

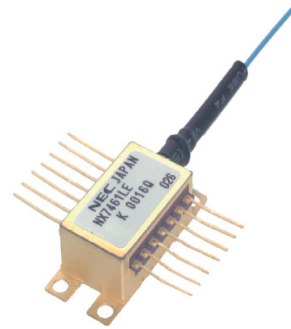
**CEL**

**NEC's 1480 nm InGaAsP MQW FP  
PUMP LASER DIODE MODULE  
FOR EDFA APPLICATION (150 mW MIN)**

**NX7461LE-CC**

**FEATURES**

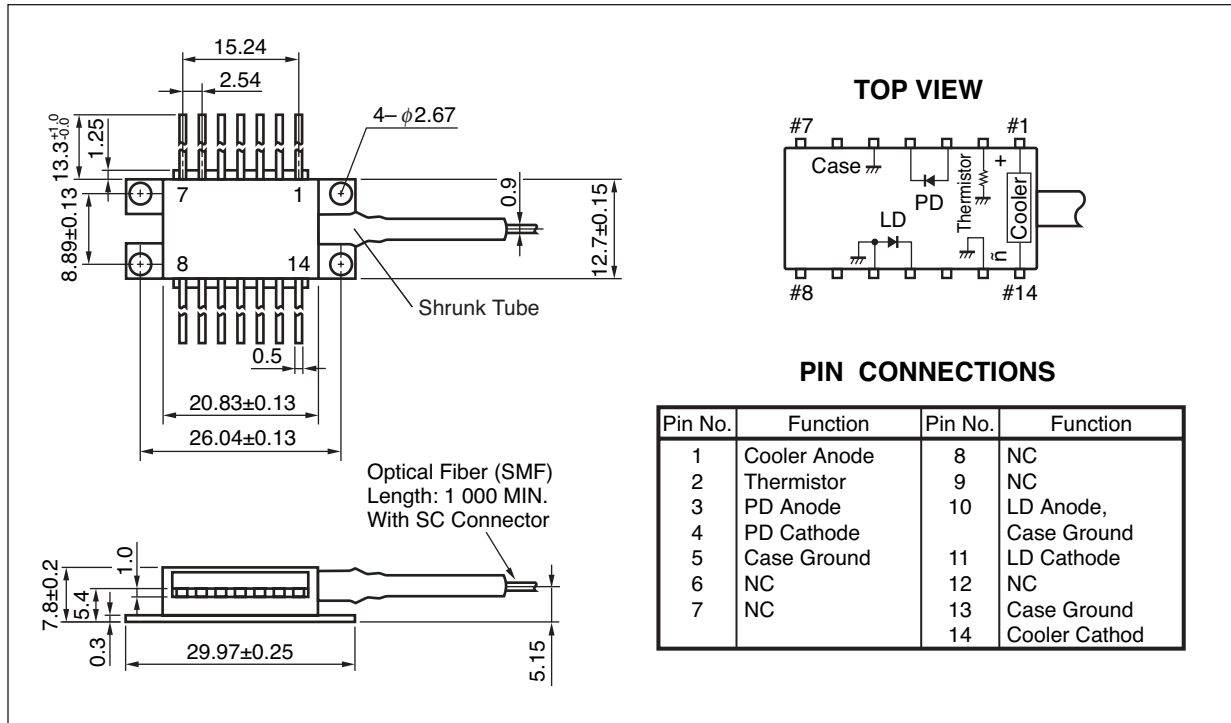
- InGaAsP MQW-FP LASER DIODE
- HIGH OUTPUT POWER:  
Pf = 150 mW MIN @ IF = 600 mA CW
- INTERNAL OPTICAL ISOLATOR, THERMOELECTRIC COOLER AND InGaAs MONITOR PHOTO DIODE
- SINGLE MODE FIBER PIGTAIL
- HERMETICALLY SEALED 14-PIN BUTTERFLY PACKAGE



**DESCRIPTION**

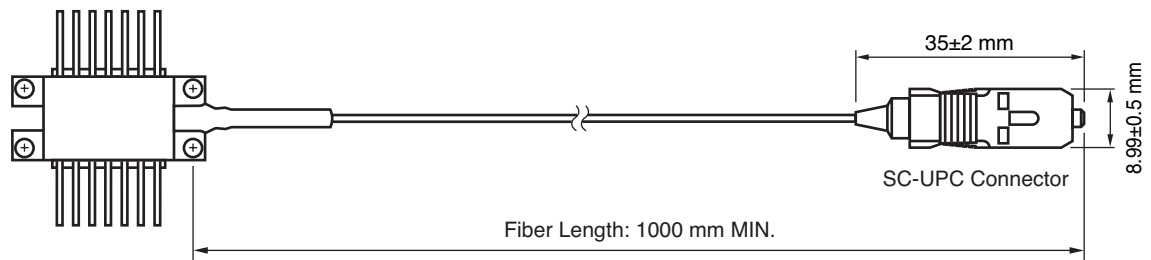
NEC's NX7461LE-CC is a 1480 nm pumping laser diode module with optical isolator for an EDFA (Er Doped optical Fiber Amplifier) that can expand the transmission span and compensate optical losses. This device is a Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode that features high output power, high efficiency, and stable fundamental mode.

**PACKAGE DIMENSIONS** (Units in mm)



**OPTICAL FIBER CHARACTERISTICS**

PARAMETER	SPECIFICATION	UNIT
Mode Field Diameter	9.5±1	μm
Cladding Diameter	125±2	μm
Maximum Cladding Noncircularity	2	%
Maximum Core/Cladding Concentricity	1.6	%
Outer Diameter	0.9±0.1	mm
Cut-off Wavelength	1100 to 1270	nm
Minimum Fiber Bending Radius	30	mm
Fiber Length	1000 MIN.	mm
Flammability	UL1581 VW-1	



## ORDERING INFORMATION

PART NUMBER	AVAILABLE CONNECTOR
NX7461LE-CC	With SC-UPC Connector

## ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Forward Current of LD	$I_F$	720	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 +70	°C
Storage Temperature	$T_{stg}$	-40 to +85	°C
Thermistor Current	$I_t$	0.5	mA
Thermistor Voltage	$V_t$	12.0	V
Cooler Current	$I_c$	1.8	A
Cooler Voltage	$V_c$	6.0	V
Lead Soldering Temperature	$T_{slid}$	260 (10 sec.)	°C

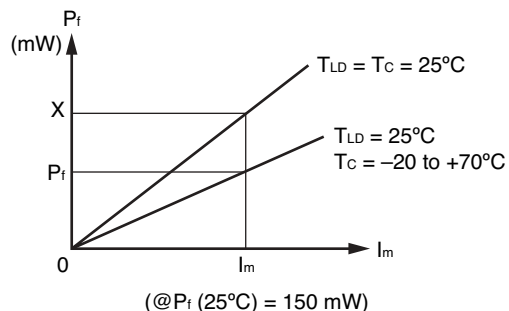
## ELECTRO-OPTICAL CHARACTERISTICS (TLD = 25°C, TC = -20 to +70°C, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Threshold Current	$I_{th}$	CW		50	60	mA
Forward Voltage	$V_F$	$I_F = 600$ mA		2.4	2.7	V
Optical Output Power from Fiber	$P_r$	$I_F = 600$ mA	150			mW
Center Emission Wavelength	$\lambda_c$	$I_F = 600$ mA, RMS (-20 dB)	1 460	1 480	1 490	nm
Spectrum Width	$\sigma$	$I_F = 600$ mA, RMS (-20 dB)		4.0	8.0	nm
Isolation	$I_s$	1 460 nm to 1 490 nm	25			dB

**ELECTRO-OPTICAL CHARACTERISTICS** (Applicable to Monitor PD: T<sub>LD</sub> = 25°C, T<sub>C</sub> = -20 to +70°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Monitor Current	I <sub>m</sub>	V <sub>R</sub> = 5 V, I <sub>F</sub> = 600 mA	500	1300	2000	μA
Dark Current	I <sub>d</sub>	V <sub>R</sub> = 5 V		2	10	nA
Tracking Error	γ <sup>*1</sup>	I <sub>m</sub> = const.			0.5	dB

$$*1 \gamma = \left| 10 \log \frac{P_f}{150 \text{ mW}} \right|$$



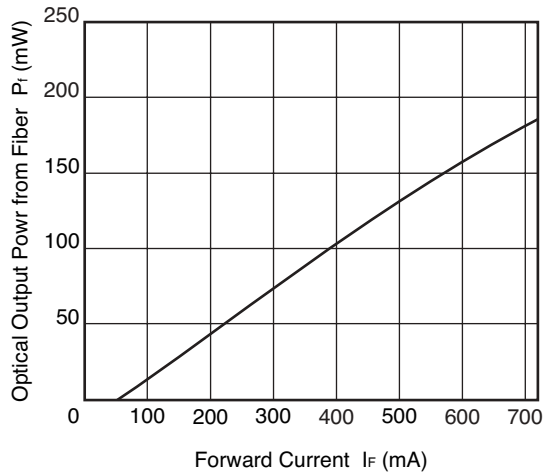
**ELECTRO-OPTICAL CHARACTERISTICS** (Applicable to Thermistor and TEC: T<sub>LD</sub> = 25°C, T<sub>C</sub> = -20 to +70°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Thermistor Resistance	R	T <sub>LD</sub> = 25°C	9.5	10.0	10.5	kΩ
B Constant	B		3350	3450	3550	K
Cooler Current	I <sub>c</sub>	ΔT = 45°C, I <sub>F</sub> = 720 mA		1.2	1.4	A
Cooler Voltage	V <sub>c</sub>	ΔT = 45°C, I <sub>F</sub> = 720 mA		3.0	3.6	V
Cooling Capacity	ΔT <sup>-1</sup>	I <sub>c</sub> = 1.4 A, I <sub>F</sub> = 720 mA	45			°C

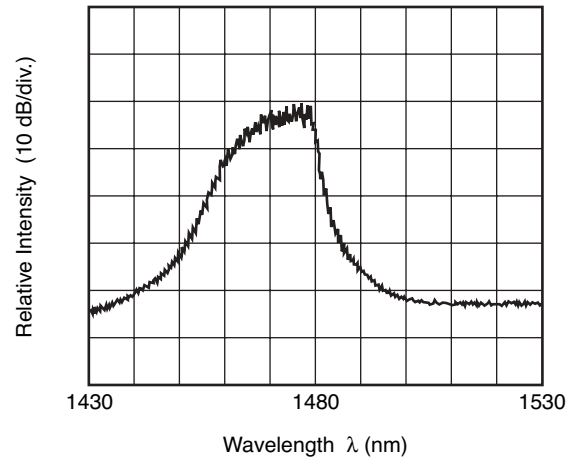
$$*1 \Delta T = \left| T_C - T_{LD} \right|$$

**TYPICAL CHARACTERISTICS** ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)

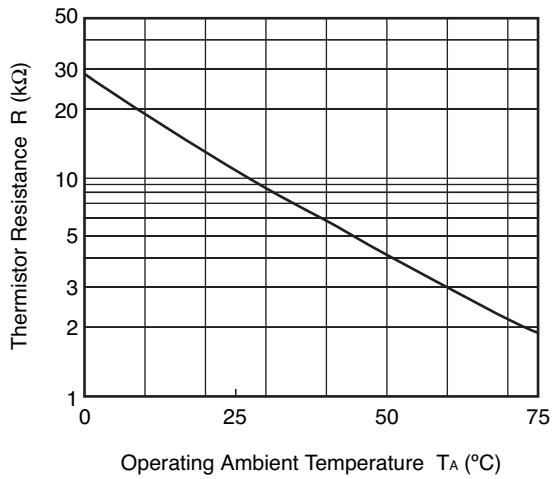
**OPTICAL OUTPUT POWER FROM FIBER vs. FORWARD CURRENT**



**SPECTRUM**



**THERMISTOR RESISTANCE vs. OPERATING AMBIENT TEMPERATURE**



**Life Support Applications**

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