

NEC

InGaAsP STRAINED MQW-DFB PULSED LASER DIODE MODULE FOR 1310 nm OTDR APPLICATION

NDL7502P SERIES

FEATURES

- **HIGH OUTPUT POWER:**
Pf = 190 mW at IFP = 1000 mA¹
- **LONG WAVELENGTH:**
 $\lambda_c = 1310$ nm
- **INTERNAL THERMOELECTRIC COOLER**
- **HERMETICALLY SEALED 14 PIN DUAL-IN-LINE PACKAGE**
- **SINGLE MODE FIBER PIGTAIL**

Note:

1. Pulse Conditions: Pulse width (PW) = 10 μ s, Duty = 1%.

DESCRIPTION

The NDL7502P Series is a newly developed strained Multiple Quantum Well (st-MQW) structure pulse laser diode DIP module with single mode fiber and internal thermoelectric cooler. It is designed for light sources of optical measurement equipment (OTDR). This module is also available with FC - PC.

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

PART NUMBER			NDL7502P Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
V_{FP}	Forward Voltage, $I_{FP} = 1000$ mA, PW = 10 μ s, Duty = 1%	V		2.5	4.0
P_f	Optical Output Power from Fiber, $I_{FP} = 1000$ mA, I PW = 10 μ s, Duty = 1%	mW	125	190	
I_{TH}	Threshold Current	mA		35	65
λ_c	RMS Center Wavelength, $I_{FP} = 1000$ mA, PW = 10 μ s, Duty = 1%	nm	1290	1310	1330
σ	RMS Spectral Width, $I_{FP} = 1000$ mA, PW = 10 μ s, Duty = 1%	nm		5.0	10.0
t_r	Rise Time, 10-90%	ns			2.0
t_f	Fall Time, 90-10%	ns			2.0

ELECTRO-OPTICAL CHARACTERISTICS

APPLICABLE TO THERMISTOR AND TEC: ($T_{LD} = 25^{\circ}\text{C}$, $T_c = -20$ to $+65^{\circ}\text{C}$, unless otherwise specified)

PART NUMBER			NDL7502P Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
R^1	Thernistor Resistance, $T_{LD} = 25^{\circ}\text{C}$	k Ω	9.5	10	10.5
I_c	Cooler Current, $\Delta T = 40$ K	A		0.6	1.0
V_c	Cooler Voltage, $\Delta T = 40$ K	V		1.1	1.5
ΔT^2	RMS Center Wavelength, $I_{FP} = 1000$ mA, PW = 10 μ s,	K	40		

Notes:

1. B Constant: 3400 ± 100 K.
2. $\Delta T = |T_c - T_{LD}|$.

ABSOLUTE MAXIMUM RATINGS¹

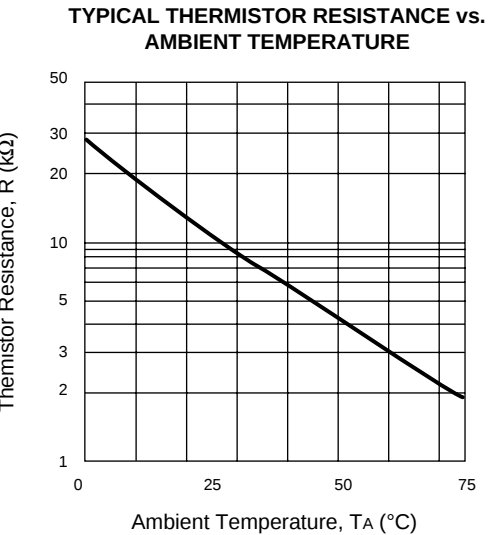
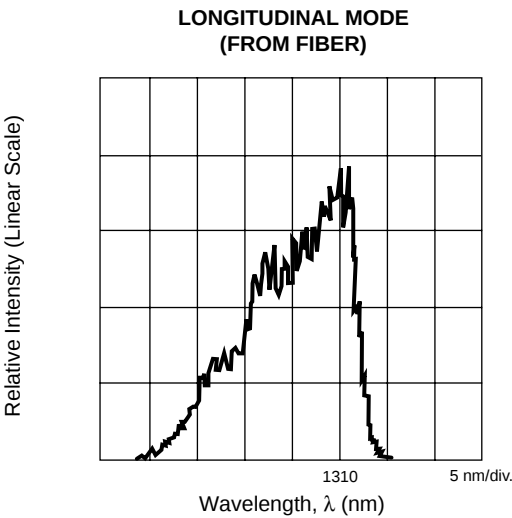
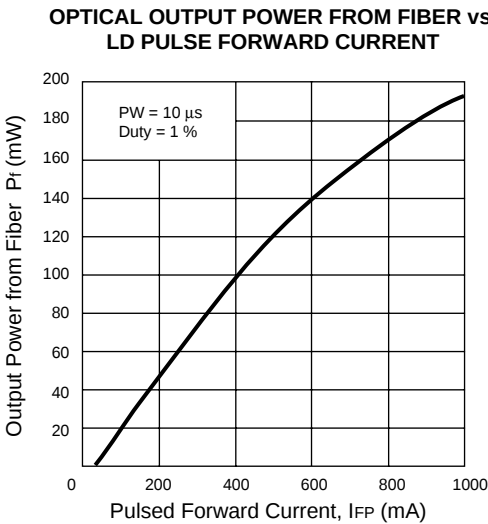
(T_C = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
I _{FP}	Pulsed Forward Current ²	A	1.2
V _R	Reverse Voltage	V	2.0
I _C	Cooler Current	A	1.3
V _C	Cooler Voltage	V	3.5
T _C	Operating Case Temperature	°C	-20 to +65
T _{STG}	Storage Temperature	°C	-40 to +70
T _{SLD}	Lead Soldering Temperature (10 sec)	°C	260

Notes:

- 1. Operation in excess of any one of these parameters may result in permanent damage.
- 2. Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1 %.

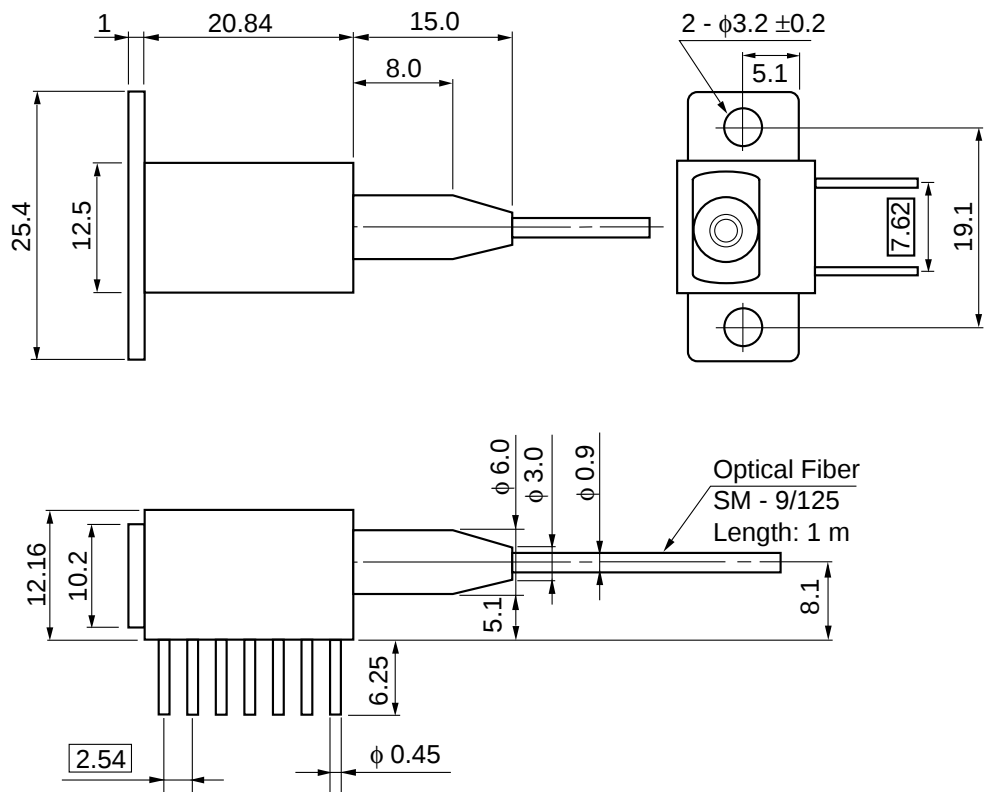
TYPICAL PERFORMANCE CURVES (T_C = 25°C, unless otherwise specified)



ORDERING INFORMATION

PART NUMBER	DESCRIPTION
NDL7502P	Without Connector
NDL7502PC	With FC-PC Connector

OUTLINE DIMENSIONS (Units in mm)



PIN CONNECTIONS

PIN No.	FUNCTION	PIN No.	FUNCTION
1	COOLER ANODE	8	NC
2	NC	9	LASER CATHODE
3	NC	10	LASER ANODE, CASE GROUND
4	NC	11	THERMISTOR
5	LASER ANODE, CASE GROUND	12	THERMISTOR
6	NC	13	NC
7	NC	14	COOLER CATHODE

BOTTOM VIEW

