

NEC

1000 to 1600 nm OPTICAL FIBER COMMUNICATIONS $\phi 80 \mu\text{m}$ InGaAs PIN PHOTO DIODE MODULE

NDL5461P SERIES

FEATURES

- **SMALL DARK CURRENT:**
 $I_D = 0.1 \text{ nA}$
- **HIGH QUANTUM EFFICIENCY:**
 $\eta = 86\%$ at $\lambda = 1300 \text{ nm}$
 $\eta = 75\%$ at $\lambda = 1550 \text{ nm}$
- **DETECTING AREA SIZE:**
 $\phi 80 \mu\text{m}$
- **COAXIAL MODULE WITH MULTIMODE FIBER:**
GI-50/125
- **OPTIONAL SINGLE MODE FIBER:**
SM-9/125
- **LOW OPERATING VOLTAGE:**
 $V_R = 5 \text{ V}$

DESCRIPTION

The NDL5461P Series are InGaAs PIN photo diode modules with multimode fiber. They are designed for long wavelength transmission systems and cover the wavelength range between 1000 and 1600 nm with high efficiency.

ELECTRO-OPTICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$)

PART NUMBER			NDL5461P Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I_D	Dark Current, $V_R = 5 \text{ V}$	nA		0.1	1.0
C_t	Terminal Capacitance, $V_R = 5 \text{ V}$, $f = 1 \text{ MHz}$	pF		1.0	1.5
η	Quantum Efficiency, $\lambda = 1300 \text{ nm}$ $\lambda = 1550 \text{ nm}$	%	75 64	86 75	
S	Responsivity, $\lambda = 1300 \text{ nm}$ $\lambda = 1550 \text{ nm}$	A/W	0.78 0.80	0.89 0.94	
f_c	Cut-off Frequency, $V_R = 5 \text{ V}$, $\lambda = 1300 \text{ nm}$, $R_L = 50 \Omega$	GHz	2.5		

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ABSOLUTE MAXIMUM RATINGS¹

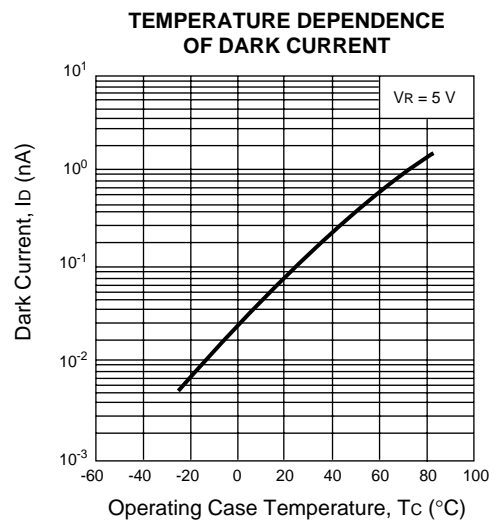
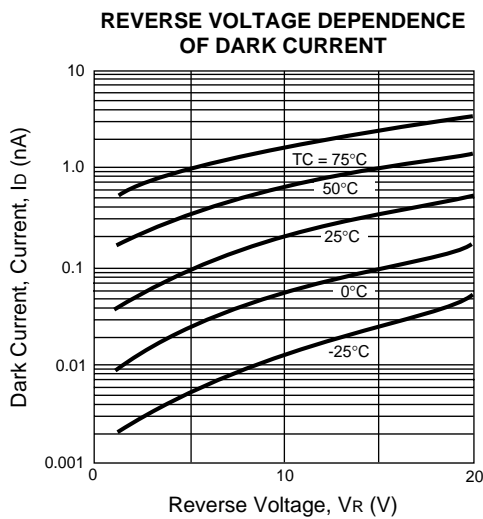
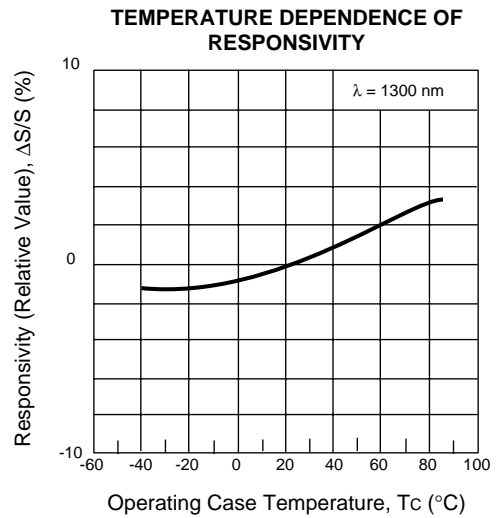
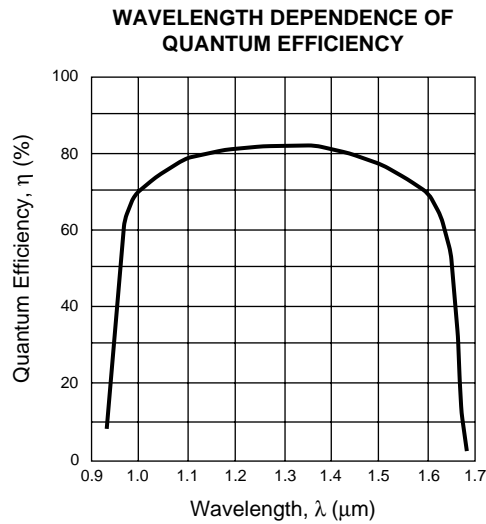
(T_C = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _R	Reverse Voltage	V	20
I _F	Forward Current	mA	10
P _{IN}	Optical Input Power	mW	8
T _C	Operating Case Temp.	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-40 to +85

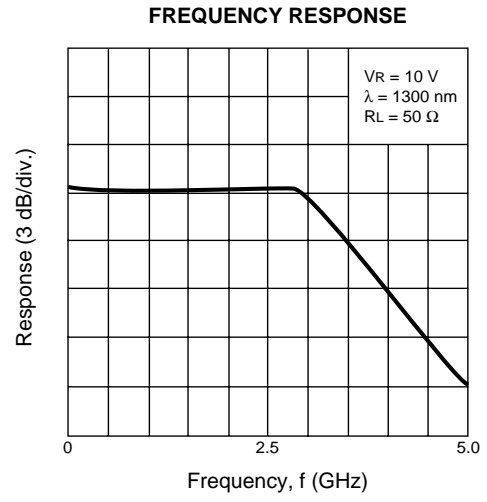
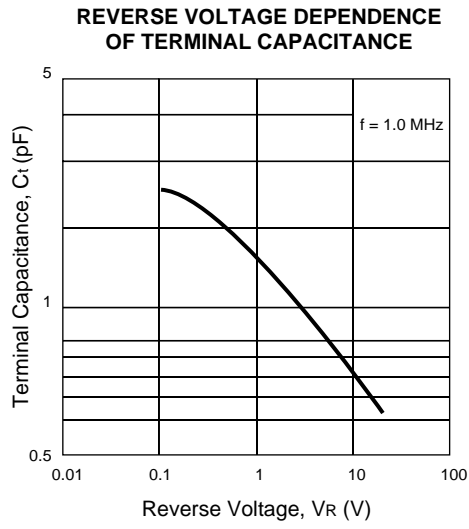
Note:

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

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



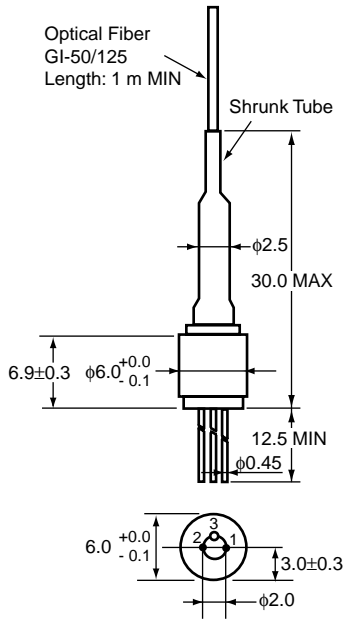
TYPICAL PERFORMANCE CURVES ($T_c = 25^\circ\text{C}$, unless otherwise specified)



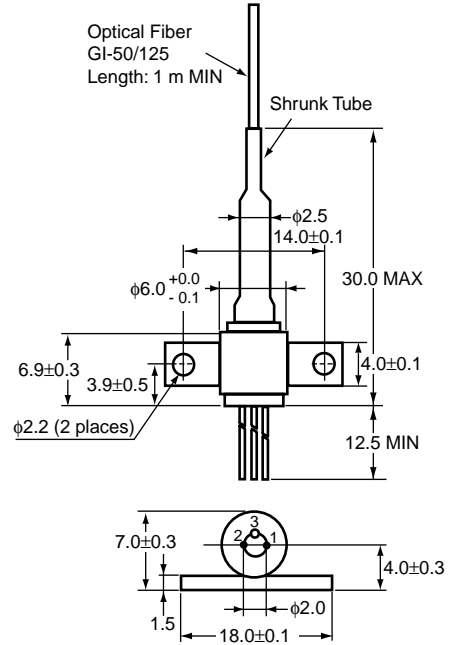
NDL5461P SERIES

OUTLINE DIMENSIONS (Units in mm)

NDL5461P



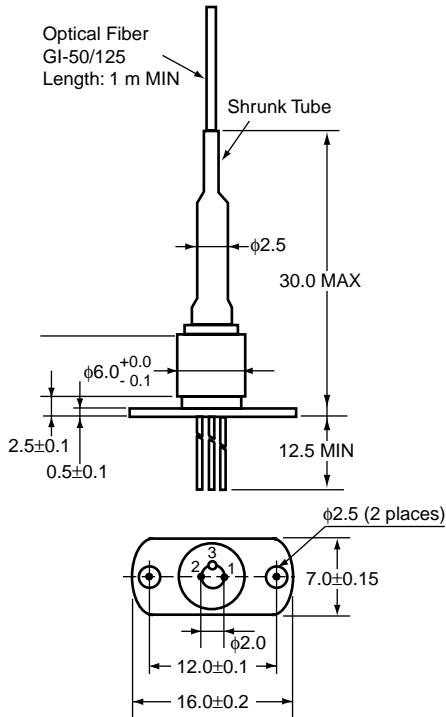
NDL5461P1



PIN CONNECTIONS
 1. Anode (Negative)
 2. Cathode (Positive)
 3. Case



NDL5461P2



ORDERING INFORMATION

PART NUMBER	AVAILABLE CONNECTOR	DESCRIPTION	
NDL5461P	Without Connector	GI-50/125	No Flange
NDL5461PC	With FC-PC Connector		
NDL5461PD	With SC-PC Connector		
NDL5461PS	Without Connector	SM-9/125	
NDL5461PSC	With FC-PC Connector		
NDL5461PSD	With SC-PC Connector		
NDL5461P1	Without Connector	GI-50/125	Flat Mount
NDL5461P1C	With FC-PC Connector		Flange
NDL5461P1D	With SC-PC Connector		
NDL5461P1S	Without Connector	SM-9/125	
NDL5461P1SC	With FC-PC Connector		
NDL5461P1SD	With SC-PC Connector		
NDL5461P2	Without Connector	GI-50/125	Vertical
NDL5461P2C	With FC-PC Connector		Flange
NDL5461P2D	With SC-PC Connector		
NDL5461P2S	Without Connector	SM-9/125	
NDL5461P2SC	With FC-PC Connector		
NDL5461P2SD	With SC-PC Connector		

HANDLING PRECAUTION FOR PD/APD MODULE

The NEC PD/APD module has heat shrink tubing to protect the ferrule edge (*1) and the junction between the ferrule and the module body (*2). In order to avoid breaking the fiber and/or optical coupling degradation, NEC recommends the following handling precautions:

- 1. Do not make the fiber bend radius less than 30 mm (*3).
- 2. Do not bend the fiber within the 18 mm section from the module body (*4).
- 3. Do not stress the ferrule with a lateral force exceeding 500 g (*5).

