VISIBLE LASER DIODE
NDL3321ST,NDL3321SU

5 mW, 650 nm AlGaInP MQW VISIBLE LASER DIODE FOR DVD, DVD-ROM APPLICATIONS

DESCRIPTION

The NDL3321ST and NDL3321SU are AlGaInP 650 nm visible laser diodes and especially developed for DVD, DVD-ROM. The newly developed Multiple Quantum Well (MQW) LD chip, can achieve low operating current, wide temperature range.

Use of a CD package allows easy replacement of conventional 780 nm LDs.

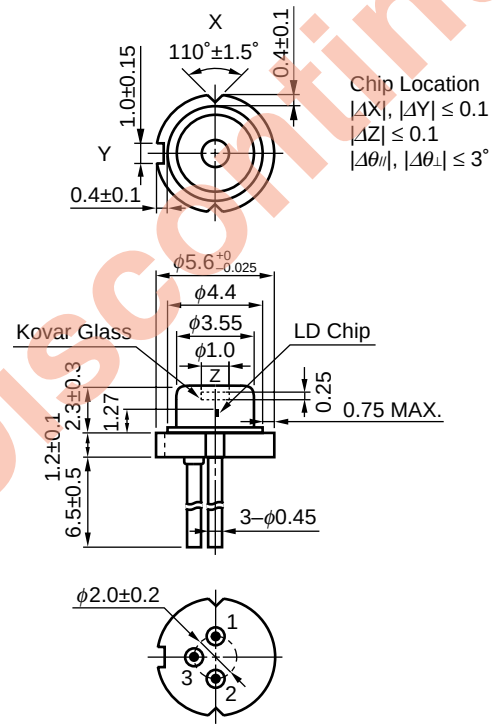
FEATURES

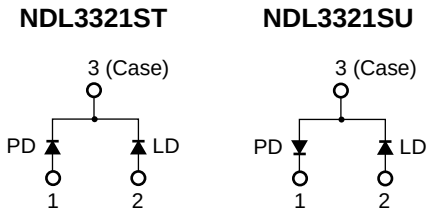
- Optical output power P_o = 5.0 mW
- Low threshold current I_{th} = 45 mA TYP.
- Low operating current I_{op} = 60 mA TYP.
- Low operating voltage V_{op} = 2.2 V TYP.
- Wide operating temperature range T_C = –10 to +70 °C
- Peak emission wavelength λ_p = 650 nm TYP.
- Fundamental transverse mode

APPLICATIONS

- DVD, DVD-ROM
- Measurement Instrument

PACKAGE DIMENSIONS
in millimeters





PIN CONNECTIONS

NDL3321ST	NDL3321SU
1. PD Anode	1. PD Cathode
2. LD Anode	2. LD Anode
3. Case Ground	3. Case Ground

The information in this document is subject to change without notice.

Document No. P12115EJ3V0DS00 (3rd edition)
Date Published November 1997 NS
Printed in Japan

The mark ★ shows major revised points.

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	6.0	mW
Reverse Voltage of LD	V_R	2.0	V
Forward Current of PD	I_F	20	mA
Reverse Voltage of PD	V_R	30	V
Operating Case Temperature	T_C	–10 to +70	°C
Storage Temperature	T_{stg}	–40 to +85	°C

RECOMMENDED OPERATING CONDITIONS (T_C = 25 °C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Optical Output Power	P_o			5.0	mW

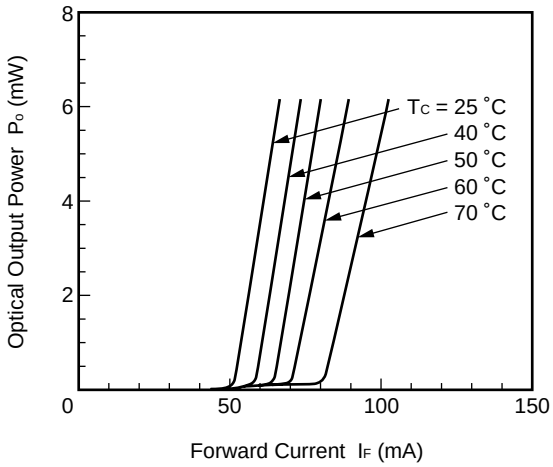
ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	P_o = 5.0 mW		2.2	2.7	V
Threshold Current	I_{th}	CW		45	65	mA
Operating Current	I_{op}	P_o = 5.0 mW		60	80	mA
Monitor Current	I_m	V_R = 5 V, P_o = 5.0 mW	0.1	0.3	0.5	mA
Peak Emission Wavelength	λ_p	P_o = 5.0 mW	645	650	657	nm
Vertical Beam Angle	$\theta_\perp$	P_o = 5.0 mW, FAHM[*1]	25	30	35	deg.
Lateral Beam Angle	$\theta_{//}$	P_o = 5.0 mW, FAHM[*1]	6	8	10	deg.

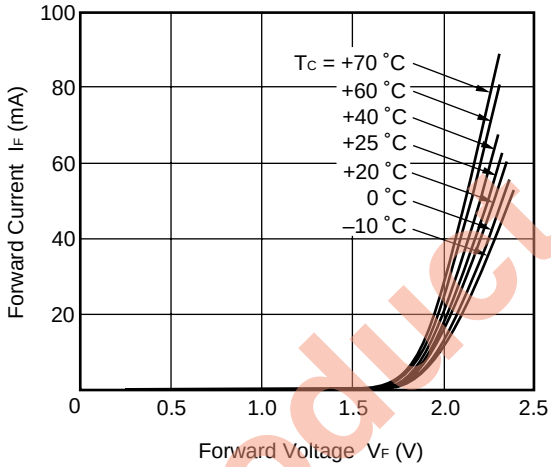
***1** FAHM: Full Angle at Half Maximum

★ **TYPICAL CHARACTERISTICS (T_C = 25 °C, unless otherwise specified)**

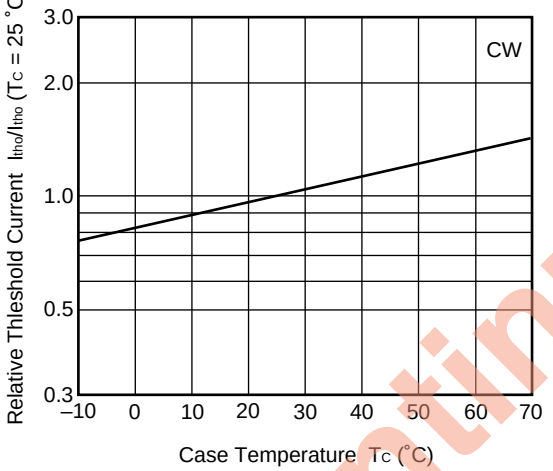
OPTICAL OUTPUT POWER vs. FORWARD CURRENT



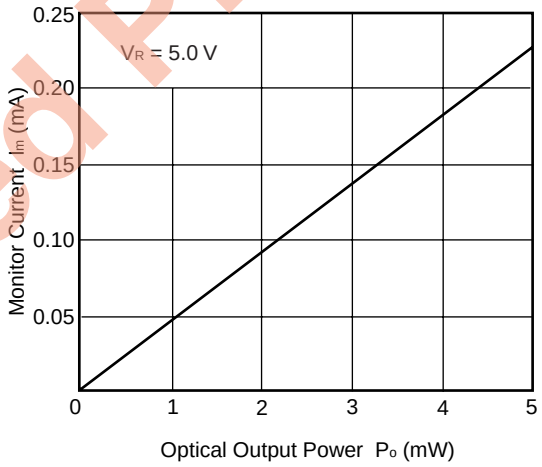
FORWARD CURRENT vs. FORWARD VOLTAGE



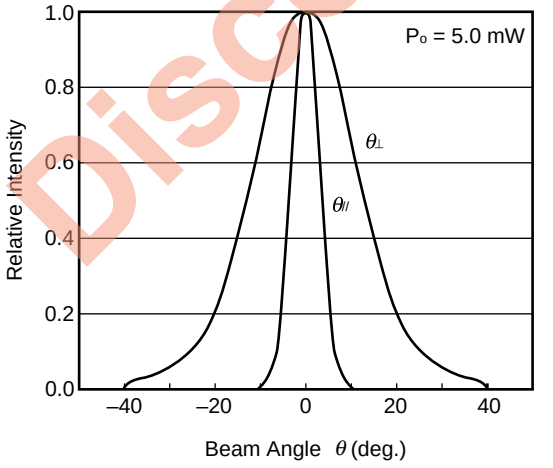
RELATIVE THRESHOLD CURRENT vs. CASE TEMPERATURE



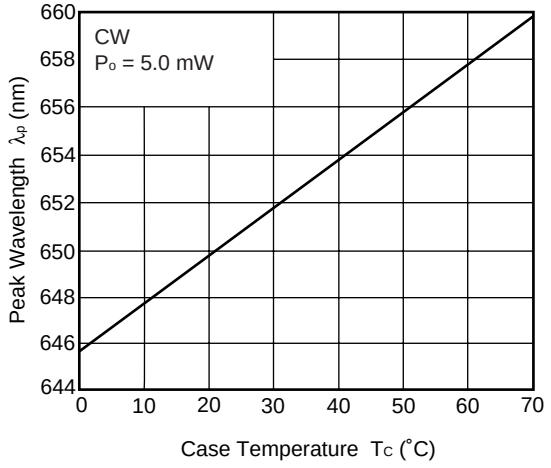
MONITOR CURRENT vs. OPTICAL OUTPUT POWER



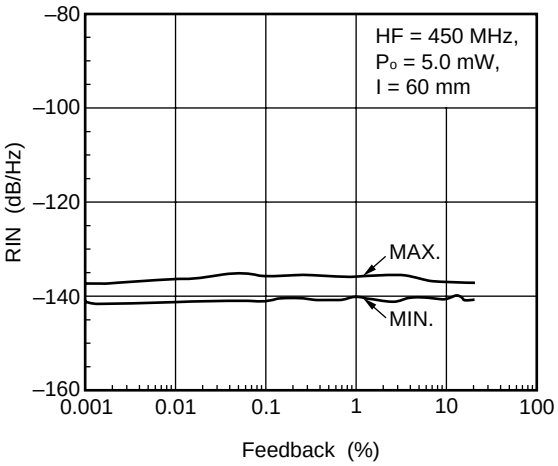
FAR FIELD PATTERN



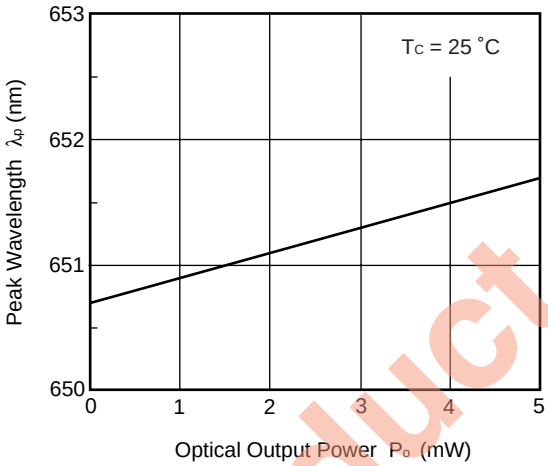
PEAK WAVELENGTH vs. CASE TEMPERATURE



RELATIVE INTENSITY NOISE

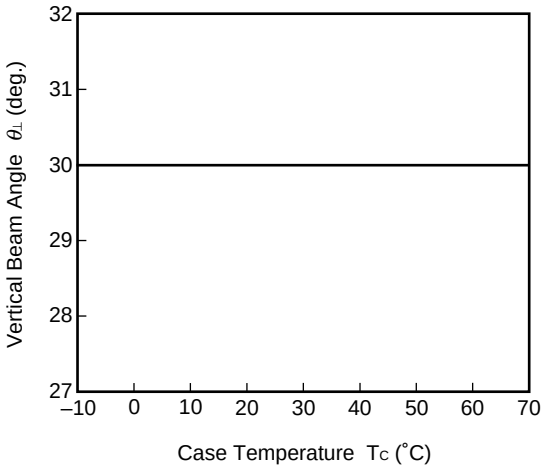


PEAK WAVELENGTH vs.
OPTICAL OUTPUT POWER

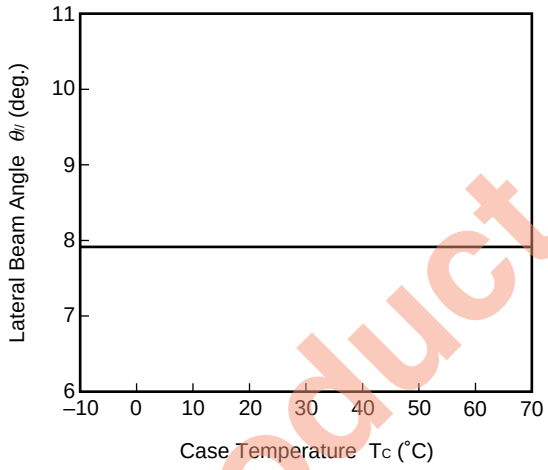


★ **TEMPERATURE DEPENDENCE OF OPTICAL CHARACTERISTICS**

VERTICAL BEAM ANGLE vs.
CASE TEMPERATURE



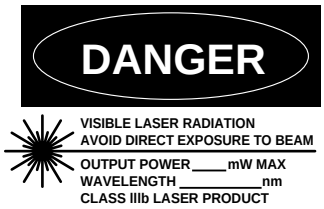
LATERAL BEAM ANGLE vs.
CASE TEMPERATURE

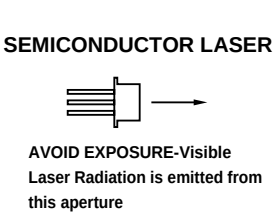


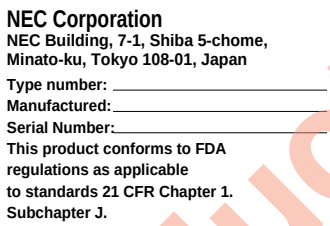
[MEMO]

CAUTION

Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstances break the hermetic seal.







Warning on Handling

To prevent health hazards, avoid looking directly or through lenses at beams from the operating laser diode.

Exceeding absolute maximum ratings' value may cause destruction or degradation of the device.