NDL5004

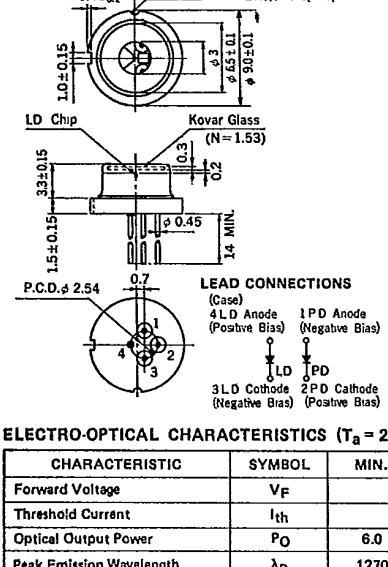
1 300 nm OPTICAL FIBER COMMUNICATIONS
InGaAsP DOUBLE HETEROSTRUCTURE LASER DIODE

DESCRIPTION

NDL5004 is a long wavelength laser diode especially designed for long distance high capacity transmission systems. The DC-PBH (Double Channel Planar Buried Heterostructure) can achieve stable fundamental oscillation in wide temperature range.

PACKAGE DIMENSIONS

in millimeters



FEATURES

- High output power. P_O = 8 mW
- Long wavelength. λ_P = 1 300 nm
- Low threshold current. I_{th} = 20 mA
- Narrow vertical angle and wide lateral beam angle
  $\theta_\perp \times \theta_{/\!/} = 35^\circ \times 28^\circ$
- Fundamental transverse mode.
- Wide operating temperature range.

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Reverse Voltage of LD	V_R	2.0	V
Optical Output Power of LD	P_O	15	mW
Operating Case Temperature	T_C	−40 to +70	°C
Storage Temperature	T_{stg}	−55 to +125	°C
Forward Current of PD	I_F	25	mA
Reverse Voltage of PD	V_R	20	V

ELECTRO-OPTICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Forward Voltage	V_F			1.3	V	I_F = 30 mA
Threshold Current	I_{th}		20	35	mA	
Optical Output Power	P_O	6.0	8.0		mW	$I_F = I_{th}$ +30 mA
Peak Emission Wavelength	λ_P	1270	1300	1330	nm	P_O = 6.0 mW
Half Power Spectral Width	$\Delta\lambda$			4.0	nm	P_O = 6.0 mW
Vertical Beam Angle	$\theta_\perp$		35		deg.	P_O = 6.0 mW, FAHM*
Lateral Beam Angle	$\theta_{/\!/}$		28		deg.	P_O = 6.0 mW, FAHM*
Rise Time	t_r		0.5	1.0	ns	10–90 %
Fall Time	t_f		0.7	1.0	ns	90–10 %
Monitor Current of PD	I_m	300	500	1500	μA	V_R = 5 V, P_O = 6.0 mW
Dark Current of PD	I_D			3	μA	V_R = 5 V

* FAHM : Full Angle at Half Maximum

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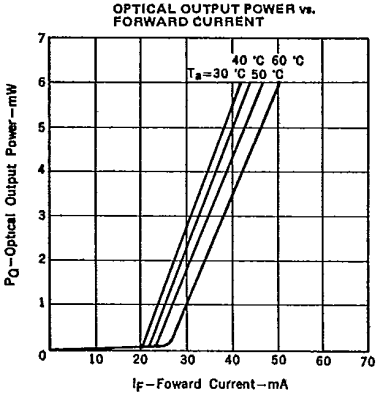
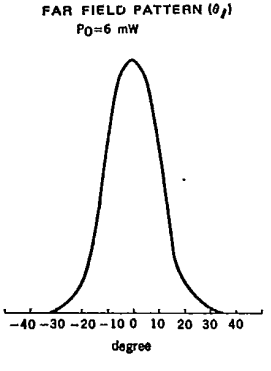
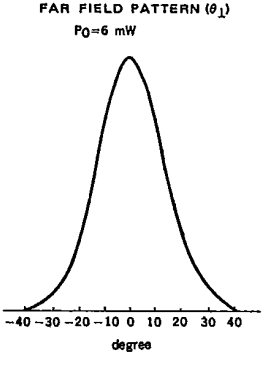
ELECTRO-OPTICAL CHARACTERISTICS (T_a = 60 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Forward Voltage	V_F			1.3	V	I_F = 30 mA
Threshold Current	I_{th}		40	60	mA	
Optical Output Power	P_O	5.0			mW	$I_F = I_{th}$ +30 mA
Peak Emission Wavelength	λ_P	1275	1315	1350	nm	P_O = 5.0 mW
Half Power Spectral Width	$\Delta\lambda$			4.0	nm	P_O = 5.0 mW
Rise Time	t_r		0.5	1.0	ns	10–90 %
Fall Time	t_f		0.7	1.0	ns	90–10 %
Monitor Current of PD	I_m	200			μA	V_R = 5 V, P_O = 5.0 mW
Dark Current of PD	I_D		12	25	μA	V_R = 5 V

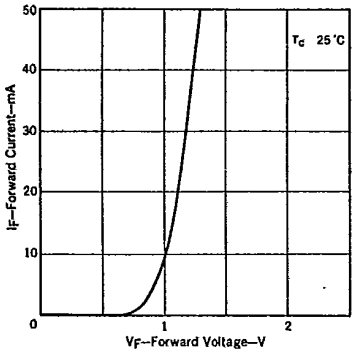
TYPICAL CHARACTERISTICS (T_a = 25 °C)



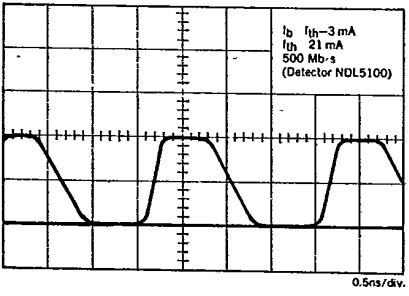




FORWARD CURRENT vs.
FORWARD VOLTAGE



PULSE RESPONSE



LONGITUDINAL MODE EMISSION SPECTRUM