



Part No. **NUV103E**

Engineering Sample

Outline

This Laser Diode Module (or LD Module) generates up to 20W by bundling 20 fibers coupled laser diodes. Slimly designed for compactness as well as easy replacement. It is expected for use as light source of the exposure devices / medical devices / biological detectors, etc.

Features

- Long life
- Low electric power consumption
- Easy operation
- Compact
- High flexibility for designing light source (Custom output power/ arrangement are available.)

Specifications

- Optical output power: 20W
- Wavelength: 400 ~ 406nm
- Bundle-fiber: Outside diameter : 650um (NA=0.22)
- Power supply: DC24V (8.2A)
- Cooling conditions: Coolants : 100% Distilled water
Water temperature (Tc) : 15~20°C
Flow rate : 2 liter / min
Connection : 4 (inner diameter) x 6 (outer diameter) mm Nylon tube
- Dimensions: 224.0 (W) x 355.5 (D) x 28.5 (H) mm
- Weights: 1.6kg

Absolute Maximum Ratings

Item	Symbol	Absolute Maximum Ratings	Unit
Optical Output Power	P _O	22	W
Operating Current	I _F	8.15	A
LD Drive Current Control Signal	DRV_LD	3.2	V
Storage Temperature	T _{stg}	-40 ~ 85	°C
Circumference Temperature	T _A	23 ± 5	°C
Humidity ¹	-	70	%RH

¹ No condensation

Initial Electrical/Optical Characteristics

(Tc=20°C)

Item	Condition	Symbol	Min	Typ.	Max	Unit
Optical Output Power	CW	P _O	-	-	20	W
Peak Wavelength	P _O =20W	λ _p	400	-	406	nm
Operating Current	P _O =20W	I _F	-	(5.65)	7.15	A
LD Drive Current Control Signal	P _O =20W	DRV_LD	-	(2.20)	2.80	V

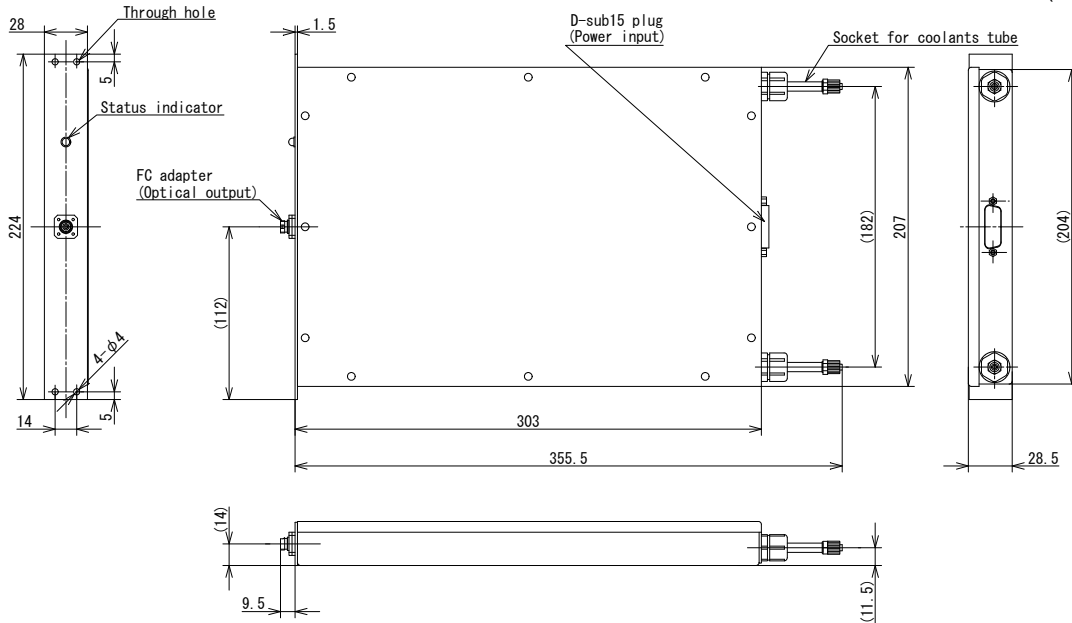
All figures in this specification are measured by Nichia's method and may contain measurement deviations. This model is Engineering Sample for evaluation or design purpose only. Life time is not guaranteed. The above specifications are for reference purpose only and subjected to change without prior notice.

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■ Outline Dimension

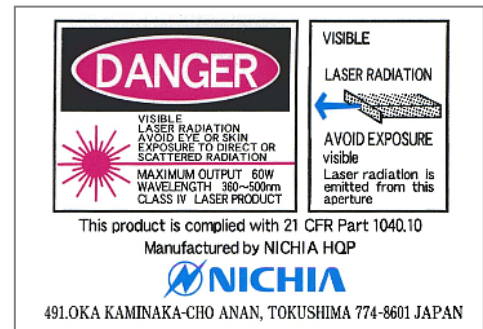
(Unit: mm)



■ Cautions

(1) Safety of Laser light

- **Laser light can damage the human eye and skin.** Do not expose the eye or skin to any laser light directly or through any optical lens. When handling the LD Modules, 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. The following specifications are required of the safety glasses.**
 - Wavelength : 300nm ~ 500nm
 - OD (Optical Density) : ≥ 5
 - Visible Light Transmission: $> 20\%$
- This LD Module is 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 LD Modules are incorporated and/or integrated.



(2) Operating method

- This LD Modules may change light output power due to the fluctuation in temperature etc. It has some tendency to gradually increase electric current necessary to keep the output power constant during its 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.
- 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.

(3) Static Electricity

- Static electricity or electrical surges will reduce and degrade the reliability of the LD Modules. When working with the LD Modules, take countermeasures to avoid the generation of static electricity.

(4) Absolute Maximum Rating

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

(5) Others

- The LD Module is intended to be used for ordinary electronic equipment (such as printer, exposure devices, etc). 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 LD Modules 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).
- Nichia prohibits Purchaser from reverse engineering, disassembling, or taking any other steps to derive the structure or design of the LD Modules.
- The appearance and specifications of this LD Module may be modified for improvement without notice. The formal specifications must be exchanged and signed by both parties before large volume purchase begins.