NICHIA

Ultra Violet Laser Diode

NDU7216

■Features

- Optical Output Power: 200mW
- Can Type: ϕ5.6 Floating Mounted with Photo Diode and Zener Diode
- Peak Wavelength: 375nm

■Absolute Maximum Ratings

Item	Symbol	Absolute Maximum Ratings	Unit
Optical Output Power	Po	250	mW
Allowable Reverse Current	Ir (LD)	85	mA
PD Reverse Voltage	Vr (PD)	5	V
Storage Temperature	Tstg	-40 ~ 85	°C
Operating Case Temperature	Tc	20 ~ 30	°C

■Initial Electrical/Optical Characteristics

(Tc=25°C)

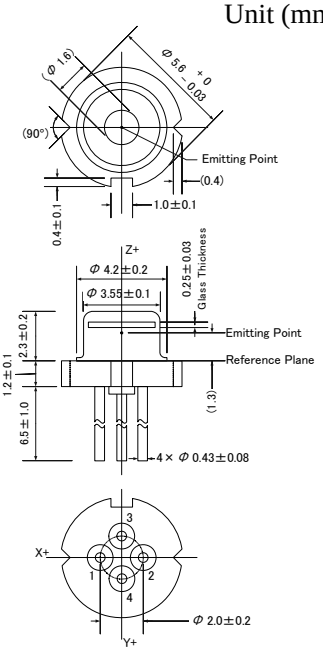
Item		Condition	Symbol	Min	Typ.	Max	Unit
Optical Output Power		CW	Po	-	-	200	mW
Peak Wavelength		Po=200mW	λp	370	375	380	nm
Threshold Current		CW	Ith	100	200	250	mA
Operating Current		Po=200mW	Iop	300	390	450	mA
Slope Efficiency		CW	η	0.8	1.1	1.8	W/A
Operating Voltage		Po=200mW	Vop	4.0	4.4	5.0	V
Beam Divergence*	Parallel	Po=200mW	θ//	9	19	25	°
	Perpendicular		θ⊥	30	40	45	°
Beam Pointing Accuracy	Perpendicular	Po=200mW	Δθ⊥	-5.0	-	5.0	°
Monitor Current**		Po=200mW	Im	0.2	-	2.0	mA

* Full angle at $1/e^2$ from peak intensity

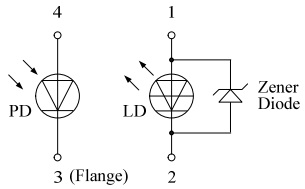
** Monitor Current is short time power reference purpose only. Not guaranteed for accuracy.

Outline Dimension

Unit (mm)



Pin Connection



1. LD Anode 2. LD Cathode
3. PD Cathode 4. PD Anode

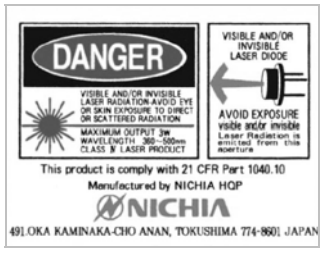
This model has a Zener Diode built in as a protection circuit against static electricity.

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

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.

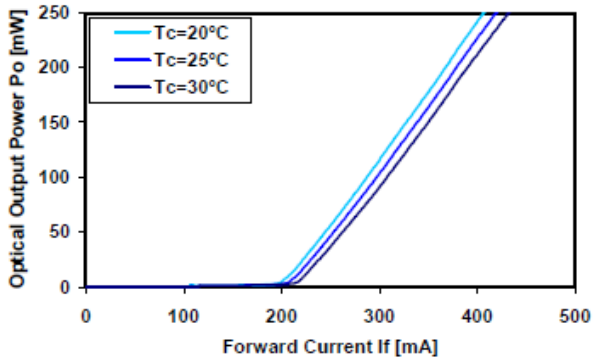


NICHIA CORPORATION
http://www.nichia.co.jp

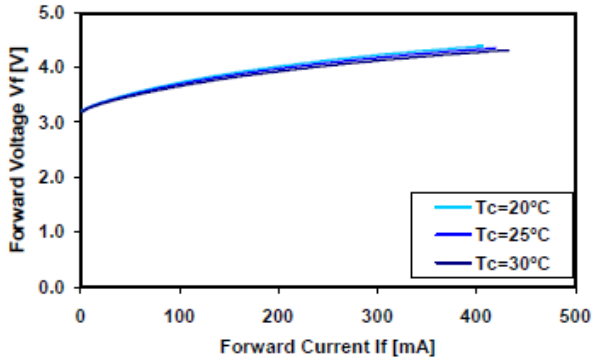
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Typical Characteristics

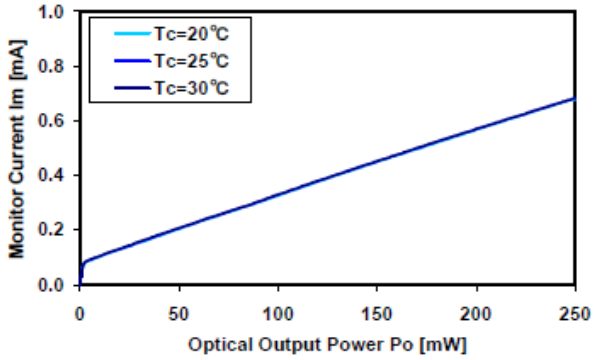
◆Optical Output Power vs. Forward Current



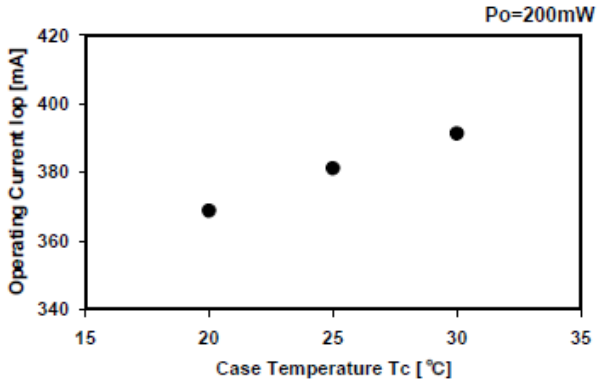
◆Forward Voltage vs. Forward Current



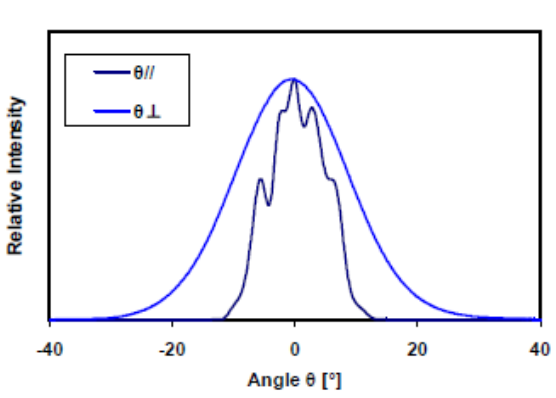
◆Monitor Current vs. Optical Output Power

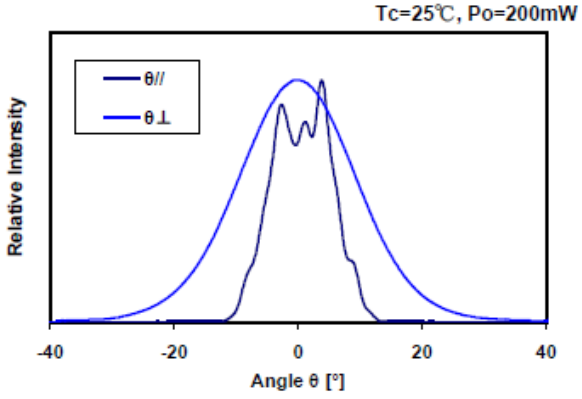


◆Operating Current vs. Case Temperature

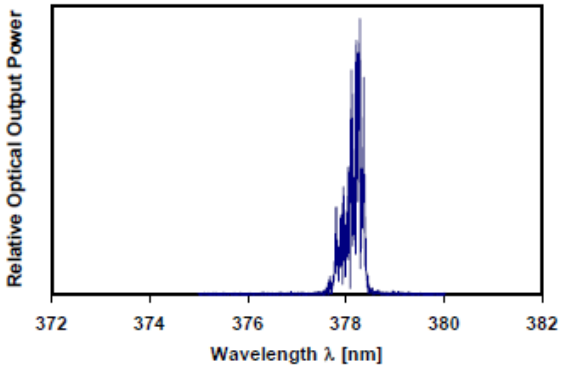


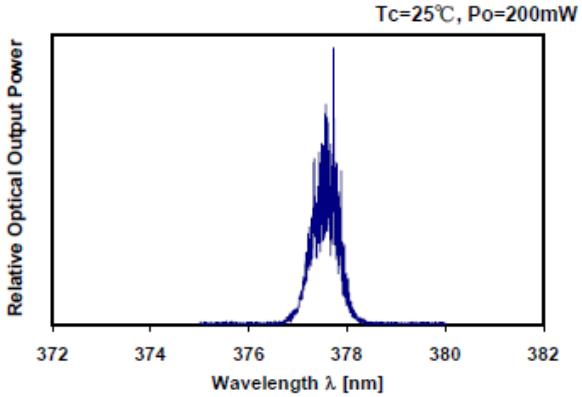
◆Far Field Pattern





◆Typical Spectrum





■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. In order to maintain output power, use of APC (Automatic Power Control) is recommended, which use feedback of the optical output power to adjust the operation current.
- Confirm that the optical output power generated by spike current when switching on and off does not exceed the maximum absolute rating. Also, employ appropriate countermeasures to reduce chattering and/or overshooting in the Circuit.

(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 statistically fail and must design its equipments in a 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 prohibits 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.
- **This LD contains the one of candidate substance of SVHC (Substance of Very High Concern) specified in REACH (Regulation, Evaluation, Authorization and Restriction of Chemicals) regulation. Nichia reports following information on the basis of Article 33 (Duty to communicate information on substances in articles) in REACH.**

  Model number : NDU7216
  Affected component : Sealing glass
  Substance name : Lead titanium trioxide , CAS number : 12060-00-3
  Content : 0.2% to 0.3% per product