DATA SHEET

NEC

LASER DIODE

NX7660JC

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

DESCRIPTION

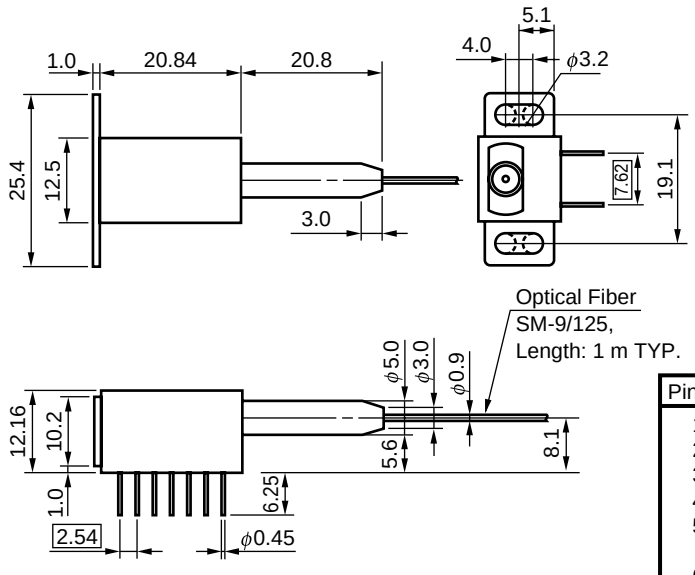
The NX7660JC is a 1 625 nm newly developed Strained Multiple Quantum Well (St-MQW) structure laser diode DIP module with single mode fiber and internal thermoelectric cooler. It is designed for light sources of telemetry equipment.

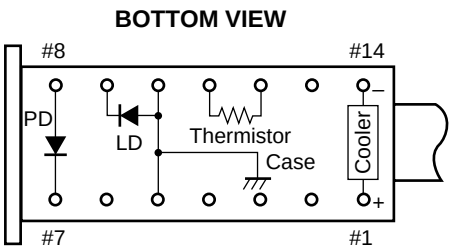
FEATURES

★ • Output power P_f = 5 mW MIN. @ I_F = 65 mA CW
• Long Wavelength λ_C = 1 625 nm
★ • Wide operating temperature range T_C = –5 to +70 °C
• Internal thermoelectric cooler, thermistor
• Hermetically sealed 14-pin DIP package
• Single mode fiber pigtail

PACKAGE DIMENSIONS

in millimeters





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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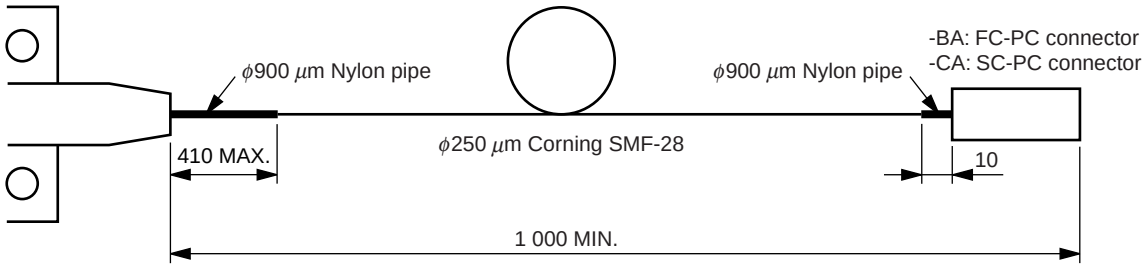
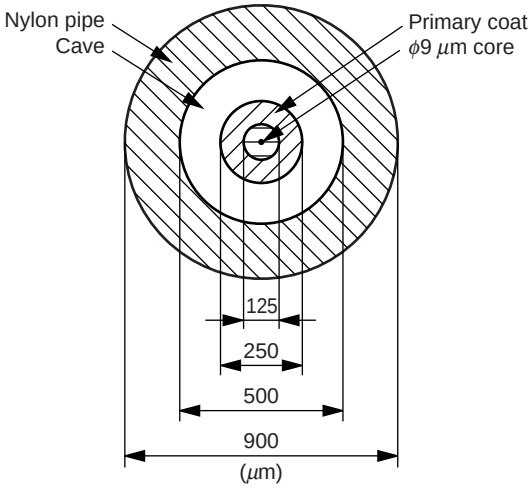
Printed in Japan

The mark ★ shows major revised points.

OPTICAL FIBER DIMENSIONS
in millimeters





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

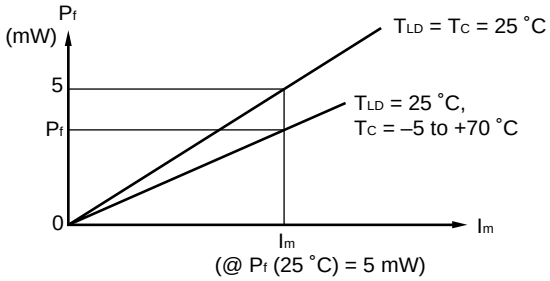
★ ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = 25 °C, T_C = –5 to +70 °C)

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 °C, T_C = –5 to +70 °C)

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

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



(@ P_f (25 ˚C) = 5 mW)

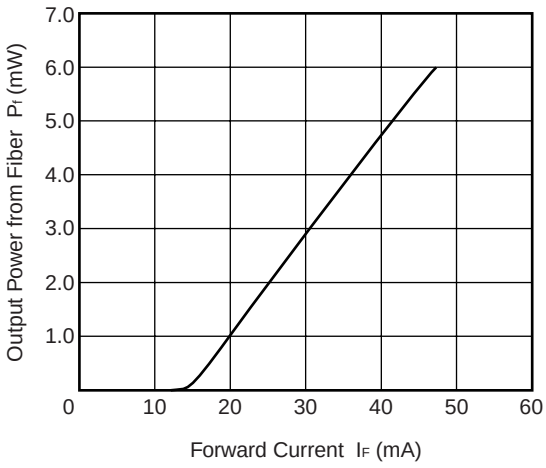
★ **ELECTRO-OPTICAL CHARACTERISTICS**
(Applicable to Thermistor and TEC: T_{LD} = 25 °C, T_C = –5 to +70 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R		9.5	10.0	10.5	kΩ
B Constant	B		3 300	3 400	3 500	K
Cooler Current	I_C	ΔT = 45 K		0.6	1.0	A
Cooler Voltage	V_C	ΔT = 45 K		1.4	2.0	V
Cooling Capacity	ΔT^{*1}	I_C = 1.0 A	45			K

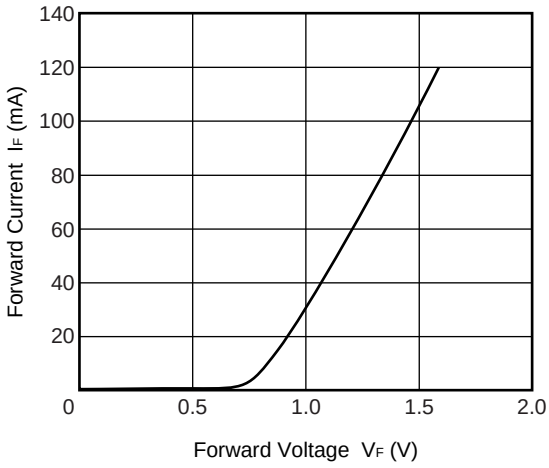
***1** $\Delta T = \left| T_C - T_{LD} \right|$

★ **TYPICAL CHARACTERISTICS (T_{LD} = 25 °C, T_C = –5 to +70 °C)**

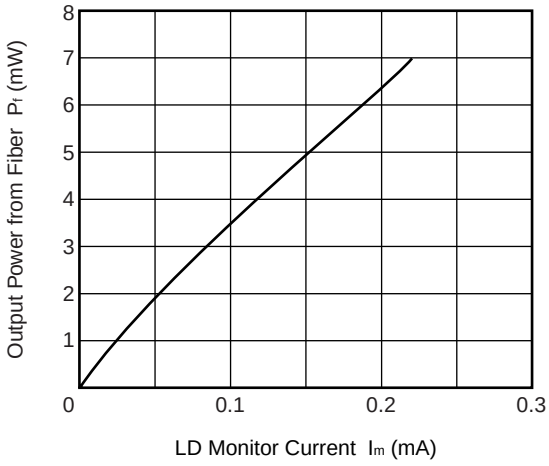
OUTPUT POWER FROM FIBER vs.
FORWARD CURRENT



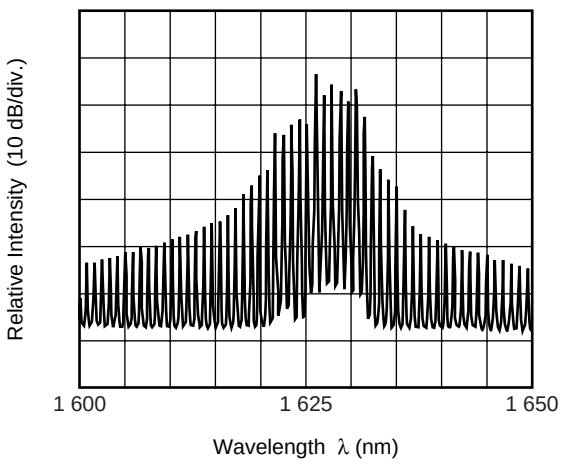
FORWARD CURRENT vs.
FORWARD VOLTAGE



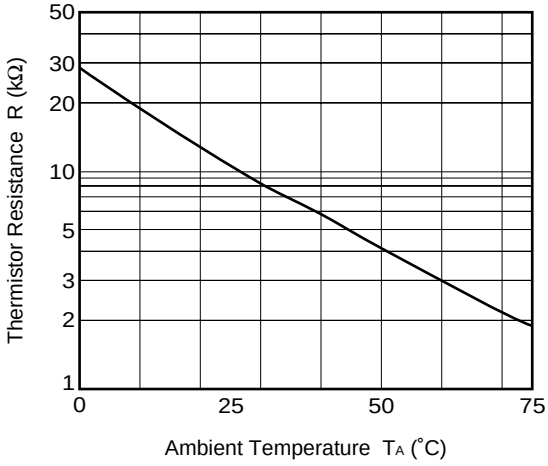
OUTPUT POWER FROM FIBER vs.
LD MONITOR CURRENT



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_f (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

[MEMO]

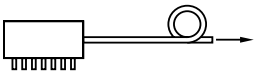
[MEMO]

[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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