

1310 nm OPTICAL CATV RETURN PATH APPLICATIONS InGaAsP MQW-DFB LASER DIODE MODULE

NDL7605P SERIES

FEATURES

- **LOW DISTORTION:**
IMD₂ = -50 dBc MAX¹ @ T_c = 25°C
IMD₂ = -45 dBc MAX¹ @ T_c = -40 to +85°C
IMD₃ = -60 dBc MAX¹ @ T_c = -40 to +85°C
- **OUTPUT POWER:**
P_f = 2.0 mW
- **LONG WAVELENGTH:**
λ_p = 1310 nm
- **INTERNAL InGaAs MONITOR PD AND ISOLATOR**
- **SINGLE MODE FIBER PIGTAIL WITH FC-UPC, SC-UPC or SC-APC CONNECTOR**
- **WIDE OPERATING TEMPERATURE RANGE:**
T_c = -40 to +85°C

Note:

1. 2-ch, Optical loss = 7 dB, OMI = 10%/ch

DESCRIPTION

The NDL7605P Series is a 1310 nm uncooled isolated coaxial DFB laser diode. It is especially designed for optical CATV return path applications.

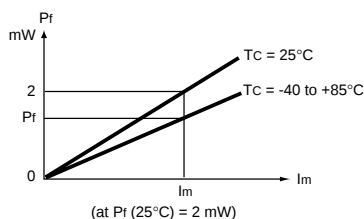
ELECTRO-OPTICAL CHARACTERISTICS (T_c = 25°C, Optical Reflection ≤ -50 dB, unless otherwise specified)

PART NUMBER			NDL7605P Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
V _F	Forward Voltage, I _F = 30 mA	V	0.9	1.1	1.3
P _f	Optical Output Power from Fiber, CW	mW		2.0	
I _{TH}	Threshold Current, CW CW, T _c = +85°C	mA		15 40	30 60
η _d	Differential Efficiency from Fiber, P _f = 2.0 mW	W/A	0.080	0.200	
Δη _d	Temperature Dependence of Differential Efficiency from Fiber, P _f = 2.0 mW, η (85°C) / η (25°C)	dB	-3.0		
λ _p	Peak Emission Wavelength, P _f = 2.0 mW, RMS (-20 dB)	nm	1290	1310	1330
SMSR	Side Mode Suppression Ratio, P _f = 2.0 mW	dB	30		
IMD ₂	2nd Order Intermodulation Distortion ¹ , T _c = 25°C T _c = -40 to +85°C	dBc			-50 -45
IMD ₃	3rd Order Intermodulation Distortion ¹ , T _c = -40 to +85°C	dBc			-60
CNR	Carrier to Noise Ratio ¹ , T _c = -40 to +85°C	dB	52		
I _m	Monitor Current, V _R = 5 V, P _f = 2.0 mW	μA	100	500	1000
I _D	Dark Current, V _R = 5 V	nA		0.1	10
γ	Tracking Error ² , I _m = const., P _f = 2.0 mW, T _c = -40 to +85°C	dB			1.5
ISO	Optical Isolation	dB	30		

Notes:

1. Conditions: P_f = 2.0 mW, T_c = 25°C, 2 channel unmodulated carriers 13 MHz and 19 MHz, Optical Reflection = -50 dB, Optical Loss = 7 dB, OMI = 10% / ch.

$$2. \gamma = 10 \log \left| \frac{P_f}{2.0 \text{ mW}} \right|$$



NDL7605P SERIES

ABSOLUTE MAXIMUM RATINGS¹

(T_c = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
P _f	Optical Output Power from Fiber	mW	5
I _f	Forward Current of LD	mA	I _{TH} + 50
V _R	Reverse Voltage of LD	V	2
I _f	Forward Current of PD	mA	10
V _R	Reverse Voltage of PD	V	15
T _c	Operating Case Temperature	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SLD}	Lead Soldering Temperature (10 s)	°C	260

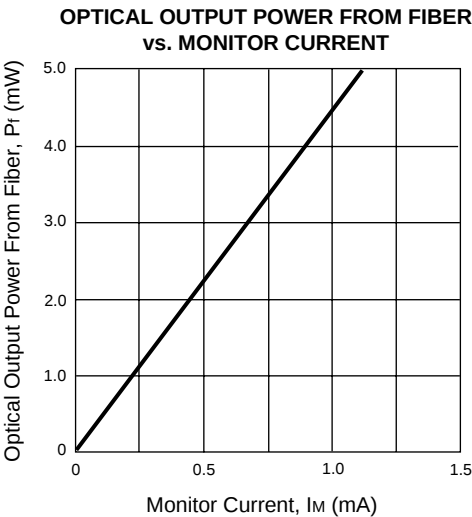
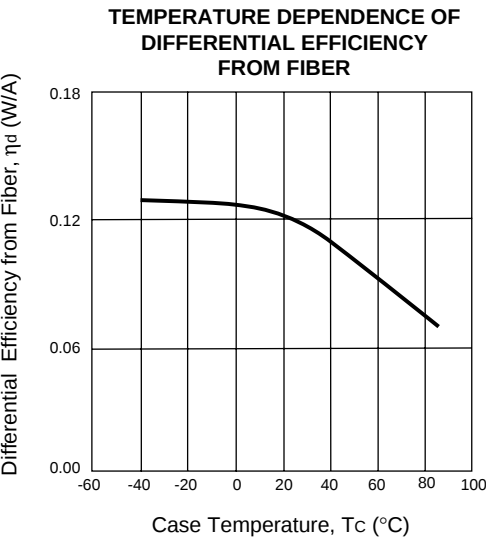
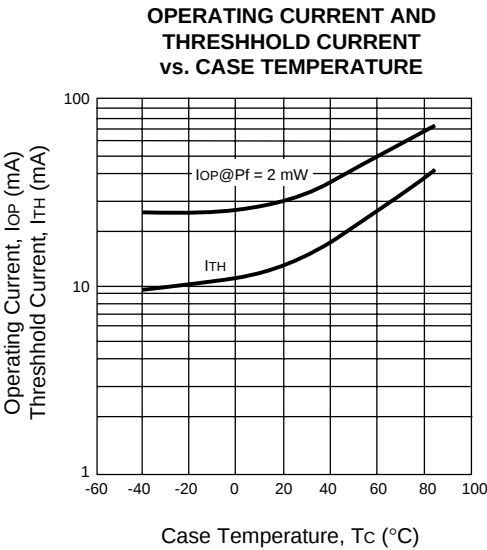
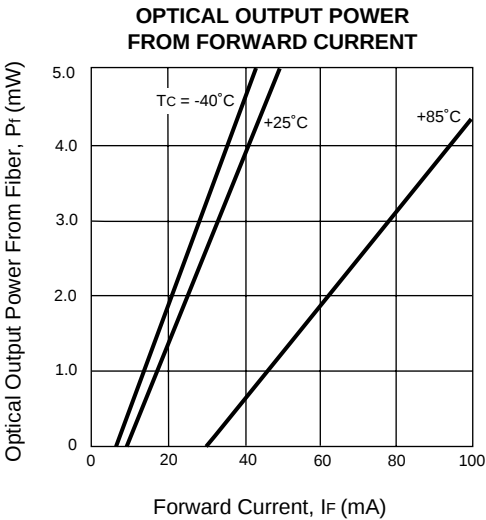
Note:

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

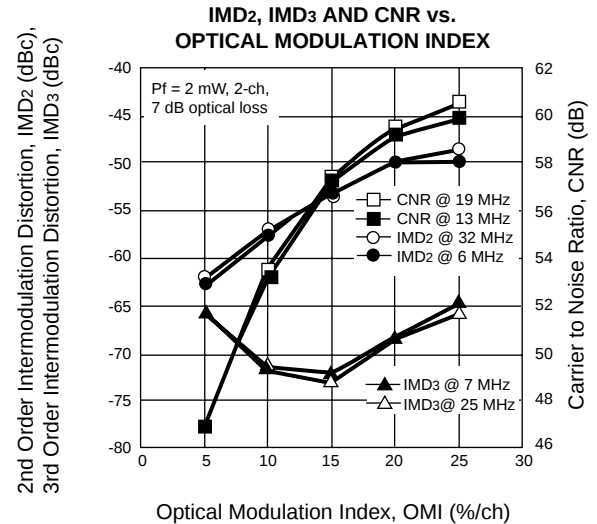
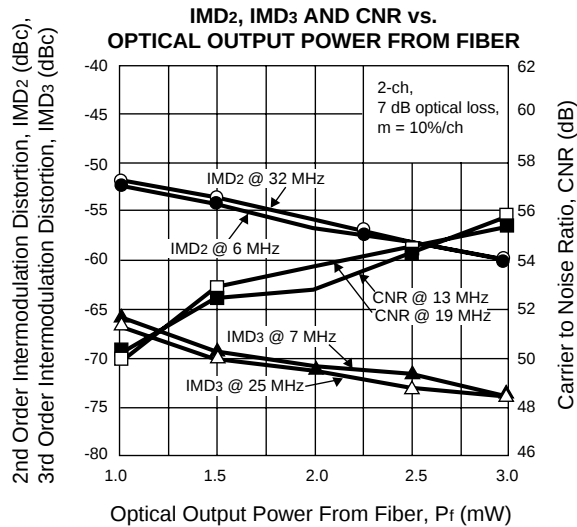
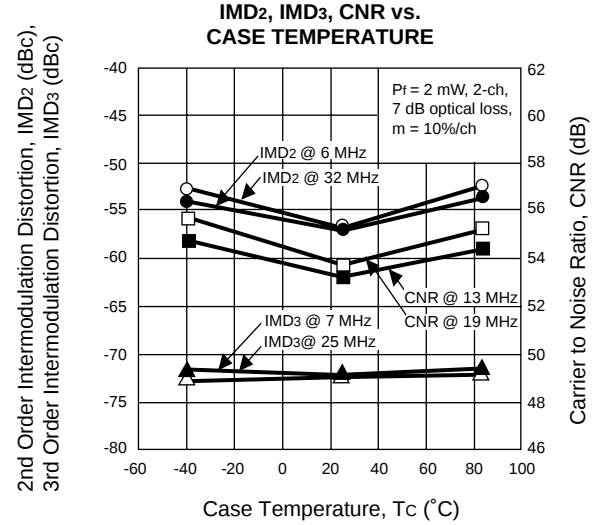
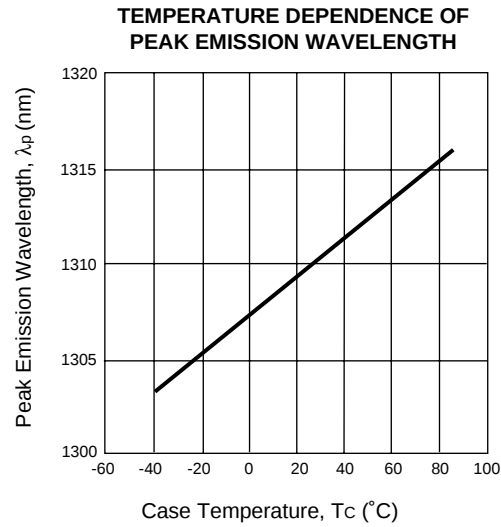
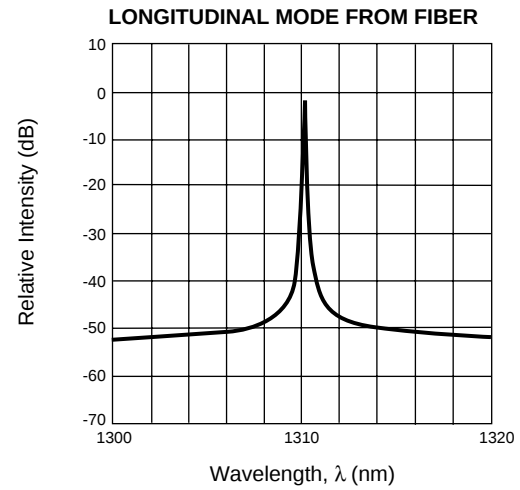
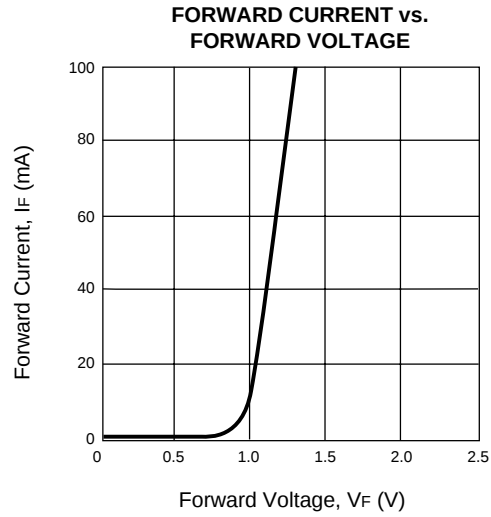
ORDERING INFORMATION

PART NUMBER	AVAILABLE CONNECTOR	FLANGE TYPE
NDL7605P	With FC-UPC Connector	No Flange
NDL7605PD	With SC-UPC Connector	
NDL7605PX	With SC-APC Connector	
NDL7605P1C	With FC-UPC Connector	Flat Mount Flange
NDL7605P1D	With SC-UPC Connector	
NDL7605P1X	With SC-APC Connector	
NDL7605P2C	With FC-UPCConnector	Vertical Mount Flange
NDL7605P2D	With SC-UPC Connector	
NDL7605P2X	With SC-APC Connector	
NDL7605P4C	With FC-UPC Connector	Lead Bend
NDL7605P4D	With SC-UPC Connector	
NDL7605P4X	With SC-APC Connector	

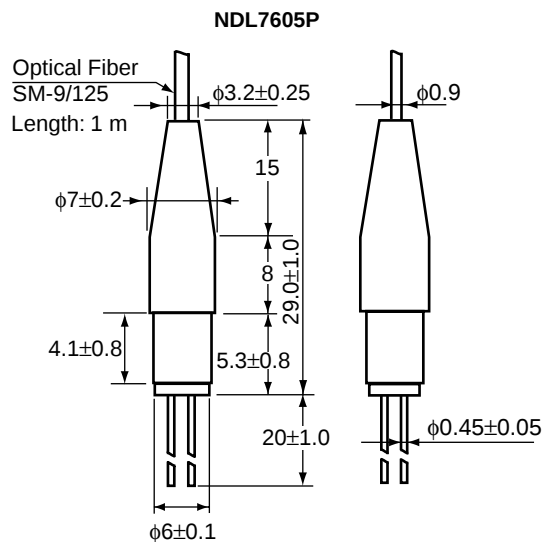
TYPICAL PERFORMANCE CURVES (T_c = 25°C unless otherwise specified)



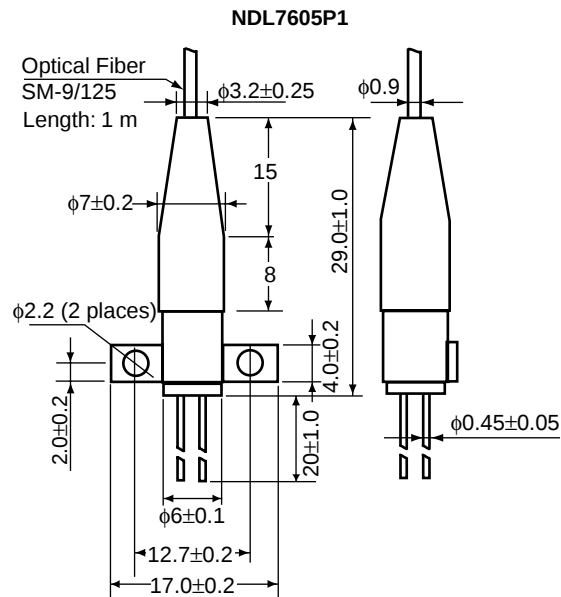
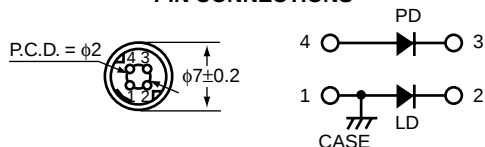
TYPICAL PERFORMANCE CURVES (T_c = 25°C unless otherwise specified)



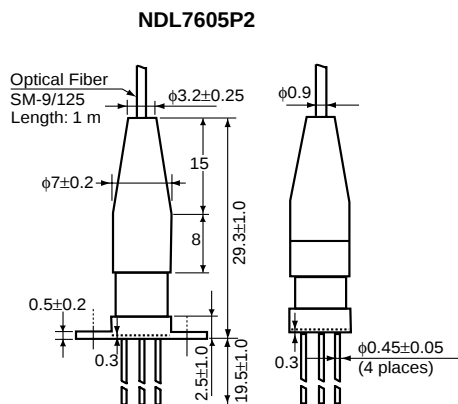
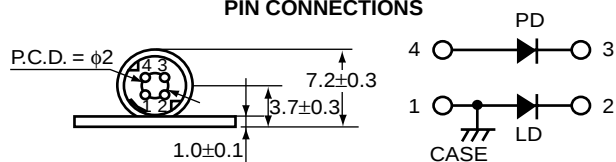
OUTLINE DIMENSIONS (Units in mm)



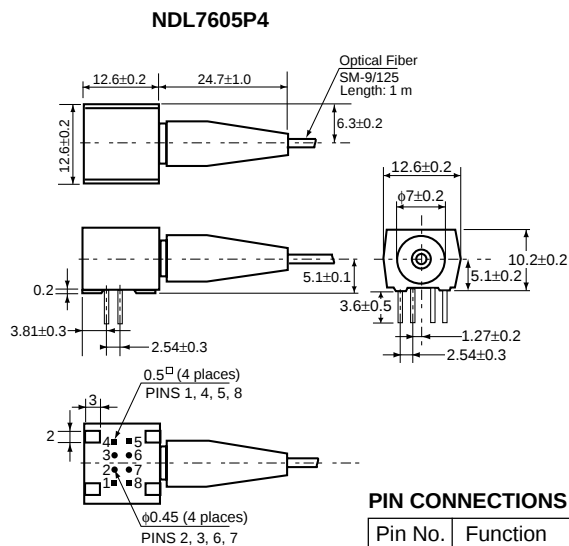
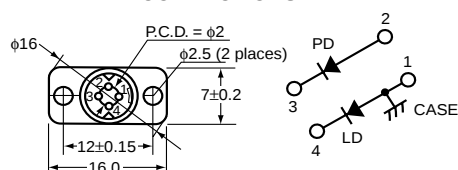
PIN CONNECTIONS



PIN CONNECTIONS



PIN CONNECTIONS



PIN CONNECTIONS

Pin No.	Function
1	NC
2	PD Anode
3	PD Cathode
4	NC
5	NC
6	LD Cathode
7	LD Anode
8	NC

EXCLUSIVE NORTH AMERICAN AGENT FOR **NEC** RF, MICROWAVE & OPTOELECTRONIC SEMICONDUCTORS

CEL CALIFORNIA EASTERN LABORATORIES • Headquarters • 4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • Telex 34-6393 • FAX (408) 988-0279
24-Hour Fax-On-Demand: 800-390-3232 (U.S. and Canada only) • Internet: <http://WWW.CEL.COM>

DATA SUBJECT TO CHANGE WITHOUT NOTICE

4/11/2000