

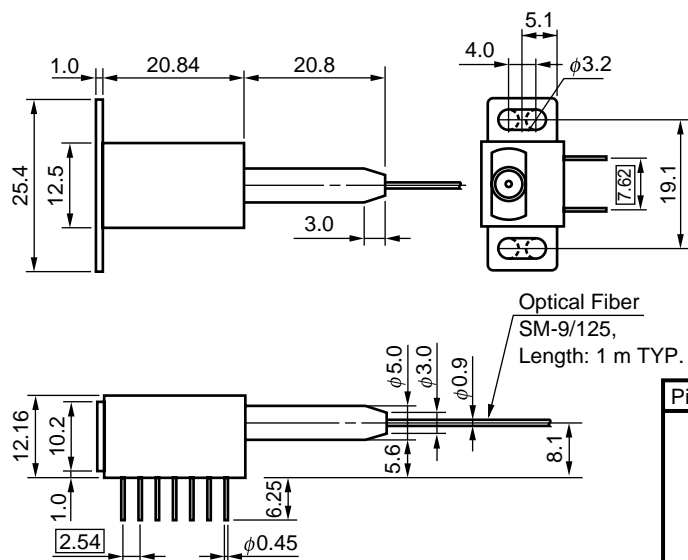
InGaAsP STRAINED DC-PBH LASER DIODE MODULE
1 625 nm TELEMETRY APPLICATION

DESCRIPTION

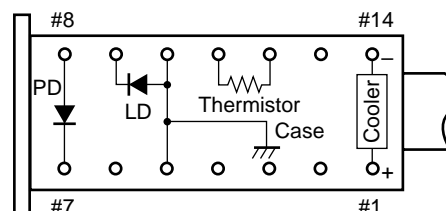
The NX7660JC is a 1 625 nm newly developed Strained Multiple Quantum Well (St-MQW) structure laser diode DIP module with single mode fiber and internal thermoelectric cooler. It is designed for light sources of telemetry equipment.

FEATURES

- ★ • Output power $P_f = 5 \text{ mW MIN. @ } I_f = 65 \text{ mA CW}$
- Long Wavelength $\lambda_c = 1\,625 \text{ nm}$
- ★ • Wide operating temperature range $T_c = -5 \text{ to } +70\,^{\circ}\text{C}$
- Internal thermoelectric cooler, thermistor
- Hermetically sealed 14-pin DIP package
- Single mode fiber pigtail

PACKAGE DIMENSIONS
in millimeters

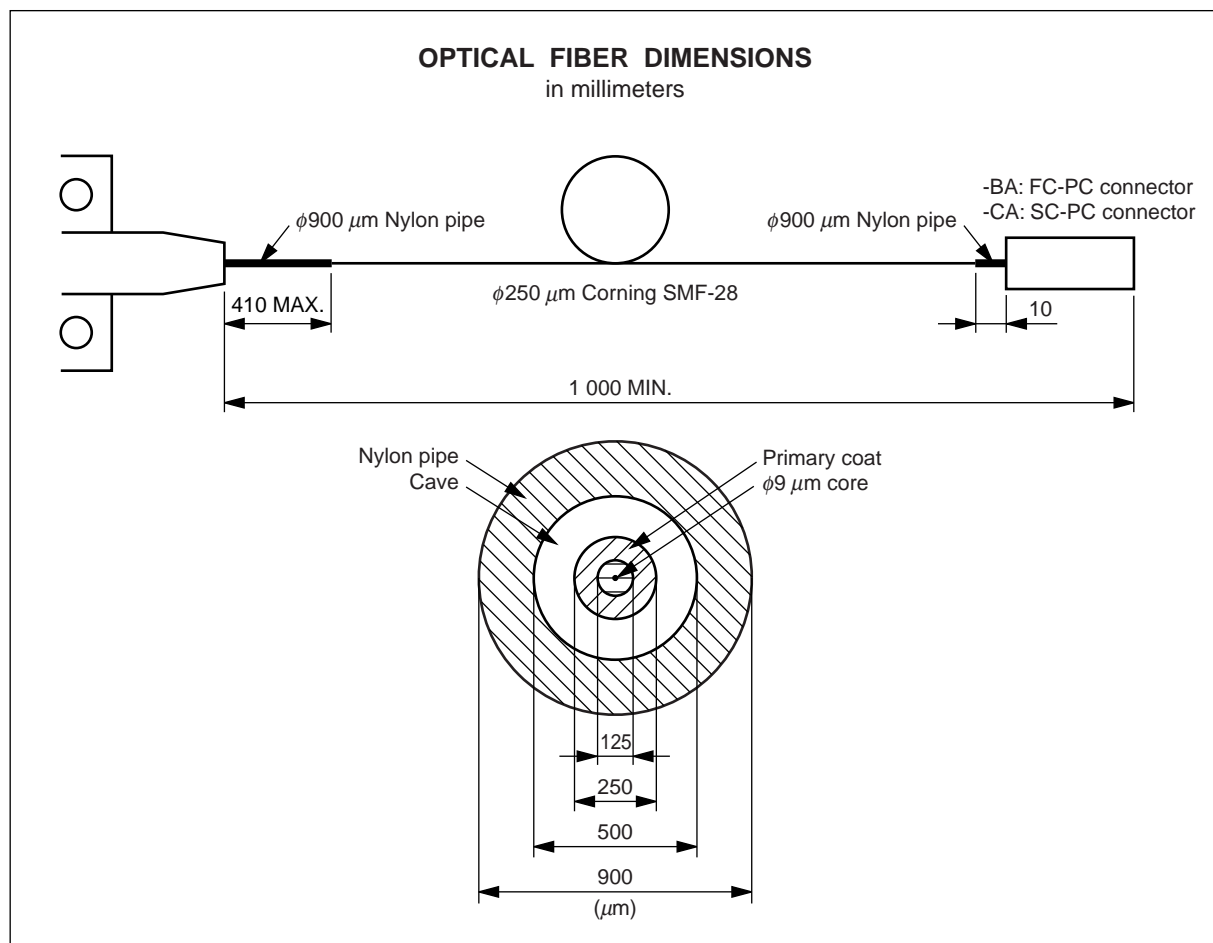
BOTTOM VIEW



PIN CONNECTIONS

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

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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
NX7660JC	Without Connector
NX7660JC-BA	With FC-PC Connector
NX7660JC-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	200	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
Cooler Current	I _c	1.2	A
Cooler Voltage	V _c	2.5	V
Operating Case Temperature	T _c	−5 to +70	°C
Storage Temperature	T _{stg}	−40 to +85	°C
Lead Soldering Temperature (10 s)	T _{sld}	260	°C

★ ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = 25 °C, T_c = −5 to +70 °C)

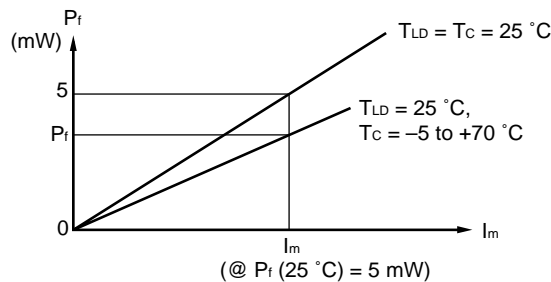
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V _F	P _f = 5 mW		1.1	1.5	V
Threshold Current	I _{th}			15	30	mA
Optical Output Power from Fiber	P _f	I _F = 65 mA	5			mW
Operating Current	I _{op}	P _f = 5 mW		65	75	mA
Differential Efficiency form Fiber	η _d		0.08	0.15		W/A
Center Wavelength	λ _c	P _f = 5 mW, RMS	1 615	1 625	1 635	nm
Spectral Width	σ	P _f = 5 mW, RMS		2.5	5	nm

★ ELECTRO-OPTICAL CHARACTERISTICS

(Applicable to Monitor PD: $T_{LD} = 25\text{ }^{\circ}\text{C}$, $T_c = -5\text{ to }+70\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Monitor Current	I_m	$V_R = 5\text{ V}$, $P_f = 5\text{ mW}$	50	150	260	μA
Monitor Dark Current	I_D	$V_R = 5\text{ V}$		1.0	10	nA
Tracking Error	γ^{*1}	$I_m = \text{const.}$			0.5	dB

$$*1 \quad \gamma = \left| 10 \log \frac{P_f}{5\text{ mW}} \right|$$



★ ELECTRO-OPTICAL CHARACTERISTICS

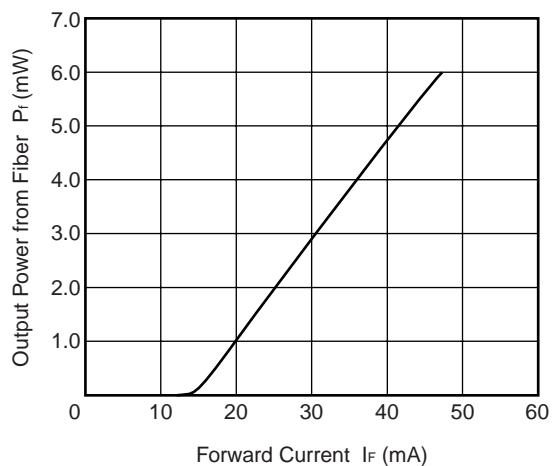
(Applicable to Thermistor and TEC: $T_{LD} = 25\text{ }^{\circ}\text{C}$, $T_c = -5\text{ to }+70\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R		9.5	10.0	10.5	$\text{k}\Omega$
B Constant	B		3 300	3 400	3 500	K
Cooler Current	I_c	$\Delta T = 45\text{ K}$		0.6	1.0	A
Cooler Voltage	V_c	$\Delta T = 45\text{ K}$		1.4	2.0	V
Cooling Capacity	ΔT^{*1}	$I_c = 1.0\text{ A}$	45			K

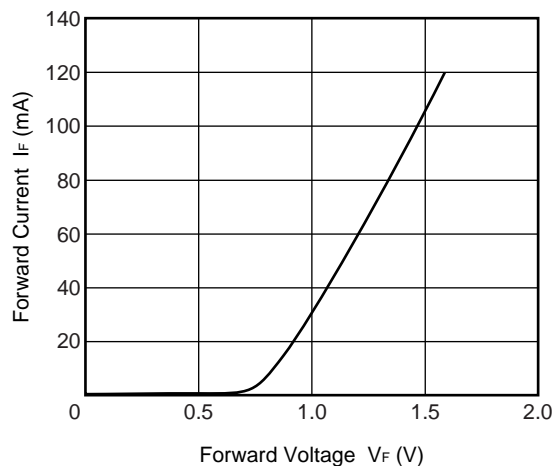
$$*1 \quad \Delta T = |T_c - T_{LD}|$$

★ TYPICAL CHARACTERISTICS ($T_{LD} = 25\text{ }^{\circ}\text{C}$, $T_C = -5\text{ to }+70\text{ }^{\circ}\text{C}$)

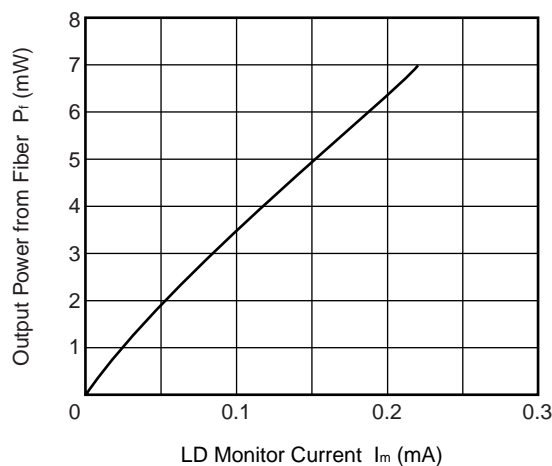
OUTPUT POWER FROM FIBER vs.
FORWARD CURRENT



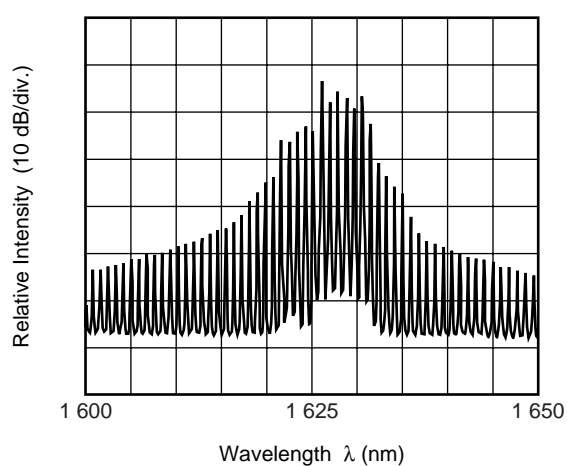
FORWARD CURRENT vs.
FORWARD VOLTAGE



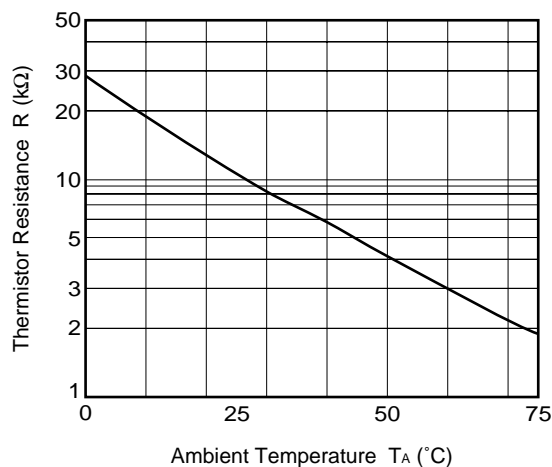
OUTPUT POWER FROM FIBER vs.
LD MONITOR CURRENT



LONGITUDINAL MODE FROM FIBER



TYPICAL THERMISTOR RESISTANCE vs.
AMBIENT TEMPERATURE



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.		
★ NX7460LE	−20 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
NX8561JC ^{*1}	0 to +65	−40 to +85	20	3	1 510	Telemetry	DIP
★ NX7660JC	−5 to +70	−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

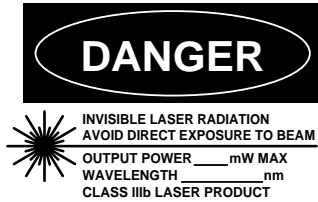
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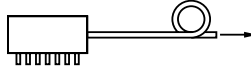
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CAUTION

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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