

## Blue Laser Diode

# NDB7412T

## Test Sample

### Features

- Wavelength: 440-455nm
- Multi Transverse Mode
- Can Type:  $\phi$  5.6 mm Floating Mounted

### Absolute Maximum Ratings

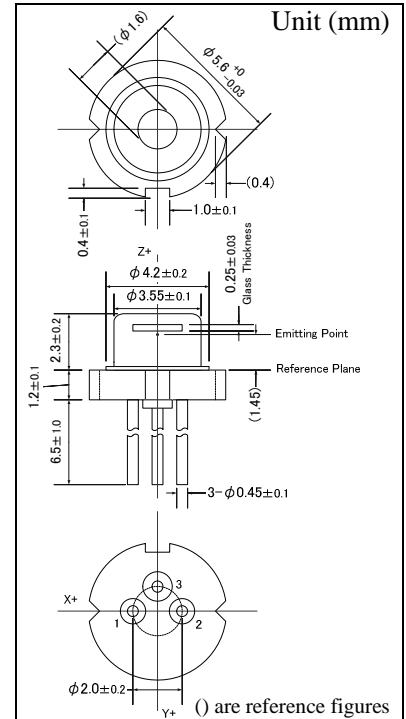
Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	If	1.2	A
Optical Output Power	Po	1.5	W
LD Reverse Voltage	Vr (LD)	5	V
Storage Temperature	Tstg	-40 ~ 85	°C
Operating Case Temperature	Tc	0 ~ 30	°C

### Initial Electrical/Optical Characteristics

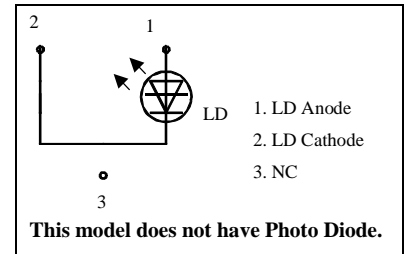
(Tc=25°C)

Item	Condition	Symbol	Min	Typ.	Max	Unit
Optical Output Power	If=1.0A	Po	0.75	1.00	-	W
Dominant Wavelength	If=1.0A	$\lambda_d$	440	-	455	nm
Threshold Current	CW	Ith	100	-	300	mA
Slope Efficiency	CW	$\eta$	0.8	-	1.8	W/A
Operating Voltage	If=1.0A	Vop	4.0	-	6.0	V
Beam Divergence Full Angle (1/e <sup>2</sup> )	If=1.0A	$\theta_{//}$	5	12	25	deg.
		$\theta_{\perp}$	30	40	50	deg.
Emission Point Accuracy	If=1.0A	$\Delta\theta_{\perp}$	-5.0	-	5.0	deg.

### Outline Dimension



### Pin Connection



All figures in this specification are measured by Nichia's method and may contain measurement deviations.

**This model is Test Sample for evaluation or design purpose only. Life time is not guaranteed.**  
The above specifications are for reference purpose only and subjected to change without prior notice.

### Safety of Laser light

- **Laser Light can damage the human eyes and skin.** Do not expose the eye or skin to any laser light directly and/or through optical lens. When handling the LDs, wear appropriate safety glasses to prevent laser light, even any reflections from entering to the eye. Focused laser beam through optical instruments will increase the chance of eye hazard.
- These LDs are classified in **Class 4 of IEC60825-1 and 21 CFR Part 1040.10 Safety Standards.** It is absolutely necessary to take overall safety measures against User's modules, equipment and systems into which Nichia LDs are incorporated and/or integrated.



### NICHIA CORPORATION

<http://www.nichia.co.jp>

#### ◆ HEADQUARTERS

491 Oka, Kaminaka-Cho, Anan-Shi, TOKUSHIMA 774-8601, JAPAN  
PHONE: +81-884-22-2311 FAX: +81-884-21-0148

#### ◆ CONTACT

TOKYO SALES OFFICE

13F Tamachi Center Building 34-7, Shiba 5-Chome, Minato-Ku, TOKYO 108-0014, JAPAN  
PHONE: +81-3-3456-3108 FAX: +81-3-5440-7330

## ■ Cautions

### (1) Operating method

- The LD shall change its forward voltage requirement and optical output power according to temperature change. Also, the LD will require more operation current to maintain same output power as it degrades.
- Confirm that electrical spike current generated by switching on and off does not exceed the maximum operating current level specified herein above as absolute max rating. Also, employ appropriate countermeasures to reduce chattering and/or overshooting in the Circuit.
- ACC(Auto Current Control) mode is recommended for the Product operation. Also, please be careful for the overshooting in order to avoid excessive optical output power as the laser operation is started.

### (2) Static Electricity

- Static electricity or electrical surges will reduce and degrade the reliability of the LDs. It is recommended to use a wrist strap or anti-electrostatic glove when handling the Product.

### (3) Absolute Maximum Rating

- Active layer of LDs shall have high current density and generate high electric field during its operation. In order to prevent excessive damage, the LD must be operated strictly below Absolute Max Rating.

### (4) Others

- Nichia LDs described in this brochure are intended to be used for ordinary electronic equipment (such as office equipment, communications equipment, measurement instruments and household appliances). Consult Nichia's sales staff in advance for information on the applications in which exceptional quality and reliability are required, particularly when the failure or malfunction of the LDs may directly jeopardize life or health (such as for airplanes, aerospace, submersible repeaters, nuclear reactor control systems, automobiles, traffic control equipment, life support systems and safety devices).
- The Purchaser must acknowledge that any LD can be failed statically and must design its equipments fail safe design. Prior to use of the LD, please confirm that the LD, as described in Nichia's specifications, meets the life expectancy needs of, and provides the features required by the Circuit and any related modules, equipment and/or systems.
- Due to its short wavelength and high optical output power, optical depositions on optical path may occur depending on surrounding conditions. Appropriate design or countermeasures should be used to avoid optical depositions.
- Nichia prohibit Purchaser from reverse engineering, disassembling, or taking any other steps to derive the structure or design of the LD.
- The appearance and specifications of the product may be modified for improvement without notice. The formal specifications must be exchanged and signed by both parties before large volume purchase begins.
- No unauthorized transmission or reproduction of this document, either in whole or in part, is permitted.