

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

NX8562LB

FEATURES

- **AVAILABLE FOR DWDM WAVELENGTHS BASED ON ITU-T RECOMMENDATIONS**
(100 GHz grid) refer to the Ordering Information
- **OUTPUT POWER:**
 $P_f = 20 \text{ mW MIN}$
- **INTERNAL THERMOELECTRIC COOLER AND ISOLATOR**
- **HERMETICALLY SEALED 14-PIN BUTTERFLY PACKAGE**
- **POLARIZATION MAINTAIN FIBER PIGTAIL**

DESCRIPTION

The NX8562LB is a 1550 nm Multiple Quantum Well (MQW) Distributed Feed-Back (DFB) laser diode with Polarization Maintain Fiber (PMF). This device is designed as a Continuous Wave (CW) light source and is ideal for optical transmission systems in which external modulators are used.

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

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

PART NUMBER			NX8562LB		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
T_{SET}	Laser Set Temperature	$^\circ\text{C}$	20		35
V_F	Forward Voltage, $P_f = 20 \text{ mW}$	V	0.9		1.5
I_{TH}	Threshold Current	mA		20	40
P_f	Optical Output Power from Fiber, $I_f = 167 \text{ mA}$, $T_{LD} = T_{SET}$	mW	20		
P_{th}	Threshold Output Power from Fiber, $I_f = I_{th}$	μW			100
η	Quantum Efficiency	W/A	0.13		
λ_p	Peak Emission Wavelength ¹ , $P_f = 20 \text{ mW}$, CW, $T_{LD} = T_{SET}$	nm	1527.6	ITU-T ¹	1565.6
$\Delta\nu$	Spectral Line Width, $P_f = 20 \text{ mW}$, CW, 3 dB down	MHz		1	2
SMSR	Side Mode Suppression Ratio, $P_f = 20 \text{ mW}$, CW	dB	30	35	
η_{FM}	FM Response, $P_f = 20 \text{ mW}$	MHz/mA	50	70	
RIN	Relative Intensity Noise, $P_f = 20 \text{ mW}$, 20 MHz to 3 GHz	dB/Hz			-150
f_m	Flat Frequency Response, $P_f = 20 \text{ mW}$, $\pm 3 \text{ dB}$	GHz	1.8		
ext	Polarization Extinction Ratio ² , $P_f = 20 \text{ mW}$, CW	dB	15	20	

Notes:

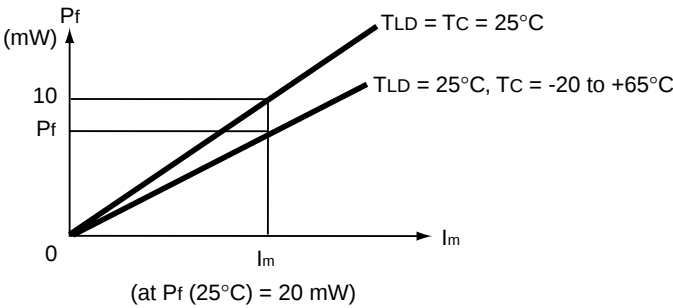
1. Available for DWDM based on ITU-T recommendations. please refer to Ordering Information.
2. Polarization state of LD is aligned parallel to the slow axis.

ELECTRO-OPTICAL CHARACTERISTICS (Applicable to Monitor PD: TLD = 25°C, Tc = -20 to +65°C)

PART NUMBER			NX8562LB		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
Im	Monitor Current, Pf = 20 mW, VR = 5 V	μA	100		2000
ID	Dark Current, VR = 5 V	nA		2	10
γ ¹	Tracking Error, Im = const.	dB			0.5

Note:

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



ELECTRO-OPTICAL CHARACTERISTICS (Applicable to Thermistor and TEC: TLD = 25°C, Tc = -20 to +65°C)

PART NUMBER			NX8562LB		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
R	Thermistor Resistance	kΩ	9.5	10.0	10.5
B	B Constant	K	3350	3450	3550
Ic	Cooler Current, ΔT = 65 - Tset, Pf = 20 mW	A			1
Vc	Cooler Voltage, ΔT = 65 - Tset, Pf = 20 mW	V			2

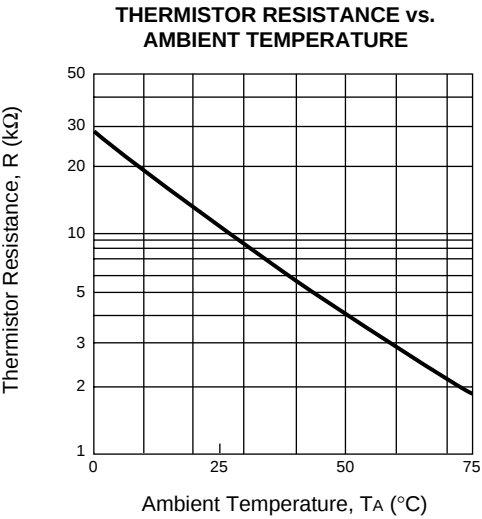
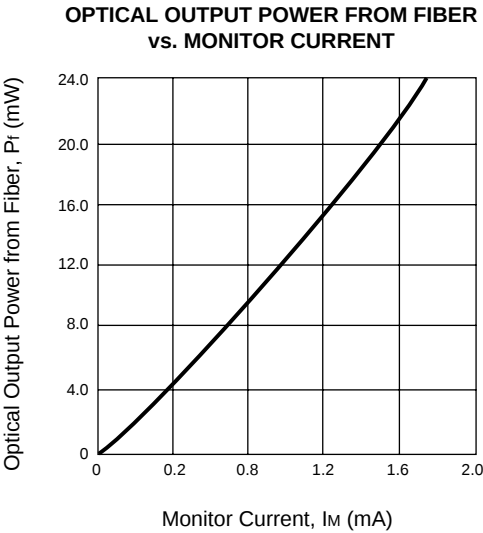
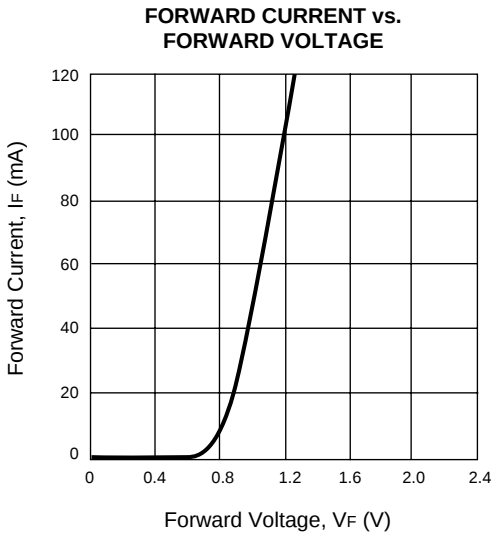
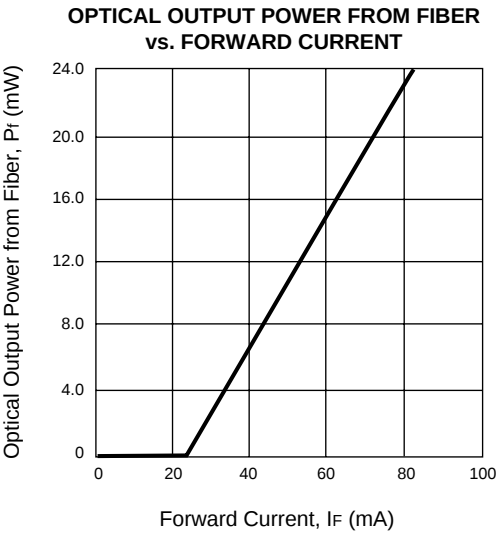
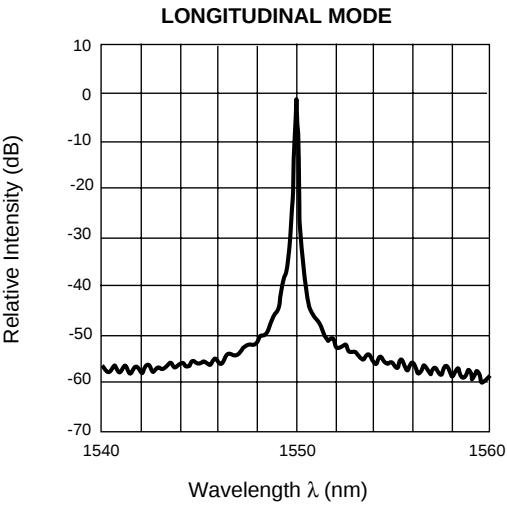
ABSOLUTE MAXIMUM RATINGS¹

(Tc = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
IF	Forward Current of LD	mA	300
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.

TYPICAL PERFORMANCE CURVES (T_C = 25°C, unless otherwise specified)



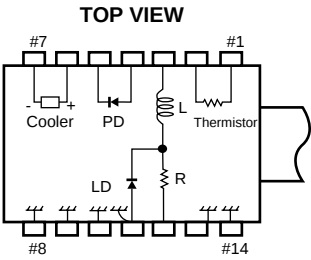
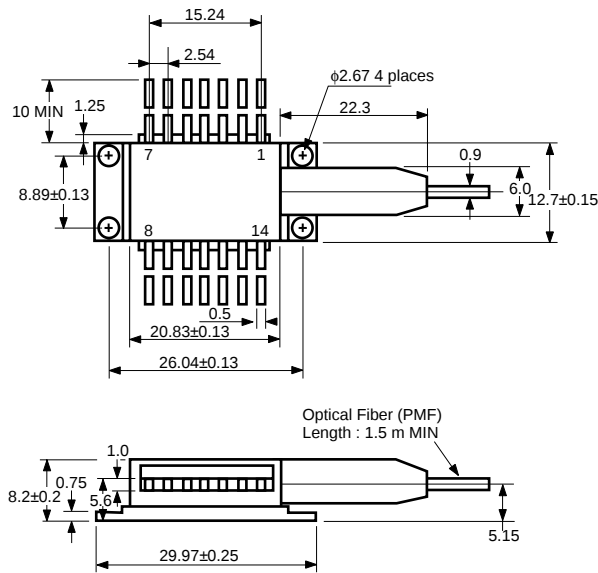
ORDERING INFORMATION

Without Connector	Part Number		ITU-T ¹ Wavelength (nm)	Frequency (THz)
	With FC-PC Connector	With SC-PC Connector		
NX8562LB279	NX8562LB279-BA	NX8562LB279-CA	1527.99	196.20
NX8562LB287	NX8562LB287-BA	NX8562LB287-CA	1528.77	196.10
NX8562LB295	NX8562LB295-BA	NX8562LB295-CA	1529.55	196.00
NX8562LB303	NX8562LB303-BA	NX8562LB303-CA	1530.33	195.90
NX8562LB311	NX8562LB311-BA	NX8562LB311-CA	1531.11	195.80
NX8562LB318	NX8562LB318-BA	NX8562LB318-CA	1531.89	195.70
NX8562LB326	NX8562LB326-BA	NX8562LB326-CA	1532.68	195.60
NX8562LB334	NX8562LB334-BA	NX8562LB334-CA	1533.46	195.50
NX8562LB342	NX8562LB342-BA	NX8562LB342-CA	1534.25	195.40
NX8562LB350	NX8562LB350-BA	NX8562LB350-CA	1535.03	195.30
NX8562LB358	NX8562LB358-BA	NX8562LB358-CA	1535.82	195.20
NX8562LB366	NX8562LB366-BA	NX8562LB366-CA	1536.60	195.10
NX8562LB373	NX8562LB373-BA	NX8562LB373-CA	1537.39	195.00
NX8562LB381	NX8562LB381-BA	NX8562LB381-CA	1538.18	194.90
NX8562LB389	NX8562LB389-BA	NX8562LB389-CA	1538.97	194.80
NX8562LB397	NX8562LB397-BA	NX8562LB397-CA	1539.76	194.70
NX8562LB405	NX8562LB405-BA	NX8562LB405-CA	1540.55	194.60
NX8562LB413	NX8562LB413-BA	NX8562LB413-CA	1541.34	194.50
NX8562LB421	NX8562LB421-BA	NX8562LB421-CA	1542.14	194.40
NX8562LB429	NX8562LB429-BA	NX8562LB429-CA	1542.93	194.30
NX8562LB437	NX8562LB437-BA	NX8562LB437-CA	1543.73	194.20
NX8562LB445	NX8562LB445-BA	NX8562LB445-CA	1544.52	194.10
NX8562LB453	NX8562LB453-BA	NX8562LB453-CA	1545.32	194.00
NX8562LB461	NX8562LB461-BA	NX8562LB461-CA	1546.11	193.90
NX8562LB469	NX8562LB469-BA	NX8562LB469-CA	1546.91	193.80
NX8562LB477	NX8562LB477-BA	NX8562LB477-CA	1547.71	193.70
NX8562LB485	NX8562LB485-BA	NX8562LB485-CA	1548.51	193.60
NX8562LB493	NX8562LB493-BA	NX8562LB493-CA	1549.31	193.50
NX8562LB501	NX8562LB501-BA	NX8562LB501-CA	1550.11	193.40
NX8562LB509	NX8562LB509-BA	NX8562LB509-CA	1550.91	193.30
NX8562LB517	NX8562LB517-BA	NX8562LB517-CA	1551.72	193.20
NX8562LB525	NX8562LB525-BA	NX8562LB525-CA	1552.52	193.10
NX8562LB533	NX8562LB533-BA	NX8562LB533-CA	1553.32	193.00
NX8562LB541	NX8562LB541-BA	NX8562LB541-CA	1554.13	192.90
NX8562LB549	NX8562LB549-BA	NX8562LB549-CA	1554.94	192.80
NX8562LB557	NX8562LB557-BA	NX8562LB557-CA	1555.74	192.70
NX8562LB565	NX8562LB565-BA	NX8562LB565-CA	1556.55	192.60
NX8562LB573	NX8562LB573-BA	NX8562LB573-CA	1557.36	192.50
NX8562LB581	NX8562LB581-BA	NX8562LB581-CA	1558.17	192.40
NX8562LB589	NX8562LB589-BA	NX8562LB589-CA	1558.98	192.30
NX8562LB597	NX8562LB597-BA	NX8562LB597-CA	1559.79	192.20
NX8562LB606	NX8562LB606-BA	NX8562LB606-CA	1560.60	192.10
NX8562LB614	NX8562LB614-BA	NX8562LB614-CA	1561.41	192.00
NX8562LB622	NX8562LB622-BA	NX8562LB622-CA	1562.23	191.90
NX8562LB630	NX8562LB630-BA	NX8562LB630-CA	1563.04	191.80
NX8562LB638	NX8562LB638-BA	NX8562LB638-CA	1563.86	191.70
NX8562LB646	NX8562LB646-BA	NX8562LB646-CA	1564.67	191.60
NX8562LB654	NX8562LB654-BA	NX8562LB654-CA	1565.49	191.50

Note:

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

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

OPTICAL FIBER DIMENSIONS (Units in mm)

