

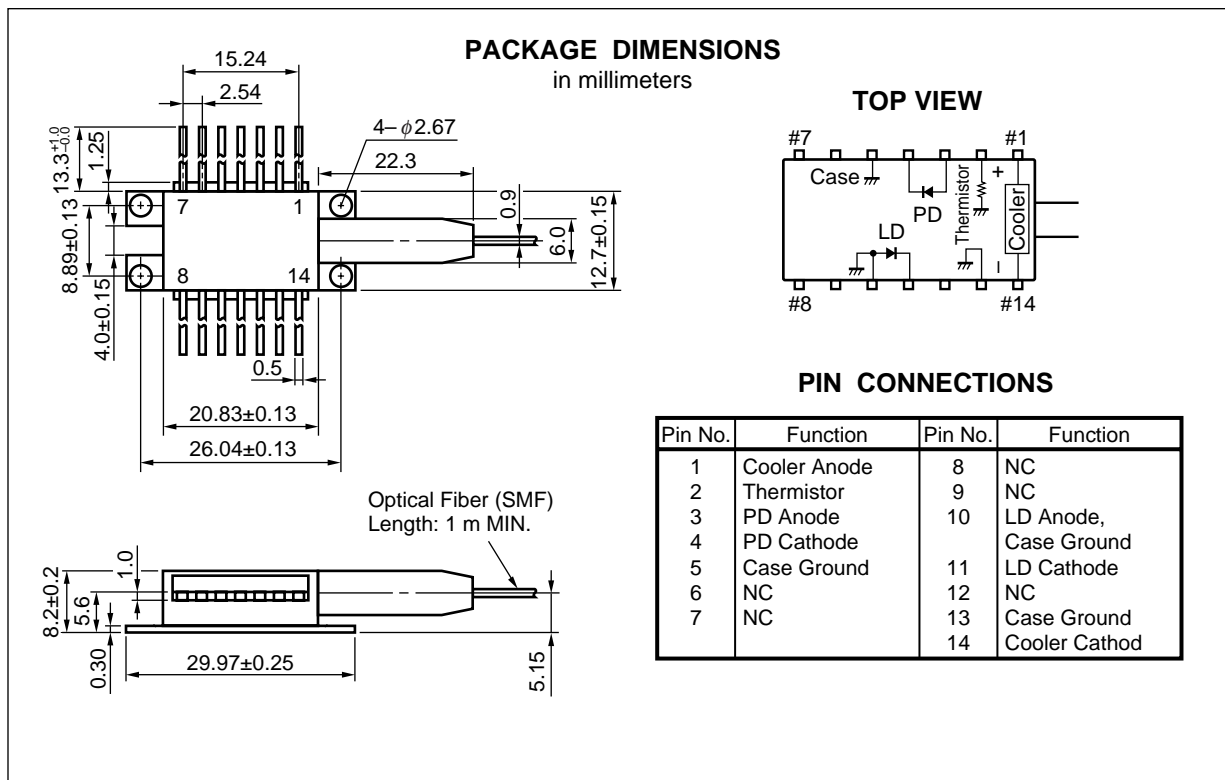
1 480 nm EDFA APPLICATION
InGaAsP STRAINED MQW DC-PBH LASER DIODE MODULE

DESCRIPTION

The NX7460LE is a 1 480 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 strained Multiple Quantum Well (st-MQW) DC-PBH laser diode that features high output power, high efficiency, and stable fundamental mode.

FEATURES

- InGaAsP strained MQW DC-PBH laser diode
- ★ • High output power $P_r = 120 \text{ mW MIN. @ } I_f = 550 \text{ mA CW}$
- Internal optical isolator, thermoelectric cooler and InGaAs monitor photo diode
- Hermetically sealed 14-pin butterfly package
- Single mode fiber pigtail
- ★ • Wide operating temperature range $T_c = 0 \text{ to } +65 \text{ }^\circ\text{C}$



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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

ORDERING INFORMATION

Part Number	Available Connector
NX7460LE	Without Connector
NX7460LE-BA	With FC-PC Connector
NX7460LE-CA	With SC-PC Connector

ABSOLUTE MAXIMUM RATINGS (T_c = 25 °C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Forward Current of LD	I _F	700	mA
Reverse Voltage of LD	V _R	2.0	V
Forward Current of PD	I _F	10	mA
Reverse Voltage of PD	V _R	20	V
Operating Case Temperature	T _c	-20 to +65	°C
Storage Temperature	T _{stg}	-40 to +85	°C
Lead Soldering Temperature (10 s)	T _{slid}	260	°C

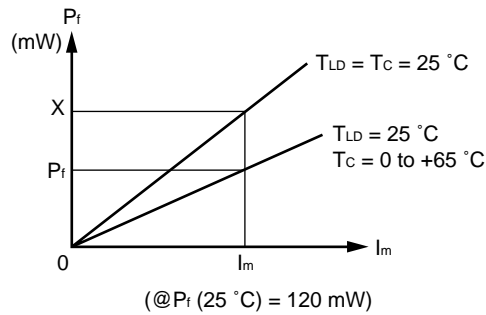
★ **ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = 25 °C, T_c = 0 to +65 °C)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Threshold Current	I _{th}	CW		25	35	mA
Forward Voltage	V _F	I _F = 550 mA		2.2	2.7	V
Optical Output Power from Fiber	P _f	I _F = 550 mA	120	140		mW
Center Wavelength	λ _c	I _F = 550 mA, RMS (-20 dB)	1 470	1 480	1 490	nm
Spectrum Width	σ	I _F = 550 mA, RMS (-20 dB)		4.0	8.0	nm
Isolation	I _s	1 470 nm to 1 490 nm	20			dB

★ **ELECTRO-OPTICAL CHARACTERISTICS**
 (Applicable to Monitor PD: T_{LD} = 25 °C, T_c = 0 to +65 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Monitor Current	I _m	V _R = 5 V, I _F = 550 mA	500	1 000	1 500	μA
Monitor Dark Current	I _d	V _R = 5 V		2.0	10	nA
Tracking Error	γ ⁻¹	I _m = const.			0.5	dB

$$*1 \gamma = \left| 10 \log \frac{P_f}{120 \text{ mW}} \right|$$



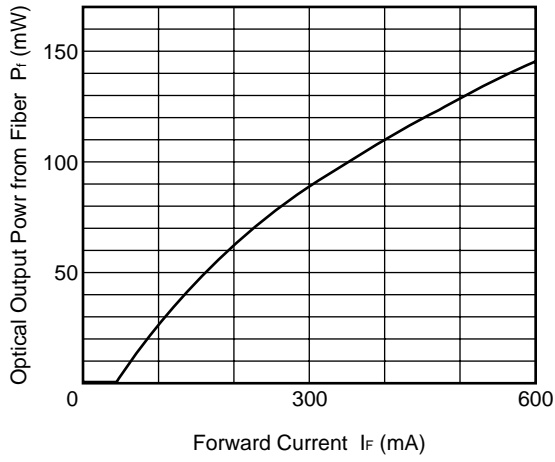
★ **ELECTRO-OPTICAL CHARACTERISTICS**
 (Applicable to Thermistor and TEC: T_{LD} = 25 °C, T_c = 0 to +65 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R	T _{LD} = 25 °C	9.5	10.0	10.5	kΩ
B Constant	B		3 300	3 400	3 500	K
Cooler Current	I _c	ΔT = 40 K		1.0	1.25	A
Cooler Voltage	V _c	ΔT = 40 K		3.5	4.3	V
Cooling Capacity	ΔT ⁻¹	I _c = 1.25 A, I _F = 660 mA	40			K

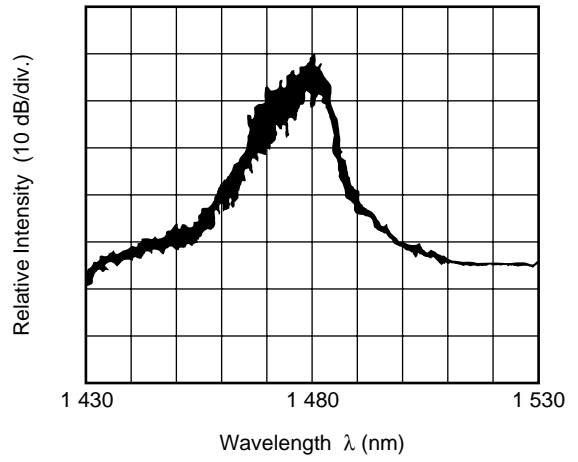
$$*1 \Delta T = |T_c - T_{LD}|$$

TYPICAL CHARACTERISTICS (T_c = 25 °C)

OPTICAL OUTPUT POWER FROM FIBER vs. FORWARD CURRENT



LONGITUDINAL MODE



Remark The graphs indicate nominal characteristics.

LD FAMILY FOR DENSE WDM APPLICATION

Part Number	Absolute Maximum Ratings		Typical Characteristics			Description	Package
	T _c (°C)	T _{stg} (°C)	I _{th} (mA)	P _r (mW)	λ _c (nm)		
			TYP.	MIN.	TYP.		
NDL7540PA	-20 to +65	-40 to +85	40	90	1 480	1 480 nm pump LD module	BFY
★ NX7460LE	0 to +65	-40 to +85	25	120	1 480	1 480 nm pump LD module	BFY
NX8501 Series	0 to +65	-40 to +85	20	2	1 510	Telemetry	Coaxial
NX8561JD ^{*1}	0 to +65	-40 to +85	20	3	1 510	Telemetry	DIP
NX7660JC ^{*1}	-20 to +65	-40 to +85	15	5	1 625	Telemetry	DIP
NDL7910P	-20 to +70	-40 to +85	7	0.5	1 550 ^{*2}	2.5 G EA modulator integrated module	BFY
NX8562LB	-20 to +65	-40 to +85	20	20	1 550 ^{*2}	1 550 CW LD module	BFY
NX8563LB	-20 to +65	-40 to +85	20	10	ITU-T ^{*3}	1 550 CW LD module	BFY

*1 Under development

*2 Wavelength selectable for ITU-T standards upon request

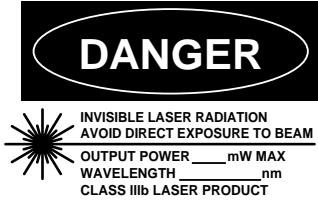
*3 Wavelength selectable for ITU-T standards

REFERENCE

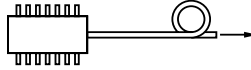
	Document Name	Document No.
	NEC semiconductor device reliability/quality control system	C11159E
	Quality grades on NEC semiconductor devices	C11531E
	Semiconductor device mounting technology manual	C10535E
★	SEMICONDUCTOR SELECTION GUIDE Products & Packages (CD-ROM)	X13769X

CAUTION

Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstances break the hermetic seal.



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
Laser Radiation is emitted from
this aperture

NEC Corporation
NEC Building, 7-1, Shiba 5-chome,
Minato-ku, Tokyo 108-01, Japan

Type number: _____
Manufactured: _____
Serial Number: _____

This product conforms to FDA
regulations as applicable
to standards 21 CFR Chapter 1.
Subchapter J.

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