

50mW High Power Laser Diode

Description

The SLD201U-3/V-3 is a gain-guided high-power laser diode fabricated by MOCVD.

Features

High power laser diode with the excellent general purpose

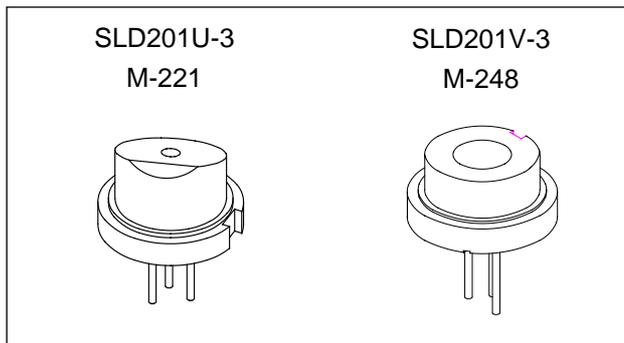
Application

Optical disc, Laser printer

Structure

AlGaAs double-hetero laser diode, PIN photo diode included for monitoring the laser radiant power output

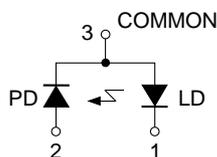
Recommended Radiant Power Output 40mW



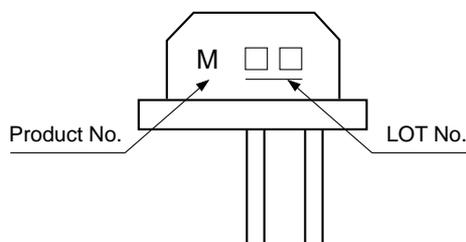
Absolute Maximum Ratings (Tc = 25°C)

- Optical power output Po 50 mW
- Reverse voltage VR LD 2 V
- PD 30 V
- Operating temperature Topr -10 to +50 °C
- Storage temperature Tstg -40 to +85 °C

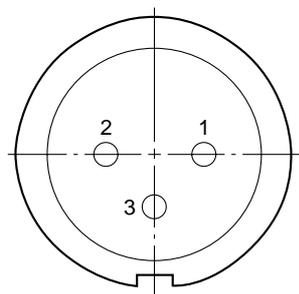
Connection Diagram



Marking



Pin Configuration



Bottom View

- 1. LD Cathode
- 2. PD Anode
- 3. COMMON

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Electrical and Optical Characteristics

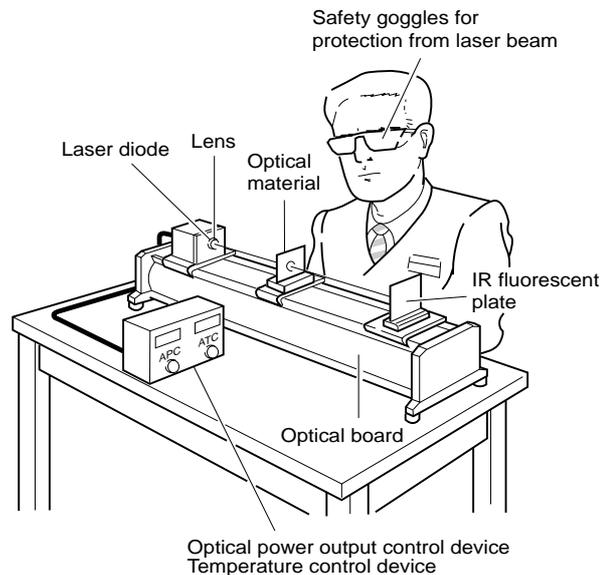
(T_c = 25°C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit		
Threshold current	I _{th}			80	110	mA		
Operating current	I _{op}	P _o = 40mW		120	160	mA		
Operating voltage	V _{op}	P _o = 40mW		2.1	2.5	V		
Wavelength	λ	P _o = 40mW	760	780	800	nm		
Monitor current	I _m	P _o = 40mW V _R = 15V	0.05	0.24	1.2	mA		
Radiation angle	Perpendicular	θ _⊥	P _o = 40mW		28	38	degree	
	Parallel			θ _{//}	7	14	21	degree
Positional accuracy	Position	ΔX, ΔY, ΔZ	P _o = 40mW			±50	μm	
	Angle	Δφ _⊥					±3	degree
		Δφ _{//}						
Differential efficiency	η _D	P _o = 40mW	0.3	1.0		mW/mA		
Dark current of PD	I _D	V _R = 15V			0.15	μA		

Handling Precautions

(1) Eye protection against laser beams

The optical output of laser diodes ranges from several mW to 4W. However the optical power density of the laser beam at the diode chip reaches 1MW/cm². Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing laser beams, ALWAYS use safety goggles that block infrared rays. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.

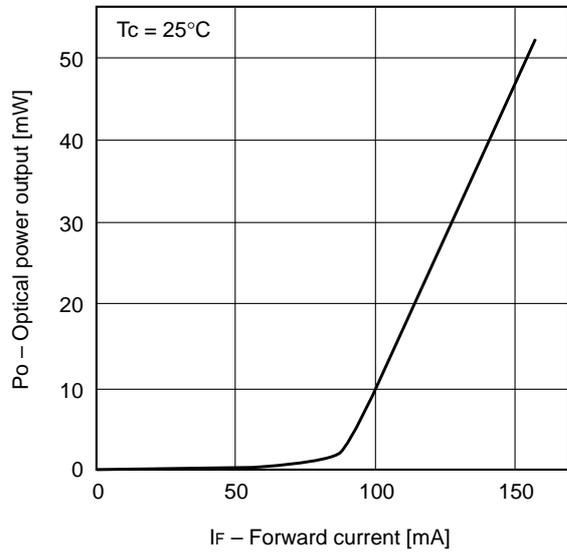


(2) Prevention of surge current and electrostatic discharge

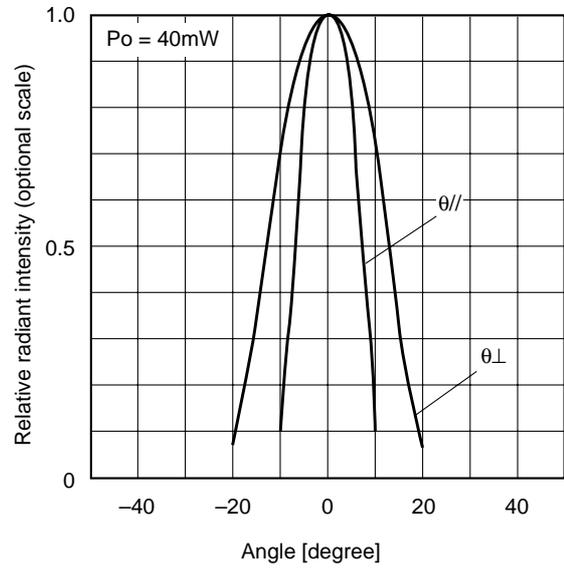
Laser diode is most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode even for an extremely short time (in the order of nanosecond), the strong light emitted from the laser diode promotes deterioration and then laser diodes are destroyed. Therefore, note that the surge current should not flow the laser diode driving circuit from switches and others. Also, if the laser diode is handled carelessly, it may be destructed instantly because electrostatic discharge is easily applied by a human body. Be great careful about excess current and electrostatic discharge.

Example of Representative Characteristics

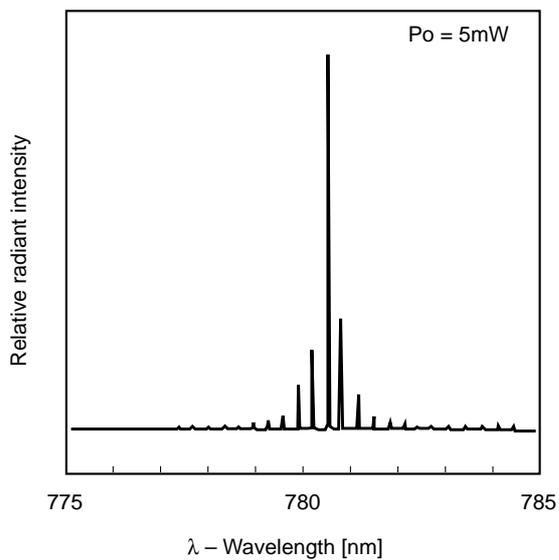
Optical power output vs. Forward current characteristics



Far field pattern (FFP)



Relative radiant intensity vs. Wavelength characteristics



Relative radiant intensity vs. Wavelength characteristics

