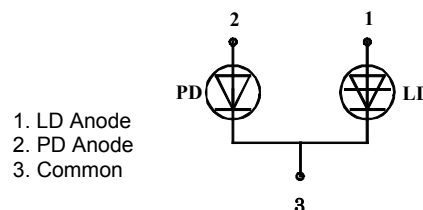


# Violet Laser Diode

# NDHV310APB

## ■Features

- Optical Output Power: 30mW
- Single Transverse Mode
- Can Type:  $\phi$  5.6 with Photo Diode



## ■Absolute Maximum Ratings

| Item                       | Symbol | Absolute Maximum Ratings | Unit |
|----------------------------|--------|--------------------------|------|
| Optical Output Power       | Po     | 35                       | mW   |
| Reverse Voltage            | LD     | Vr(LD)                   | V    |
|                            | PD     | Vr(PD)                   | V    |
| Storage Temperature        | Tstg   | -35 ~ 85                 | °C   |
| Operating Case Temperature | Tc     | -10 ~ 60                 | °C   |

## ■Initial Electrical/Optical Characteristics

(Tc=25°C, Po=30mW/CW)

| Item                    | Symbol           | Min                    | Typ. | Max | Unit             |
|-------------------------|------------------|------------------------|------|-----|------------------|
| Optical Output Power    | Po               | -                      | 30   | -   | mW               |
| Peak Wavelength*        | $\lambda_p$      | 400                    | 408  | 415 | nm               |
| Threshold Current       | Ith              | -                      | 45   | 60  | mA               |
| Operating Current       | Iop              | -                      | 70   | 90  | mA               |
| Slope Efficiency        | $\eta$           | 0.7                    | 1.2  | 1.6 | W/A              |
| Operating Voltage       | Vop              | -                      | 4.5  | 5.5 | V                |
| FWHM Beam Divergence    | $\theta_{//}$    | 5                      | 8    | 13  | °                |
|                         | $\theta_{\perp}$ | 18                     | 24   | 30  | °                |
| Emission Point Accuracy | Angle            | $\Delta\theta_{//}$    | -    | -   | $\pm 2.5$ °      |
|                         |                  | $\Delta\theta_{\perp}$ | -    | -   | $\pm 3$ °        |
|                         | Position         | $\Delta X, Y, Z$       | -    | -   | $\pm 80$ $\mu$ m |
| Monitor Current**       | Im               | 0.1                    | 0.25 | 0.6 | mA               |

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

\*: FWHM < 1nm

\*\* : When used at 30mW by monitor APC drive and Temperature is changed from 20 °C to 60 °C, optical output may increase or decrease up to 10%. Also, when used at constant temperature 25 °C, 30mW by monitor APC drive, optical output may change up to 5% in 24 hours.

If your application requires precise output power control, monitor current should not be used as reference for output power. Use additional external PD to monitor output power.

## NICHIA CORPORATION

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### ● CONTACT

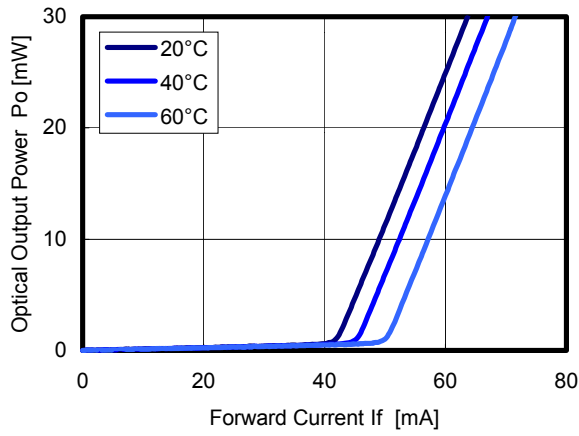
TOKYO SALES DEPARTMENT OPTOELECTRONICS PRODUCTS DIV.: 13F TAMACHI CENTER BUILDING, 34-7, SHIBA 5-CHOME, MINATO-KU, TOKYO 108-0014, JAPAN

PHONE: +81-3-3456-3108 FAX: +81-3-5440-7330

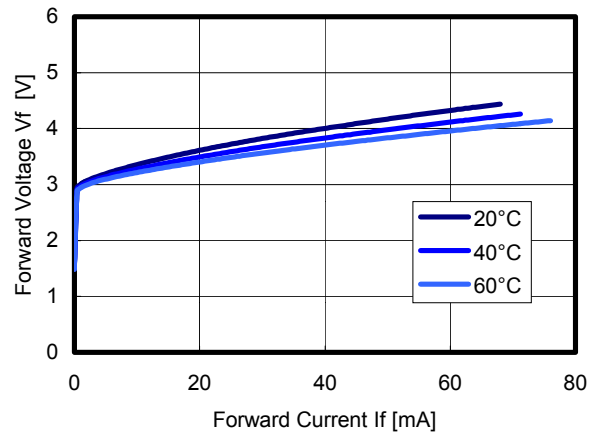
E-mail: [laser@tokyo.nichia.co.jp](mailto:laser@tokyo.nichia.co.jp)

## ■ Typical Characteristics

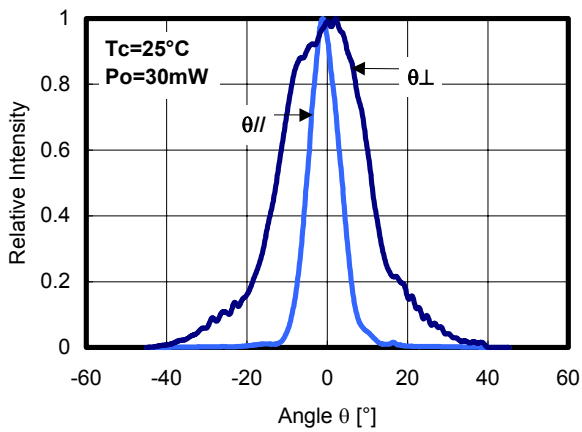
◆ **Optical Output Power vs. Forward Current**



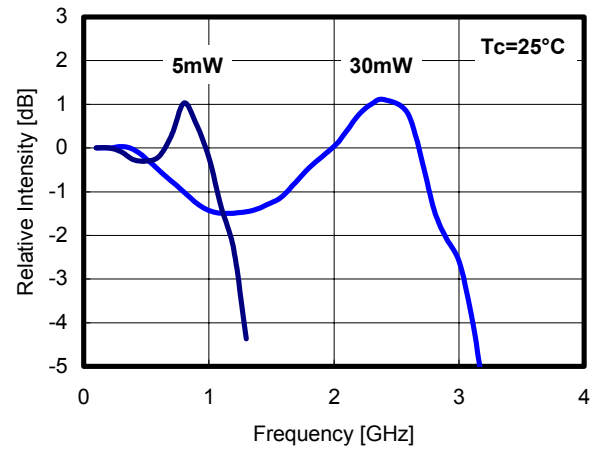
◆ **Forward Voltage vs. Forward Current**



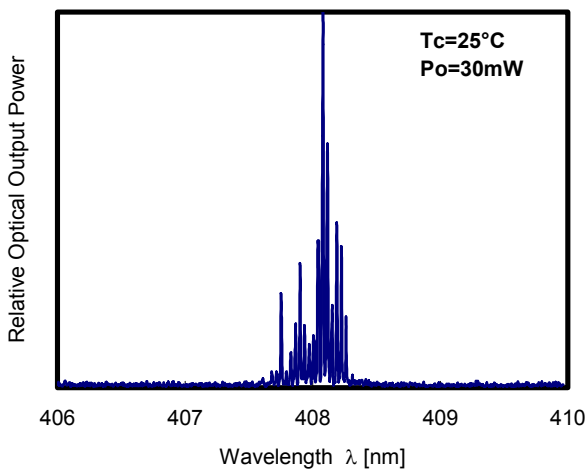
◆ **Far Field Pattern**



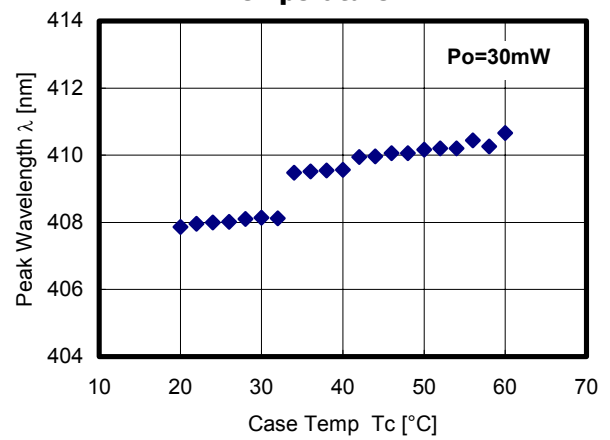
◆ **Frequency Response**



◆ **Typical Spectrum**

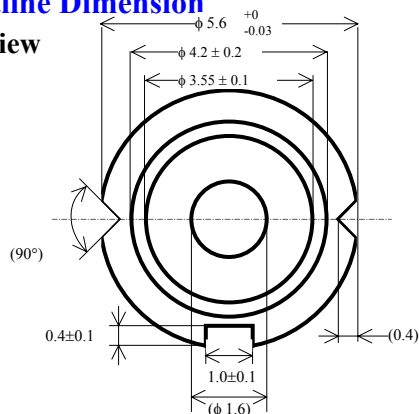


◆ **Peak Wavelength vs. Case Temperature**

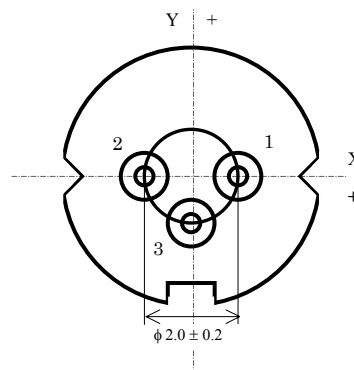


## ■ Outline Dimension

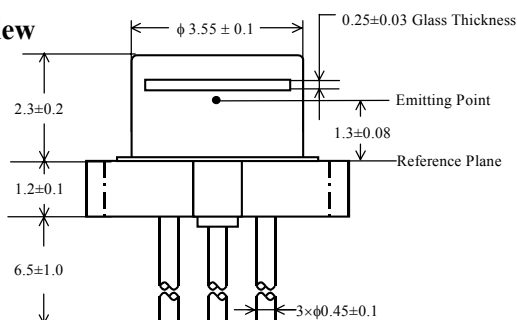
### Top View



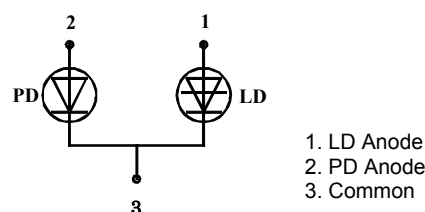
### Bottom View



### Side View



## Connection



( ) are reference figures

## ■ Safety of Laser light

- **Laser light can damage the human eye and the eyes of animals.** Do not look at any laser light directly or through any optical lens. When handling a laser diode, do not look directly at the light generated by it. Wear appropriate safety glasses to prevent light from entering the eye by reflection off of another surface.
- Nichia LDs are classified in **Class 3B 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.



This product is comply with 21 CFR Part 1040.10

Manufactured by NICHIA HQP

 **NICHIA CORPORATION**

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## ■ Operating method

- Laser diodes are to change forward voltage and light output power due to the fluctuation in temperature etc. They have some tendency to gradually increase electric current necessary to keep the output power constant during their operation. When precise optical output control is required, it is recommended to use an external photo diode to monitor output power and use APC (Automatic Power Control) function in the operating circuit.

## ■ Cautions on LD handling

- Static Electricity and surge damage the LDs. It is recommended to use a wrist strap or anti-electrostatic glove when handling the Product.
- 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 specifications of the Product may be modified for improvement without prior notice. The formal specifications must be exchanged and signed by both parties before a user starts mass production.
- Strictly prohibited are reverse engineering and disassembly concerning, but not limited to, structure and composition of the Product.
- Caution-use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.