

DATA SHEET

NEC

LASER DIODE NX8562LB

1 550 nm CW LIGHT SOURCE InGaAsP STRAINED MQW-DFB LASER DIODE MODULE

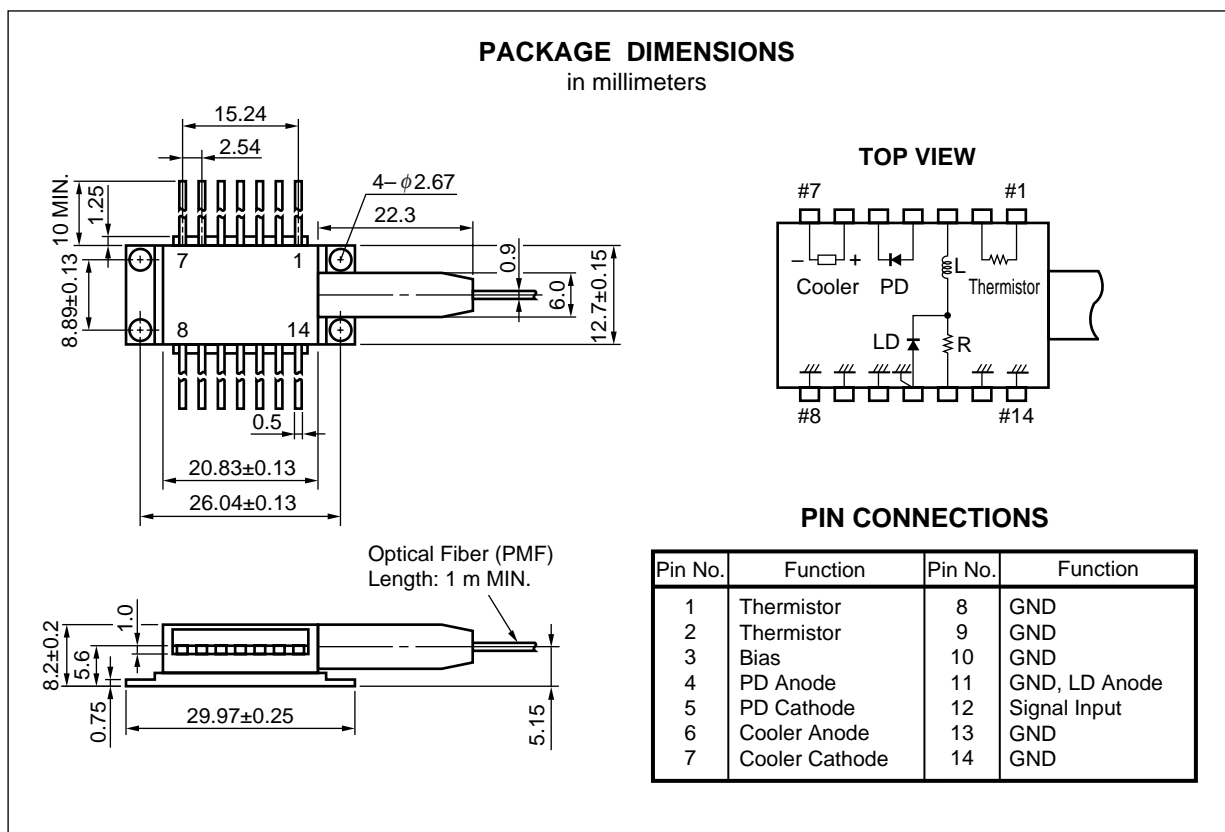
DESCRIPTION

The NX8562LB is a 1 550 nm laser diode with Polarization Maintain Fiber (PMF).

This device is designed as CW light source and ideal for transmission systems in which external modulators are used.

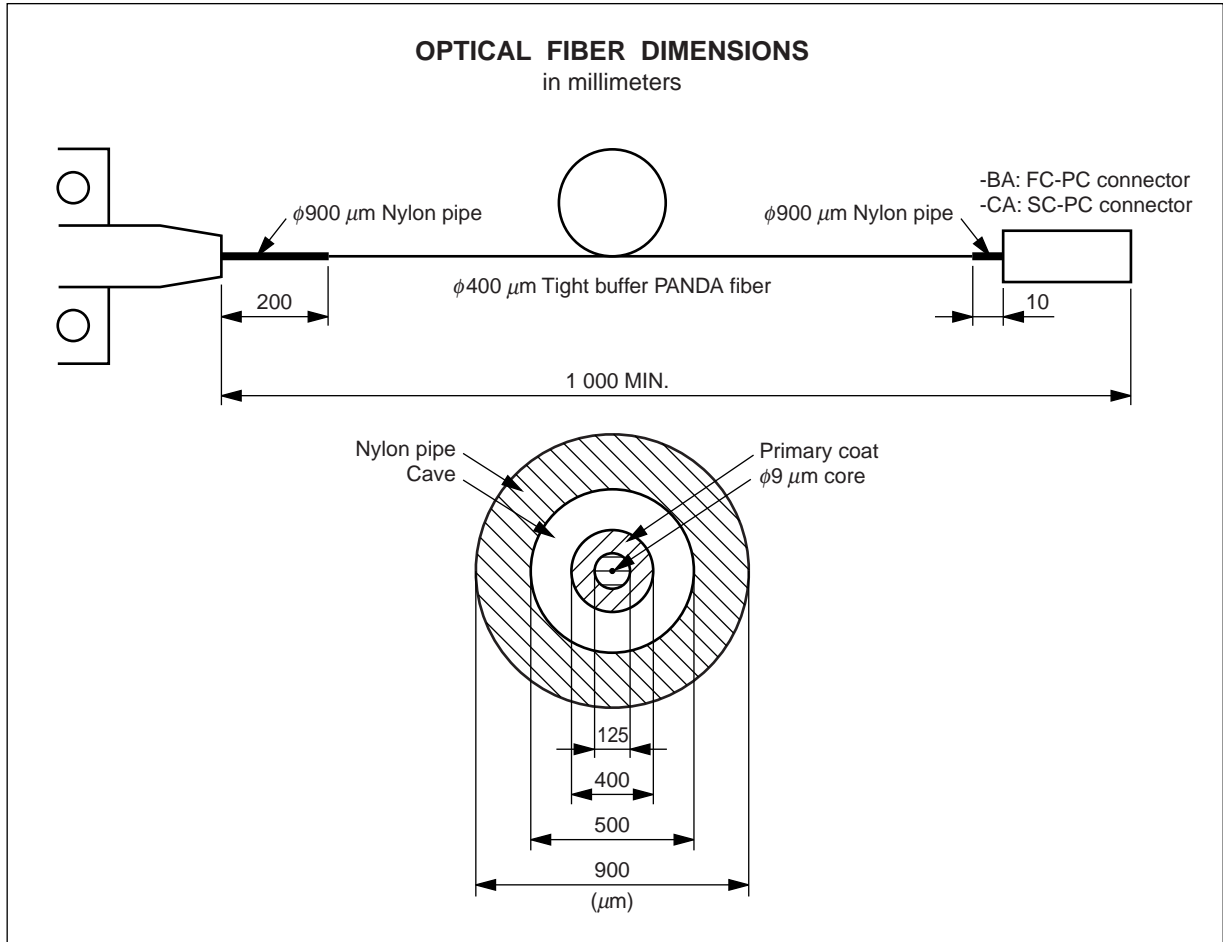
FEATURES

- Output power $P_f = 20 \text{ mW MIN.}$
- Wavelength selectable for ITU-T standards
- Internal thermo-electric cooler and isolator
- Hermetically sealed 14-pin butterfly package
- Polarization maintain fiber pigtail



The information in this document is subject to change without notice.

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ORDERING INFORMATION

Part Number	Available Connector
NX8562LB	Without Connector
NX8562LB-BA	With FC-PC Connector
NX8562LB-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	300	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 = -20 to +65 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Laser Set Temperature	T _{set}		20		35	°C
Forward Voltage	V _F	P _f = 20 mW	0.9		1.5	V
Threshold Current	I _{th}			20	40	mA
Optical Output Power from Fiber	P _f	I _F = 167 mA, T _{LD} = T _{set}	20			mW
Threshold Output Power from Fiber	P _{th}	I _F = I _{th}			100	μW
Quantum Efficiency	η		0.13			W/A
Peak Emission Wavelength ^{*1}	λ _p	P _f = 20 mW, CW, T _{LD} = T _{set}	1 540		1 561	nm
Spectral Line Width	Δν	P _f = 20 mW, CW, 3 dB down		1	2	MHz
Side Mode Suppression Ratio	SMSR	P _f = 20 mW, CW	30	35		dB
FM Response	η _{FM}	P _f = 20 mW	50	70		MHz/mA
Relative Intensity Noise	RIN	P _f = 20 mW, 20 MHz to 3 GHz			-150	dB/Hz
Flat frequency response	f _m	P _f = 20 mW, +/-3 dB	1.8			GHz
Polarization Extinction Ratio ^{*2}	ext	P _f = 20 mW, CW	15	20		dB

*1 Wavelength selectable for ITU-T standards.

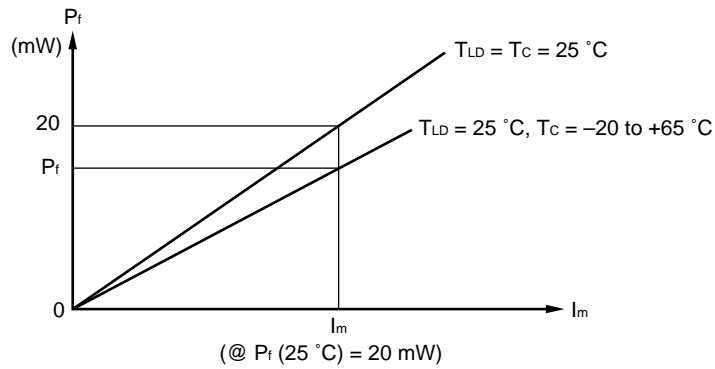
*2 Polarization state of LD is aligned parallel to the slow axis.

ELECTRO-OPTICAL CHARACTERISTICS

(Applicable to Monitor PD: $T_{LD} = 25\text{ °C}$, $T_c = -20\text{ to }+65\text{ °C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Monitor Current	I_m	$P_f = 20\text{ mW}$, $V_R = 5\text{ V}$	100			μA
Dark Current	I_D	$V_R = 5\text{ V}$		2	10	nA
Tracking Error	γ^{*1}	$I_m = \text{const.}$			0.5	dB

$$*1 \gamma = \left| 10 \log \frac{P_f}{20\text{ mW}} \right|$$



ELECTRO-OPTICAL CHARACTERISTICS

(Applicable to Thermistor and TEC: $T_{LD} = 25\text{ °C}$, $T_c = -20\text{ to }+65\text{ °C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R	$T_{LD} = 25\text{ °C}$	9.5	10.0	10.5	$k\Omega$
B Constant	B		3 300	3 400	3 500	K
Cooler Current	I_c	$\Delta T = 65 - T_{set}$, $P_f = 20\text{ mW}$			1.0	A
Cooler Voltage	V_c	$\Delta T = 65 - T_{set}$, $P_f = 20\text{ mW}$			2.0	V

DFB-LD FAMILY FOR TELECOM

Part Number	Absolute Maximum Ratings		Typical Characteristics			SDH Application	Package
	T _c (°C)	T _{stg} (°C)	I _{th} (mA)	P _r (mW)	λ _p (nm)		
			TYP.	MIN.	TYP.		
NDL7603P Series	-40 to +85	-40 to +85	15	2	1 310	≤ STM-4 : 622 Mb/s	Coaxial
NDL7620P Series	0 to +70	-40 to +85	45 (MAX.)	2	1 310	≤ STM-16: 2.5 Gb/s	Coaxial
NDL7701P Series	-20 to +85	-40 to +85	15	2	1 550	≤ STM-4 : 622 Mb/s	Coaxial
NDL7705P Series	-40 to +85	-40 to +85	15	2	1 550	≤ STM-4 : 622 Mb/s	Coaxial
NX8562LB	-20 to +65	-40 to +85	20	20	1 550 ^{*1}	CW Light Source for external modulator	BFY
NX8563LB Series	-20 to +65	-40 to +85	20	10	ITU-T ^{*2}	CW Light Source for external modulator	BFY
NDL7910P	-20 to +70	-40 to +85	7	0.5	1 550 ^{*1}	≤ STM-16: 2.5 Gb/s EA modulator integrated DFB-LD	BFY

*1 Wavelength selectable for ITU-T standards upon request.

*2 Wavelength selectable for ITU-T standards.

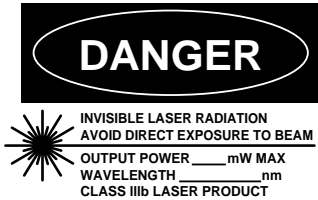
REFERENCE

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	X10679E

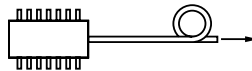
[MEMO]

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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Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.