	Threshold Current	mA		40	100
V_F	Forward Voltage, $I_f = 500$ mA	V		1.8	2.0
P_f	Optical Output Power from Fiber, $I_f = 500$ mA, K Rank $I_f = 500$ mA, L Rank	mW	100 90	110 95	
λ_c	Center Emission Wavelength, $I_f = 500$ mA, RMS (-20 dB)	nm	1460	1480	1490
σ	Spectrum Width, $I_f = 500$ mA, RMS (-20 dB)	nm		4.0	8.0
(Applicable to Monitor PD: $T_{LD} = 25^\circ\text{C}$, $T_c = -20$ to $+65^\circ\text{C}$)					
I_m	Monitor Current, $V_R = 5$ V, $I_f = 500$ mA, K rank $V_R = 5$ V, $I_f = 500$ mA, L rank	μA	100 100	600 500	1000 900
I_D	Monitor Dark Current, $V_R = 5$ V	nA		2.0	10
γ	Tracking Error ¹ , $I_m = \text{const.}$	dB			0.5
(Applicable to Thermistor and TEC: $T_{LD} = 25^\circ\text{C}$, $T_c = -20$ to $+65^\circ\text{C}$)					
R	Thermistor Resistance, $T_{LD} = 25^\circ\text{C}$	k Ω	9.5	10.0	10.5
B	B Constant	K	3300	3400	3500
I_c	Cooler Current, $\Delta T = 40$ K	A		1.0	1.2
V_c	Cooler Voltage, $\Delta T = 40$ K	V		3.5	4.5
ΔT	Cooling Capacity ² , $I_c = 1.2$ A, $I_f = 500$ mA	K	40		

Notes:

1. $\gamma = \left| 10 \log \frac{P_f}{X \text{ mW}} \right|$



2. $\Delta T = |T_c - T_{LD}|$

ABSOLUTE MAXIMUM RATINGS¹

(T_c = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
IF	Forward Current of LD	mA	600
VR	Reverse Voltage of LD	V	2.0
IF	Forward Current of PD	mA	10
VR	Reverse Voltage of PD	V	20
Tc	Operating Case Temperature	°C	-20 to +65
TSTG	Storage Temperature	°C	-40 to +85
TSLD	Lead Soldering Temperature (10 S)	°C	260

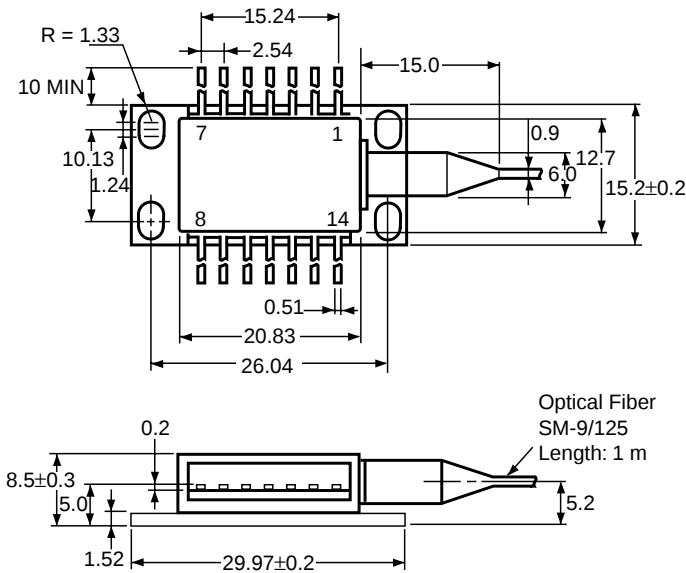
Note:

1. Operation in excess of any one of these parameters may result in permanent damage.

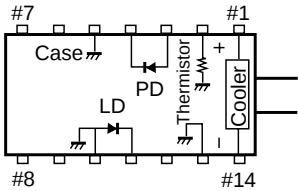
ORDERING INFORMATION

PART NUMBER	RANK	AVAILABLE CONNECTOR	DESCRIPTION
NDL7540PA	K L	Without Connector	P _f = 100 mW MIN P _r = 90 mW MIN
NDL7540PAC	K L	With FC-PC Connector	P _f = 100 mW MIN P _r = 90 mW MIN
NDL7540PAD	K L	With SC-PC Connector	P _f = 100 mW MIN P _r = 90 mW MIN

OUTLINE DIMENSIONS (Units in mm)



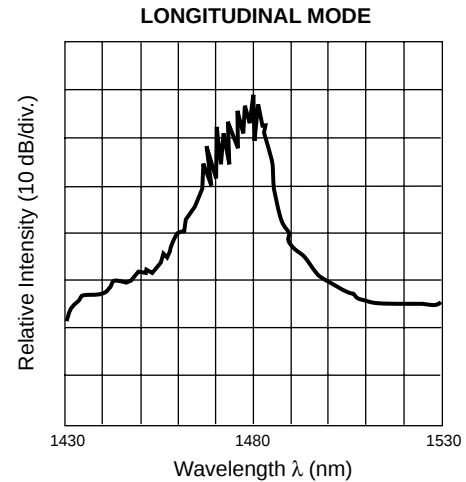
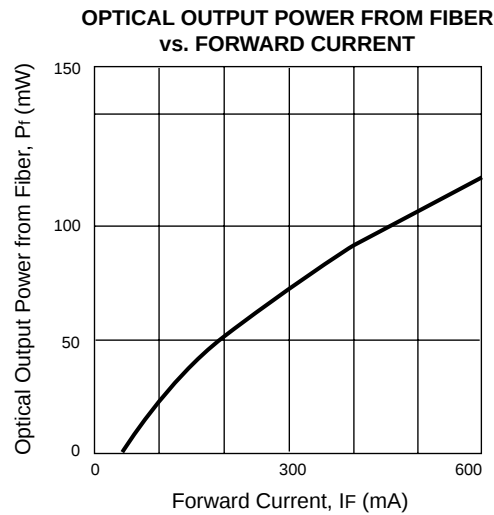
TOP VIEW



PIN CONNECTIONS

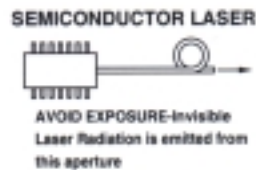
Pin No.	Function	Pin No.	Function
1	Cooler Anode	8	NC
2	Thermistor	9	NC
3	PD Anode	10	LD Anode
4	PD Cathode		Case Ground
5	Case Ground	11	LD Cathode
6	NC	12	NC
7	NC	13	Case Ground
		14	Cooler Cathode

TYPICAL PERFORMANCE CURVES ($T_C = 25^\circ\text{C}$, unless otherwise specified)



CAUTION

This device contains GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Do not under any circumstances break the seal.



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