

1550 nm InGaAsP MQW-DFB LASER DIODE MODULE CW LIGHT SOURCE FOR DWDM APPLICATIONS

NX8563LB

FEATURES

- **OUTPUT POWER:**
P_f = 10 mW MIN
- **INTERNAL THERMOELECTRIC COOLER AND ISOLATOR**
- **HERMETICALLY SEALED 14-PIN BUTTERFLY PACKAGE**
- **POLARIZATION MAINTAIN FIBER PIGTAIL**
- **AVAILABLE FOR DWDM WAVELENGTHS BASED ON ITU-T RECOMMENDATIONS (100 GHz GRID) REFER TO THE ORDERING INFORMATION**

DESCRIPTION

The NX8563LB is a 1550 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with Polarization Maintain Fiber (PMF). This device is designed as Continuous Wave (CW) light source and ideal for optical transmission systems in which external modulators are used.

This device is available for Dense Wavelength Division Multiplexing (DWDM) wave lengths based on ITU-T recommendations, enabling a wide range of applications.

ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = 25°C, T_c = -20 to +65°C)

PART NUMBER			NX8563LB		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
T _{SET}	Laser Set Temperature	°C	20		35
V _F	Forward Voltage, P _f = 10 mW	V	0.9		1.5
I _{TH}	Threshold Current	mA		20	40
P _f	Optical Output from Fiber, I _F = 167 mA, T _{LD} = T _{SET}	mW	10		
P _{th}	Threshold Output Power from Fiber, I _F = I _{th}	μW			100
η	Quantum Efficiency	W/A	0.08	0.1	
λ _p	Peak Emission Wavelength, P _f = 10 mW, CW, T _{LD} = T _{SET}	nm	1527.6	Specified to ITU-T ¹	1565.6
Δν	Spectral Line Width, P _f = 10 mW, CW, 3 dB down	MHz		1	2
SMSR	Side Mode Suppression Ratio, P _f = 10 mW, CW	dB	30	35	
η _{FM}	FM Response, P _f = 10 mW	MHz/mA	50	70	
R _{IN}	Relative Intensity Noise, 20 MHz to 3 GHz	dB/Hz			-150
f _m	Flat Frequency Response, P _f = 10 mW, +/-3 dB	GHz	1.8		
ext	Polarization Extinction Ratio ² , P _f = 10 mW, CW	dB	15	20	

Notes:

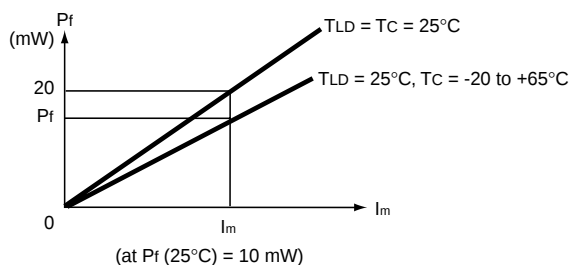
1. Available for DWDM wavelengths based on ITU-T recommendation. Please refer to ORDERING INFORMATION.
2. Polarization state of LD is aligned parallel to the slow axis.

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

PART NUMBER			NX8563LB		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I_m	Monitor Current, $P_f = 10$ mW, $V_R = 5$ V	μA	100		2000
I_D	Dark Current, $V_R = 5$ V	nA		2	10
γ^1	Tracking Error, $I_m = \text{const.}$	dB			0.5

Note:

$$1. \gamma = 10 \log \frac{P_f}{10 \text{ mW}}$$

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

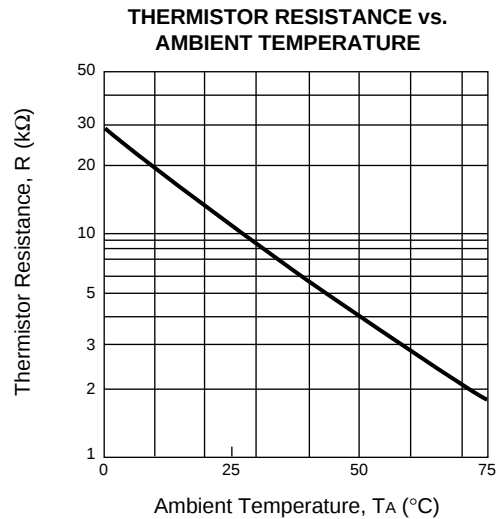
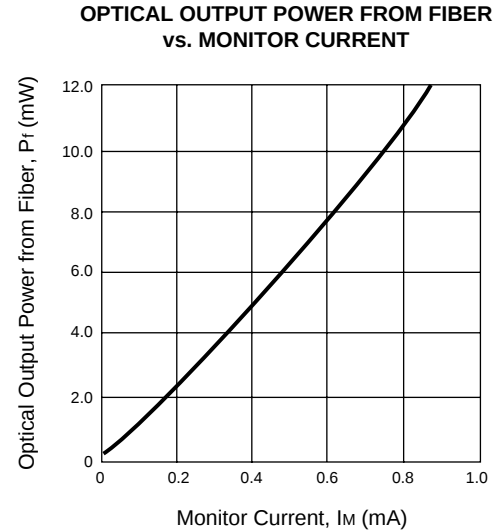
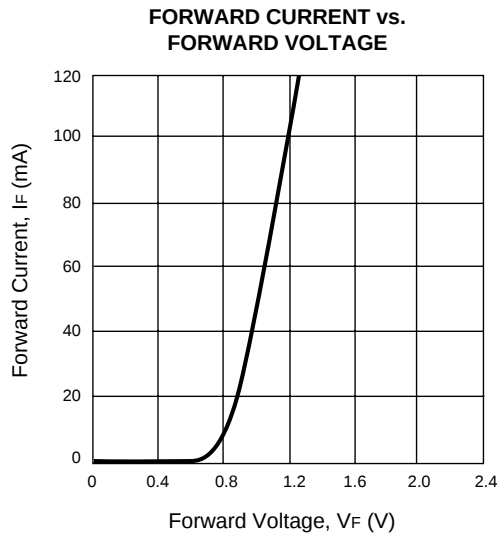
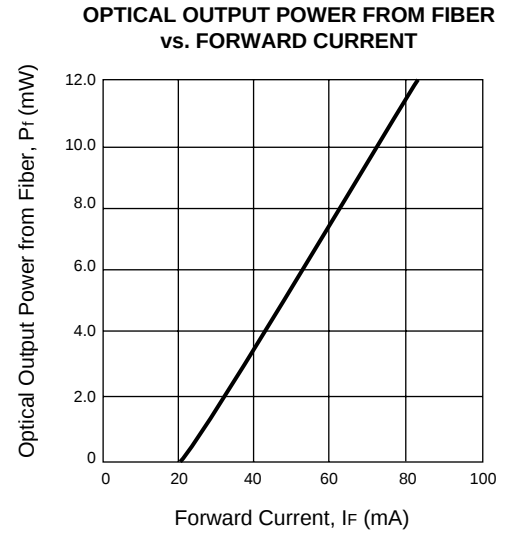
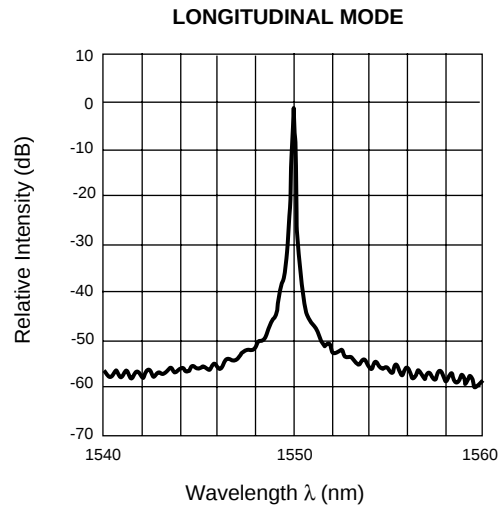
PART NUMBER			NX8563LB		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
R	Thermistor Resistance, $T_{LD} = 25^{\circ}\text{C}$	k Ω	9.5	10.0	10.5
B	B Constant	K	3350	3450	3550
I_c	Cooler Current, $\Delta T = 65 - T_{\text{set}}$, $P_f = 10$ mW	A			1
V_c	Cooler Voltage, $\Delta T = 65 - T_{\text{set}}$, $P_f = 10$ mW	V			2

ABSOLUTE MAXIMUM RATINGS¹(T_c = 25°C, unless otherwise specified)

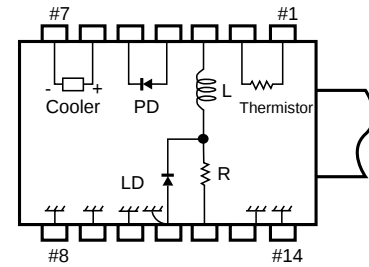
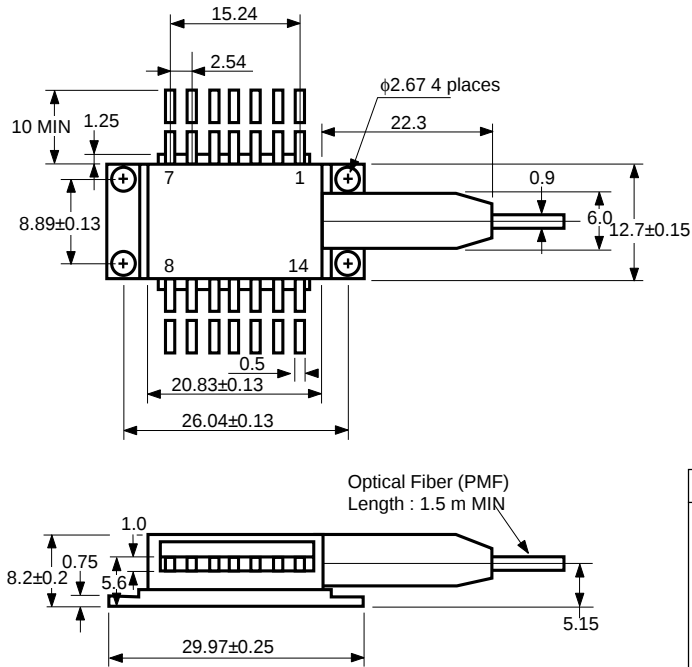
SYMBOLS	PARAMETERS	UNITS	RATINGS
I_F	Forward Current of LD	mA	300
V_R	Reverse Voltage of LD	V	2.0
I_F	Forward Current of PD	mA	10
V_R	Reverse Voltage of PD	V	20
T_c	Operating Case Temperature	$^{\circ}\text{C}$	-20 to +65
T_{STG}	Storage Temperature	$^{\circ}\text{C}$	-40 to +85
T_{SLD}	Lead Soldering Temperature (10 s)	$^{\circ}\text{C}$	260

Note:

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

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

OUTLINE DIMENSIONS (Units in mm)



PIN CONNECTIONS

PIN No.	FUNCTION	PIN No.	FUNCTION
1	THERMISTOR	8	GND
2	THERMISTOR	9	GND
3	BIAS	10	GND
4	PD ANODE	11	GND, LD ANODE
5	PD CATHODE	12	SIGNAL INPUT
6	COOLER ANODE	13	GND
7	COOLER CATHODE	14	GND

ORDERING INFORMATION

Without Connector	Part Number	With FC-PC Connector	With SC-PC Connector	ITU-T Wavelength (nm)	Frequency (THz)
NX8563LB279	NX8563LB279-BA	NX8563LB279-CA	NX8563LB279-CA	1527.99	196.20
NX8563LB287	NX8563LB287-BA	NX8563LB287-CA	NX8563LB287-CA	1528.77	196.10
NX8563LB295	NX8563LB295-BA	NX8563LB295-CA	NX8563LB295-CA	1529.55	196.00
NX8563LB303	NX8563LB303-BA	NX8563LB303-CA	NX8563LB303-CA	1530.33	195.90
NX8563LB311	NX8563LB311-BA	NX8563LB311-CA	NX8563LB311-CA	1531.11	195.80
NX8563LB318	NX8563LB318-BA	NX8563LB318-CA	NX8563LB318-CA	1531.89	195.70
NX8563LB326	NX8563LB326-BA	NX8563LB326-CA	NX8563LB326-CA	1532.68	195.60
NX8563LB334	NX8563LB334-BA	NX8563LB334-CA	NX8563LB334-CA	1533.46	195.50
NX8563LB342	NX8563LB342-BA	NX8563LB342-CA	NX8563LB342-CA	1534.25	195.40
NX8563LB350	NX8563LB350-BA	NX8563LB350-CA	NX8563LB350-CA	1535.03	195.30
NX8563LB358	NX8563LB358-BA	NX8563LB358-CA	NX8563LB358-CA	1535.82	195.20
NX8563LB366	NX8563LB366-BA	NX8563LB366-CA	NX8563LB366-CA	1536.60	195.10
NX8563LB373	NX8563LB373-BA	NX8563LB373-CA	NX8563LB373-CA	1537.39	195.00
NX8563LB381	NX8563LB381-BA	NX8563LB381-CA	NX8563LB381-CA	1538.18	194.90
NX8563LB389	NX8563LB389-BA	NX8563LB389-CA	NX8563LB389-CA	1538.97	194.80
NX8563LB397	NX8563LB397-BA	NX8563LB397-CA	NX8563LB397-CA	1539.76	194.70
NX8563LB405	NX8563LB405-BA	NX8563LB405-CA	NX8563LB405-CA	1540.55	194.60
NX8563LB413	NX8563LB413-BA	NX8563LB413-CA	NX8563LB413-CA	1541.34	194.50
NX8563LB421	NX8563LB421-BA	NX8563LB421-CA	NX8563LB421-CA	1542.14	194.40
NX8563LB429	NX8563LB429-BA	NX8563LB429-CA	NX8563LB429-CA	1542.93	194.30
NX8563LB437	NX8563LB437-BA	NX8563LB437-CA	NX8563LB437-CA	1543.73	194.20
NX8563LB445	NX8563LB445-BA	NX8563LB445-CA	NX8563LB445-CA	1544.52	194.10
NX8563LB453	NX8563LB453-BA	NX8563LB453-CA	NX8563LB453-CA	1545.32	194.00
NX8563LB461	NX8563LB461-BA	NX8563LB461-CA	NX8563LB461-CA	1546.11	193.90
NX8563LB469	NX8563LB469-BA	NX8563LB469-CA	NX8563LB469-CA	1546.91	193.80
NX8563LB477	NX8563LB477-BA	NX8563LB477-CA	NX8563LB477-CA	1547.71	193.70
NX8563LB485	NX8563LB485-BA	NX8563LB485-CA	NX8563LB485-CA	1548.51	193.60
NX8563LB493	NX8563LB493-BA	NX8563LB493-CA	NX8563LB493-CA	1549.31	193.50
NX8563LB501	NX8563LB501-BA	NX8563LB501-CA	NX8563LB501-CA	1550.11	193.40
NX8563LB509	NX8563LB509-BA	NX8563LB509-CA	NX8563LB509-CA	1550.91	193.30

Note:

1. The Value which omitted and computed the 3rd place below the decimal point.

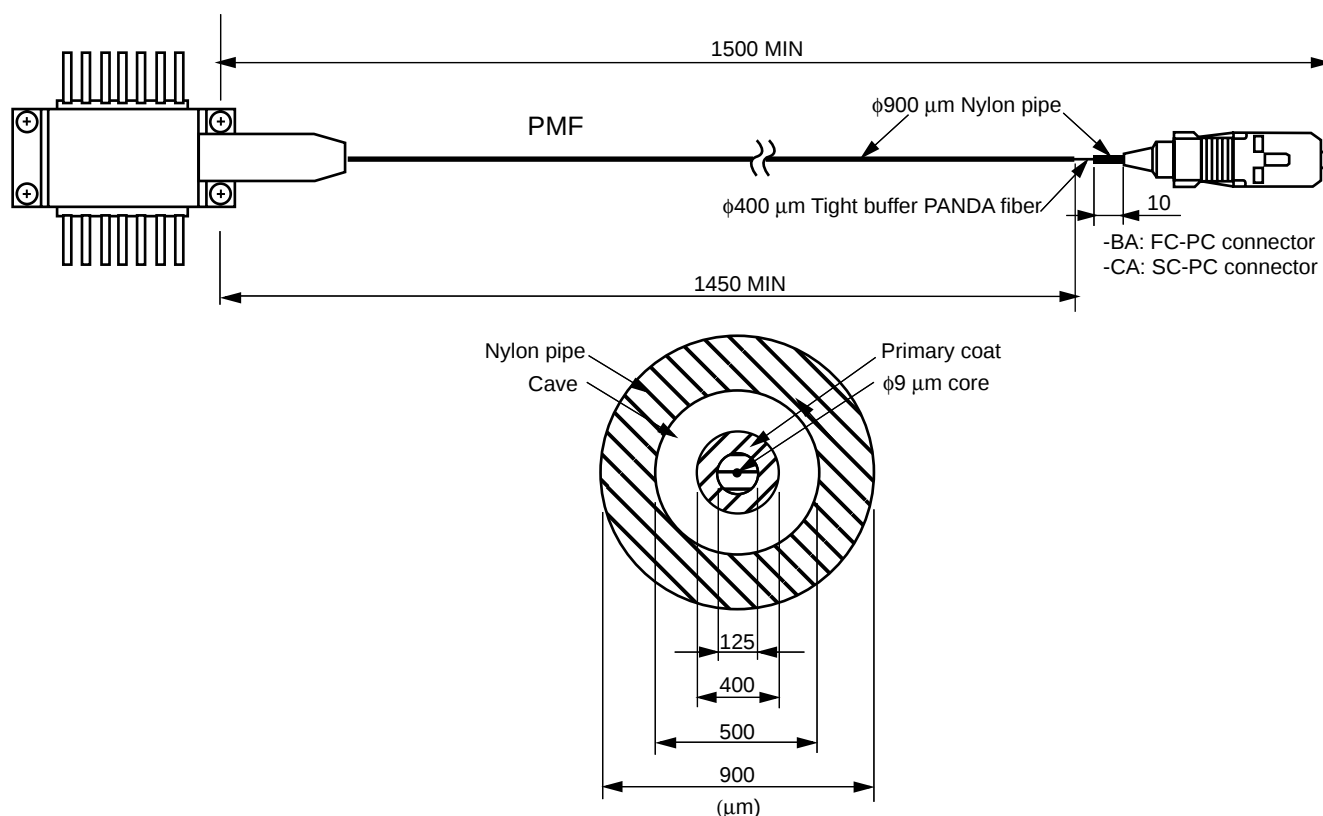
ORDERING INFORMATION

Without Connector	Part Number		ITU-T Wavelength (nm)	Frequency (THz)
	With FC-PC Connector	With SC-PC Connector		
NX8563LB517	NX8563LB517-BA	NX8563LB517-CA	1551.72	192.20
NX8563LB525	NX8563LB525-BA	NX8563LB525-CA	1552.52	193.10
NX8563LB533	NX8563LB533-BA	NX8563LB533-CA	1553.32	193.00
NX8563LB541	NX8563LB541-BA	NX8563LB541-CA	1554.13	192.90
NX8563LB549	NX8563LB549-BA	NX8563LB549-CA	1554.94	192.80
NX8563LB557	NX8563LB557-BA	NX8563LB557-CA	1555.74	192.70
NX8563LB565	NX8563LB565-BA	NX8563LB565-CA	1556.55	192.60
NX8563LB573	NX8563LB573-BA	NX8563LB573-CA	1557.36	192.50
NX8563LB581	NX8563LB581-BA	NX8563LB581-CA	1558.17	192.40
NX8563LB589	NX8563LB589-BA	NX8563LB589-CA	1558.98	192.30
NX8563LB597	NX8563LB597-BA	NX8563LB597-CA	1559.79	192.20
NX8563LB606	NX8563LB606-BA	NX8563LB606-CA	1560.60	192.10
NX8563LB614	NX8563LB614-BA	NX8563LB614-CA	1561.41	192.00
NX8563LB622	NX8563LB622-BA	NX8563LB622-CA	1562.23	191.90
NX8563LB630	NX8563LB630-BA	NX8563LB630-CA	1563.04	191.80
NX8563LB638	NX8563LB638-BA	NX8563LB638-CA	1563.86	191.70
NX8563LB646	NX8563LB646-BA	NX8563LB646-CA	1564.67	191.60
NX8563LB654	NX8563LB654-BA	NX8563LB654-CA	1565.49	191.50

Note:

1. The Value which omitted and computed the 3rd place below the decimal point.

OPTICAL FIBER DIMENSIONS (Units in mm)



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