

SONY

SLD301V

100mW High Power Laser Diode

Description

SLD301V is a gain-guided, high-powered laser diode fabricated by MOCVD.

MOCVD: Metal Organic Chemical Vapor Deposition

Features

- High power
Recommended power output $P_o = 90\text{mW}$
- Small operating current

Applications

- Solid state laser excitation
- Medical use

Structure

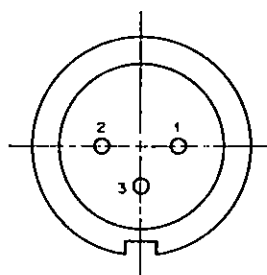
GaAlAs double-hetero laser diode

Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

• Radiant power output	P_o	LD	100	mW
• Reverse voltage	V_R	LD	2	V
		PD	15	V
• Operating temperature	T_{opr}		-10 to +50	$^\circ\text{C}$
• Storage temperature	T_{stg}		-40 to +85	$^\circ\text{C}$

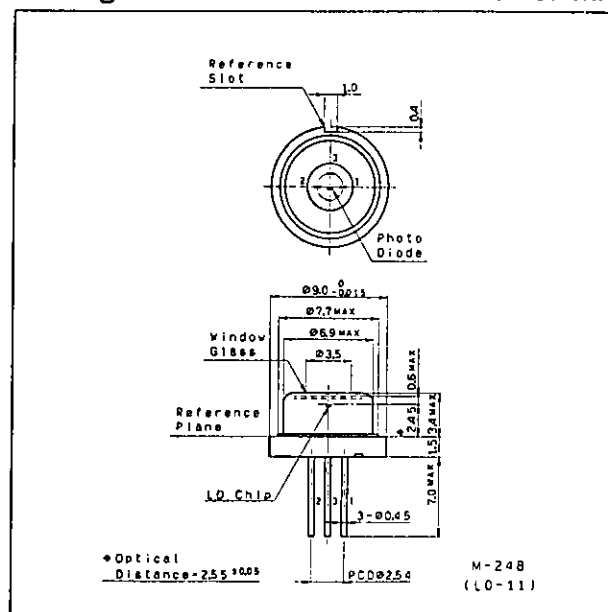
Pin Configuration (Bottom View)

No.	Function
1	Laser diode cathode
2	Photodiode anode
3	Common



Package Outline

Unit: mm



Optical and Electrical Characteristics

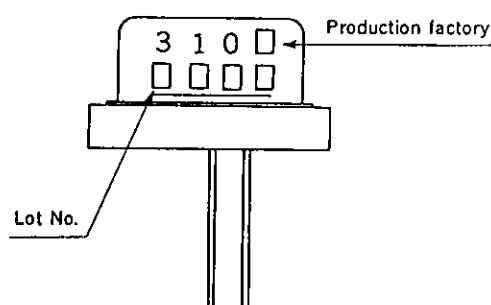
T_c=25°C

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current		I _{th}			150	200	mA
Operating current		I _{OP}	P ₀ =90mW		250	400	mA
Operating voltage		V _{OP}	P ₀ =90mW		1.9	3.0	V
Wavelength*		λ _p	P ₀ =90mW	770		840	nm
Monitor current		I _{mon}	P ₀ =90mW V _R =10V		0.15		mA
F. W. H. M	Perpendicular	θ _⊥	P ₀ =90mW		28	40	degree
	Parallel	θ			12	17	degree
Positional accuracy	Position	ΔX, ΔY	P ₀ =90mW			±50	μm
	Angle	Δφ _⊥				±3	degree
Slope efficiency		η _D	P ₀ =90mW	0.65	0.9		mW/mA

*Wavelength Selection Classification

Type	Wavelength (nm)
SLD301V-1	785±15
SLD301V-2	810±10
SLD301V-3	830±10
SLD301V-21	798± 3
-24	807± 3
-25	810± 3

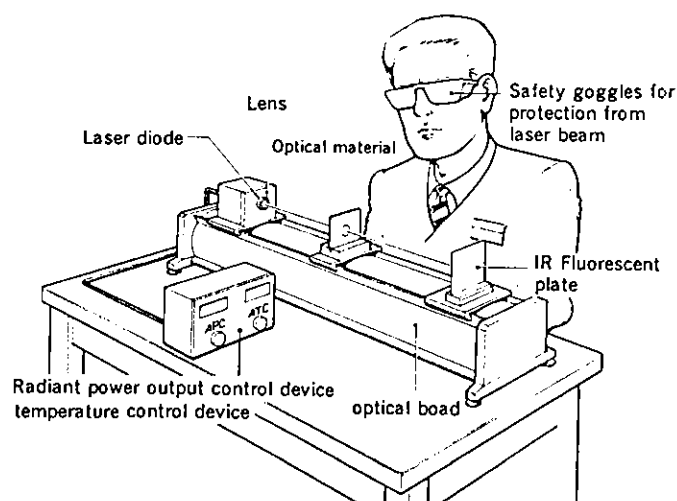
Marking



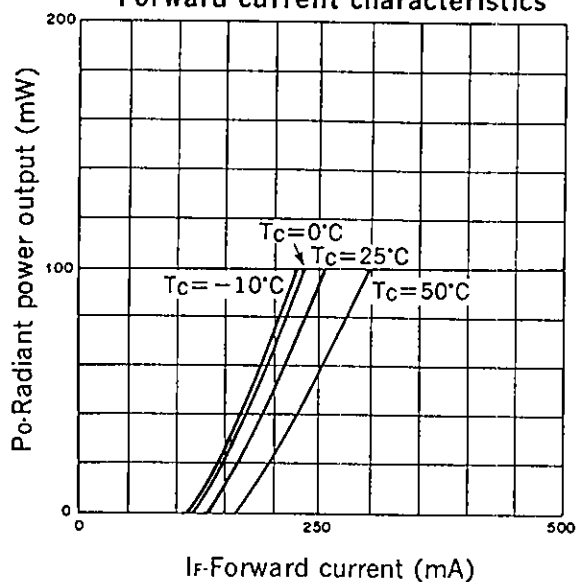
Handling Precautions

Eye protection against laser beams

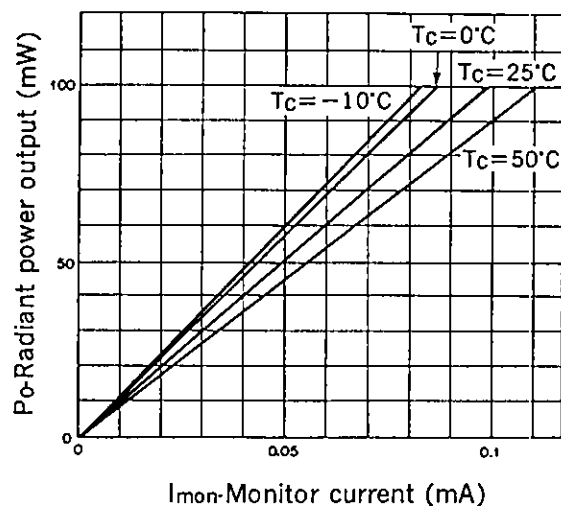
The optical output of laser diodes ranges from several milliwatts to one watt. However the optical density of the laser beam at the tip end reaches 1 megawatt per square centimeter. Unlike gas lasers, as laser diode beams are rather divergent, beam of uncollimated laser diodes are fairly safe at a distance. Generally speaking, however, it is best NOT to LOOK into laser beams, under any circumstances. For laser beams observation purposes ALWAYS use safety goggles that block infrared rays. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for the safe monitoring of laser beams.



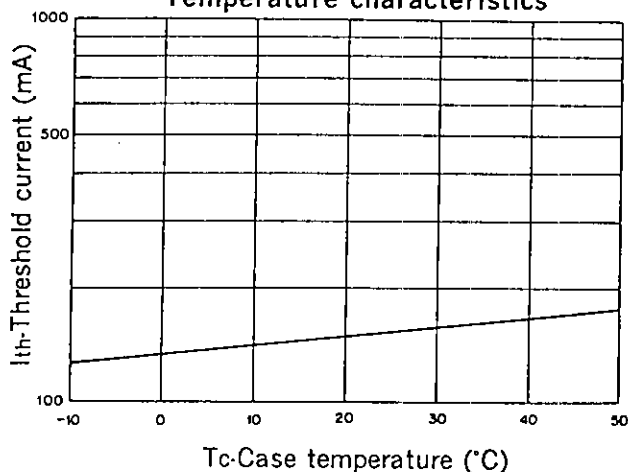
Radiant power output vs.
Forward current characteristics



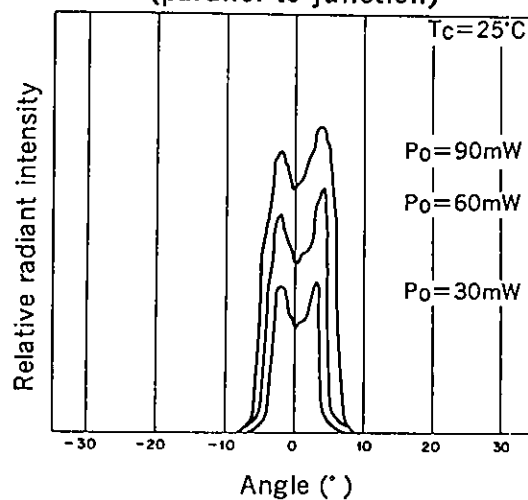
Radiant power output vs.
Monitor current characteristics



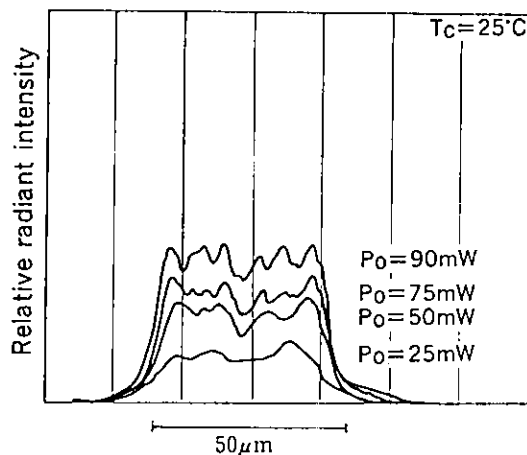
Threshold current vs.
Temperature characteristics



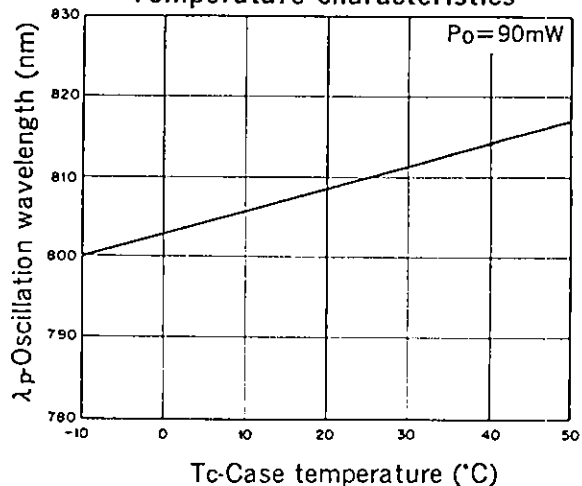
Power dependence of far field pattern
(parallel to junction)



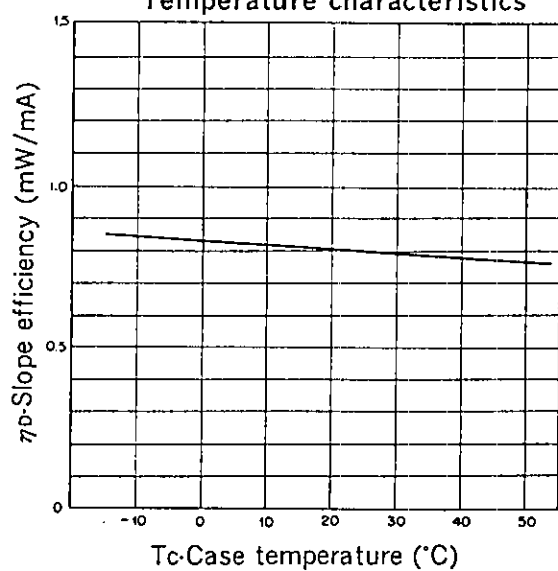
Power dependence of near field pattern



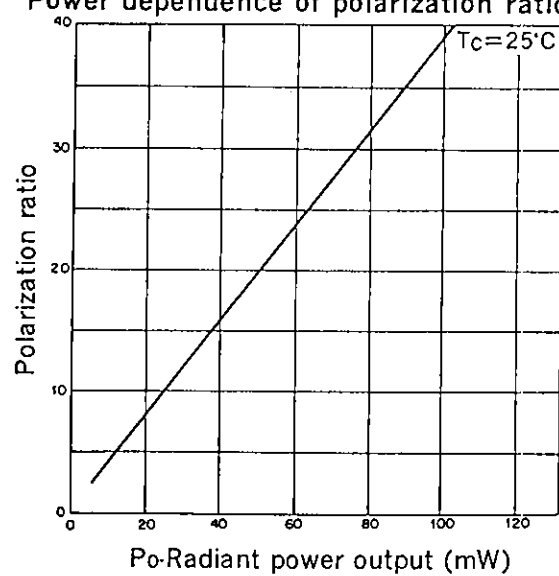
Oscillation wavelength vs.
Temperature characteristics



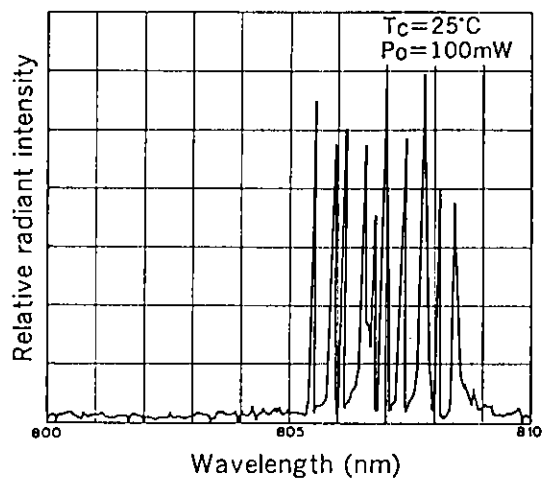
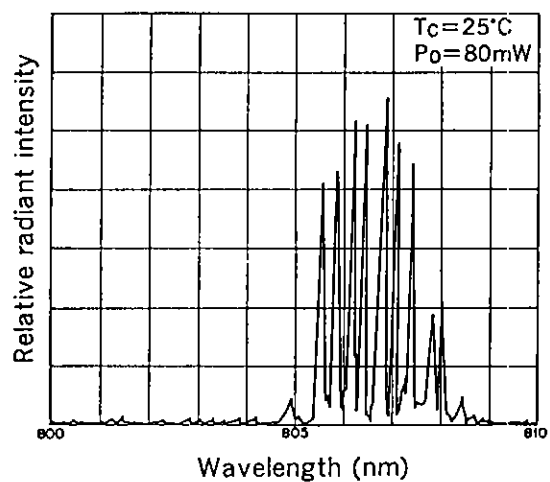
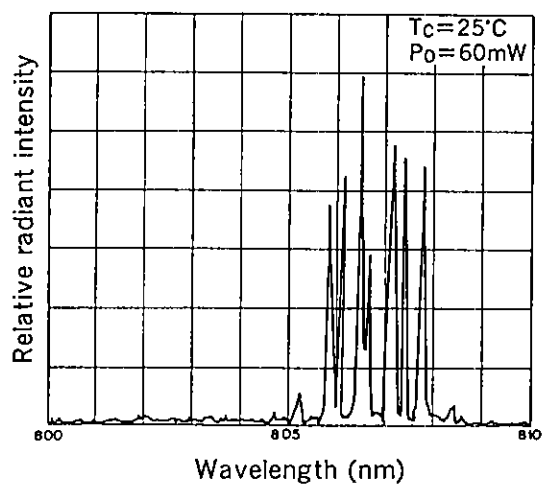
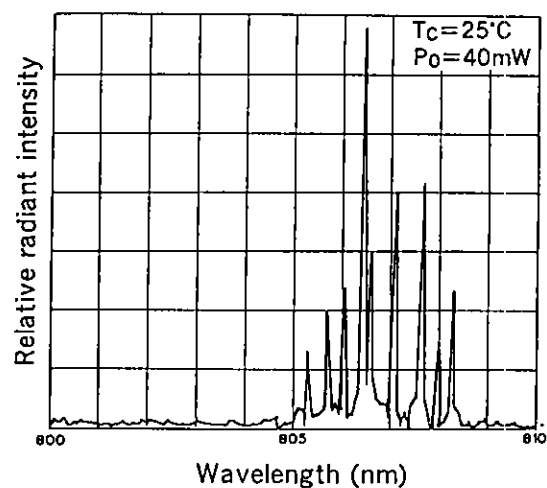
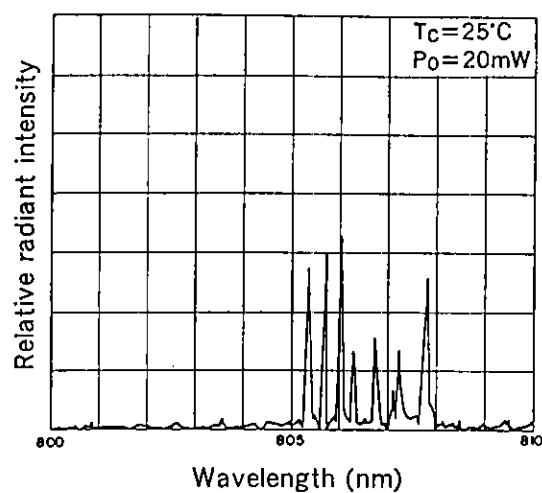
Slope efficiency vs.
Temperature characteristics



Power dependence of polarization ratio



Power dependence of wavelength (Spectrum)



Temperature dependence of wavelength ($P_o=90\text{mW}$)

