

# PRELIMINARY DATA SHEET

# NEC

# VISIBLE LASER DIODE NDL3325ST, NDL3325SU

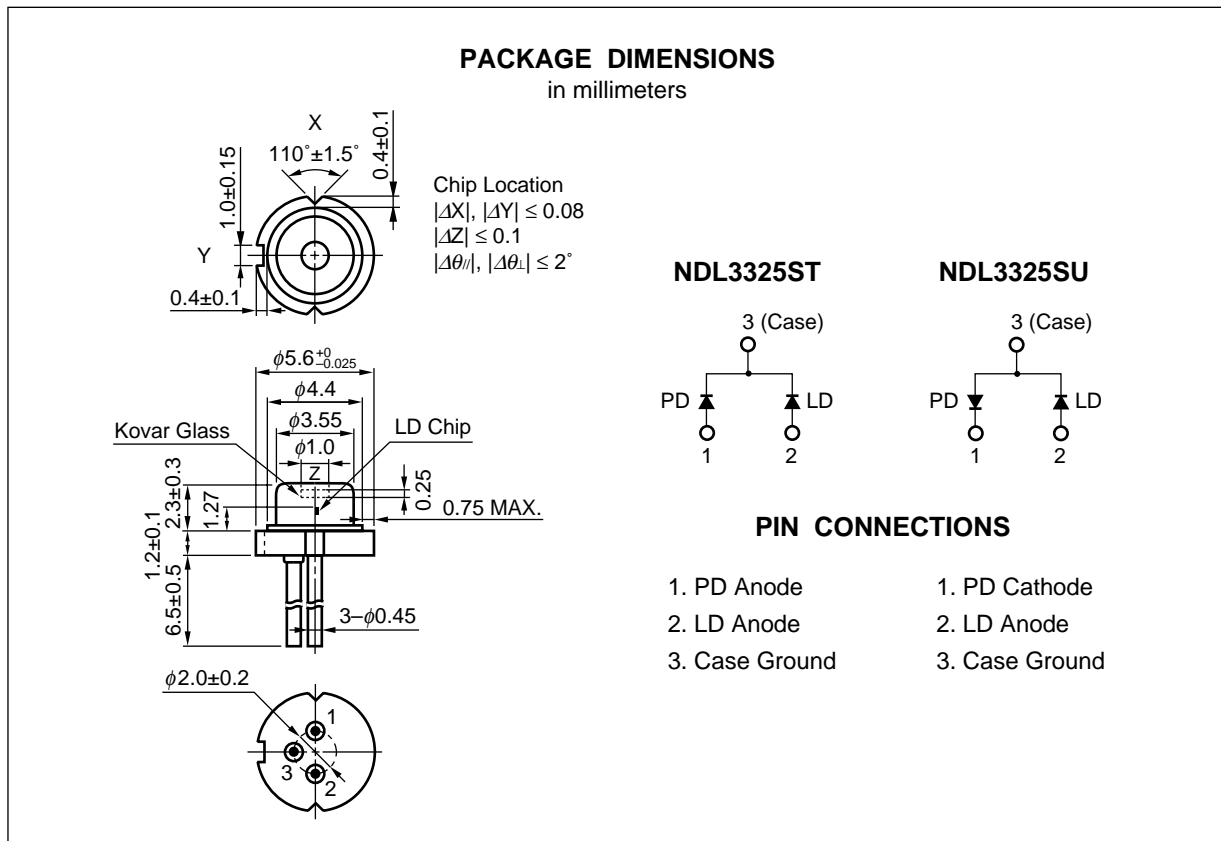
## 5 mW, 650 nm VISIBLE LASER DIODE HIGH OPERATING TEMPERATURE

### DESCRIPTION

The NDL3325ST and NDL3325SU are AlGaInP 650 nm visible laser diodes and especially developed for DVD applications. The newly developed Multiple Quantum Well (MQW) LD chip, can achieve low operating current and high operating temperature.

### FEATURES

- Optical output power  $P_o = 5.0 \text{ mW}$
- Low threshold current  $I_{th} = 40 \text{ mA TYP.}$
- Low operating current  $I_{op} = 50 \text{ mA TYP.}$
- Low operating voltage  $V_{op} = 2.1 \text{ V TYP.}$
- High operating temperature  $T_c = -20 \text{ to } +80 \text{ }^\circ\text{C}$
- Peak emission wavelength  $\lambda_p = 650 \text{ nm TYP.}$
- Fundamental transverse mode



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

**ABSOLUTE MAXIMUM RATINGS (T<sub>c</sub> = 25 °C, unless otherwise specified)**

Parameter	Symbol	Ratings	Unit
Optical Output Power	P <sub>o</sub>	8.0	mW
Reverse Voltage of LD	V <sub>R</sub>	2.0	V
Forward Current of PD	I <sub>F</sub>	20	mA
Reverse Voltage of PD	V <sub>R</sub>	30	V
Operating Case Temperature	T <sub>c</sub>	-20 to +80	°C
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C

**RECOMMENDED OPERATING CONDITIONS (T<sub>c</sub> = 25 °C)**

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Optical Output Power	P <sub>o</sub>			5.0	mW

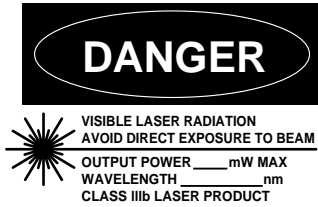
**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>c</sub> = 25 °C)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V <sub>op</sub>	P <sub>o</sub> = 5.0 mW		2.1	2.7	V
Threshold Current	I <sub>th</sub>	CW		40	65	mA
Operating Current	I <sub>op</sub>	P <sub>o</sub> = 5.0 mW		50	80	mA
Monitor Current	I <sub>m</sub>	V <sub>R</sub> = 5 V, P <sub>o</sub> = 5.0 mW	0.1	0.3	0.5	mA
Peak Emission Wavelength	λ <sub>p</sub>	P <sub>o</sub> = 5.0 mW	645	650	657	nm
Vertical Beam Angle	θ <sub>L</sub>	P <sub>o</sub> = 5.0 mW, FAHM <sup>*1</sup>	25	30	35	deg.
Lateral Beam Angle	θ <sub>L'</sub>	P <sub>o</sub> = 5.0 mW, FAHM <sup>*1</sup>	6	8	10	deg.

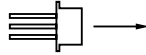
\*1 FAHM: Full Angle at Half Maximum

**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.



**SEMICONDUCTOR LASER**



**AVOID EXPOSURE-Visible**  
Laser Radiation is emitted from  
this aperture

**NEC Corporation**

NEC Building, 7-1, Shiba 5-chome,  
Minato-ku, Tokyo 108-01, Japan

Type number: \_\_\_\_\_

Manufactured: \_\_\_\_\_

Serial Number: \_\_\_\_\_

This product conforms to FDA  
regulations as applicable  
to standards 21 CFR Chapter 1.  
Subchapter J.

**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.

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NEC devices are classified into the following three quality grades:

"Standard", "Special", and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC devices is "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact an NEC sales representative in advance.

Anti-radioactive design is not implemented in this product.