SONY

SLD322V

High Power Density 0.5 W Laser Diode

Description

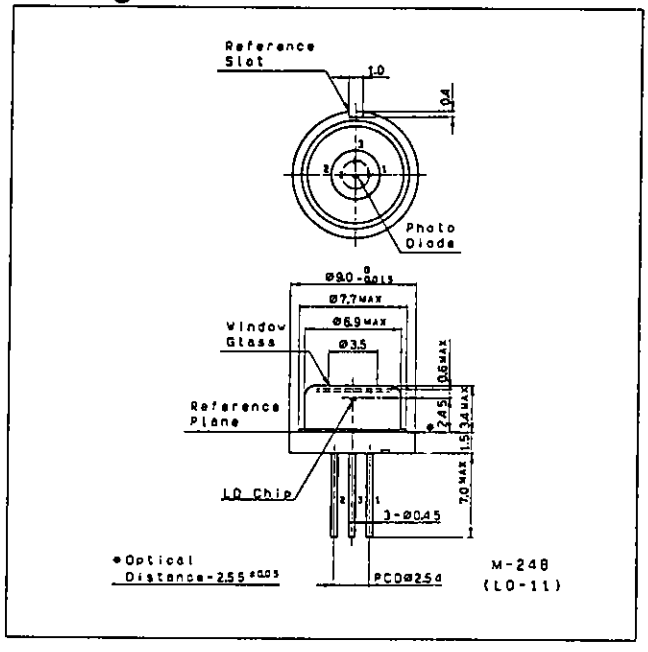
The SLD322V is a high power, gain-guided laser diode produced by MOCVD method*1. Compared to the SLD300 Series, this laser diode has a high brightness output with a doubled optical density which can be achieved by QW-SCH structure*2.

*1 MOCVD : Metal Organic Chemical Vapor Deposition

*2 QW-SCH : Quantum Well Separate Confinement Heterostructure

Package Outline

Unit : mm



Features

- High power
  Recommended optical power output: Po=0.5 W
- Low operating current: Iop=0.75 A (Po=0.5 W)

Applications

- Solid state laser excitation
- Medical use
- Material processes
- Measurement

Structure

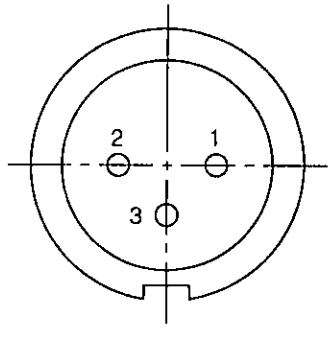
GaAlAs quantum well structure laser diode

Absolute Maximum Ratings (Tc=25°C)

• Optical power output	Po	0.55	W
• Reverse voltage	V_R LD	2	V
	PD	15	V
• Operating temperature (Tc)	Topr	−10 to +30	°C
• Storage temperature	Tstg	−40 to +85	°C

Pin Configuration (Bottom View)

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



E93205-HP

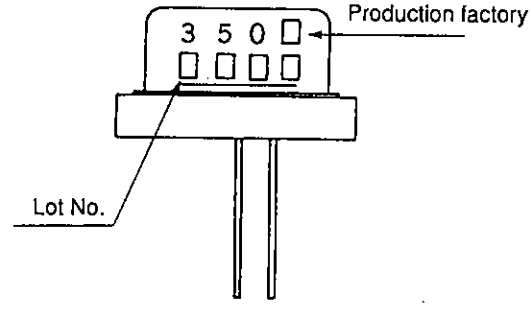
Optical and Electrical Characteristics (Tc=case temperature Tc=25°C)

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit.
Threshold current		Ith			0.18	0.3	A
Operating current		Iop	Po=0.5 W		0.75	1.2	A
Operating voltage		Vop	Po=0.5 W		2.1	3.0	V
Wavelength ☆		λp	Po=0.5 W	790		840	nm
Monitor current		Imon	Po=0.5 W VR=10 V	0.15	0.8	3.0	mA
Radiation angle (F. W. H. M)	Perpendicular	θ⊥	Po=0.5 W	20	30	40	degree
	Parallel	θ∥		4	9	17	degree
Positional accuracy	Position	ΔX, ΔY	Po=0.5 W			±50	μm
	Angle	Δφ⊥				±3	degree
Differential efficiency		ηD	Po=0.5 W	0.5	0.9		W/A

☆Wavelength Classification

Type	Wavelength (nm)
SLD322V-1	795±5
SLD322V-2	810±10
SLD322V-3	830±10
SLD322V-21	798±3
SLD322V-24	807±3
SLD322V-25	810±3

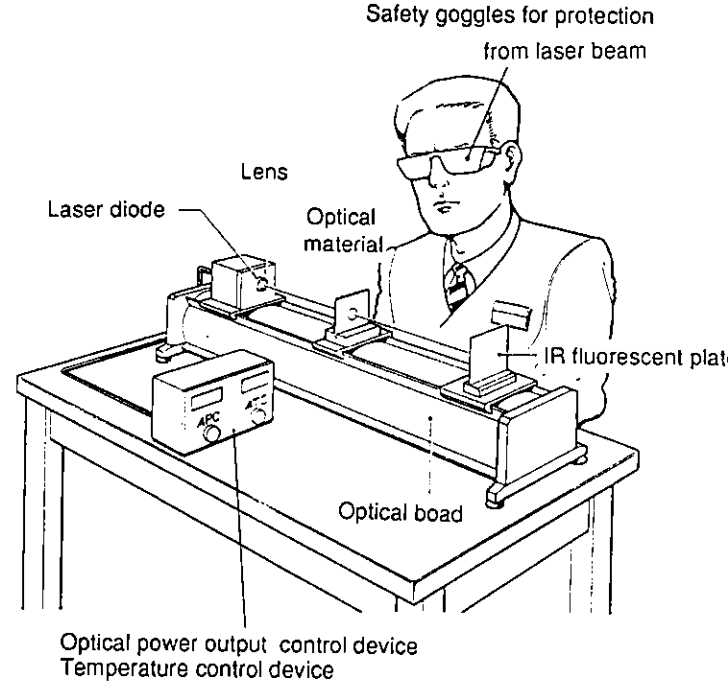
Marking



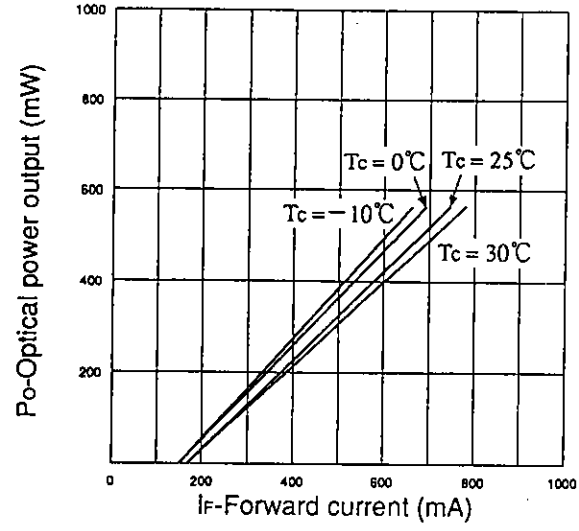
Handling Precautions

Eye protection against laser beams

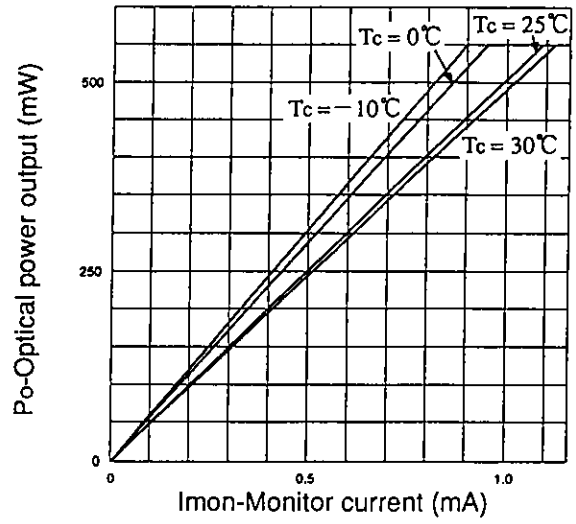
The optical output of laser diodes ranges from several mW to 3 W. However the optical power density of the laser beam at the diode chip reaches 1 MW/cm². Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing laser beams, 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.



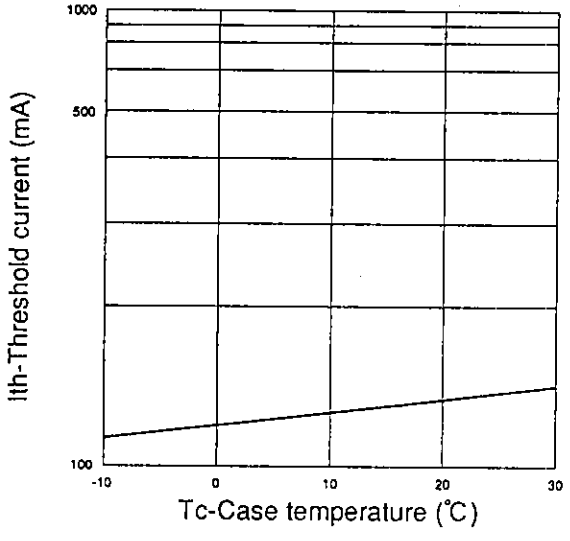
Optical power output vs. Forward current characteristics



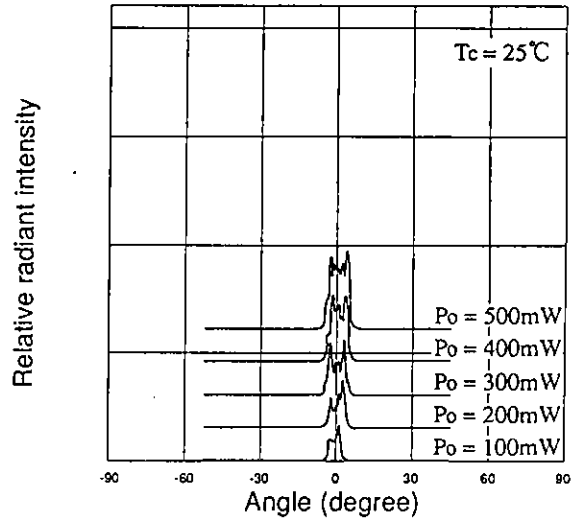
Optical power output vs. Monitor current characteristics



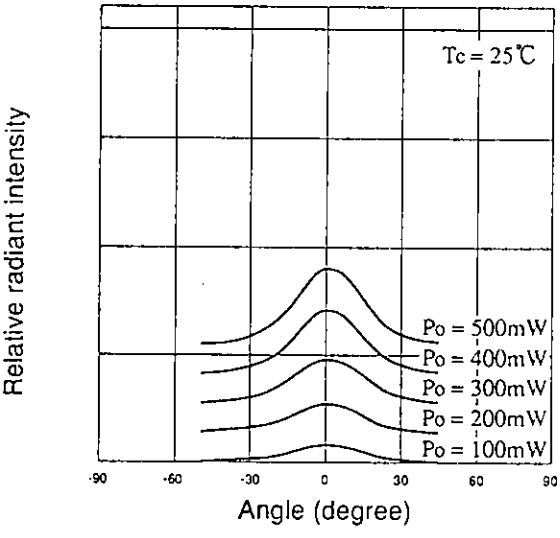
Threshold current vs. Temperature characteristics



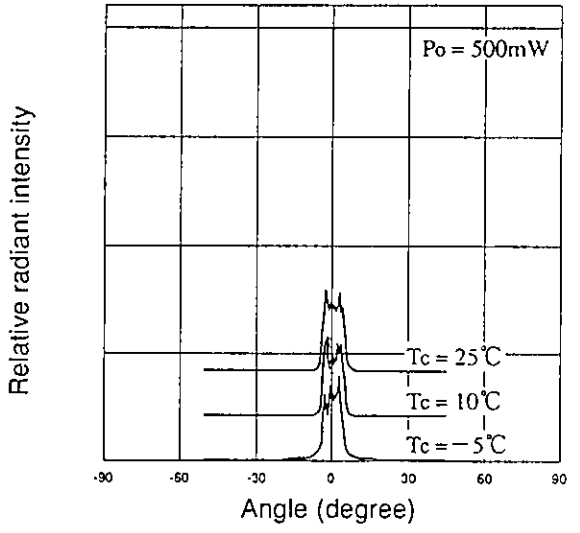
Power dependence of far field pattern (Parallel to junction)



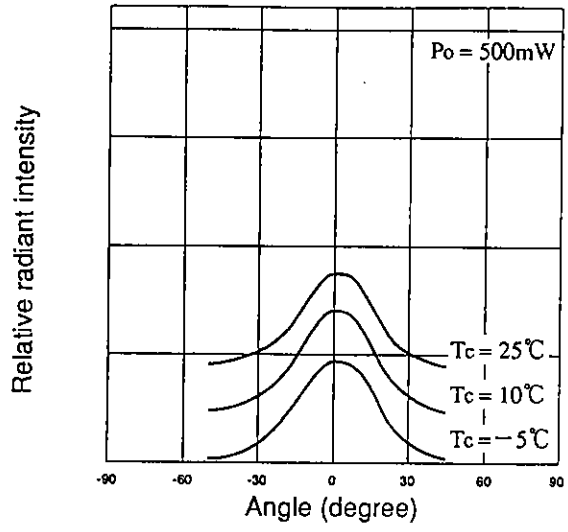
Power dependence of far field pattern (Perpendicular to junction)



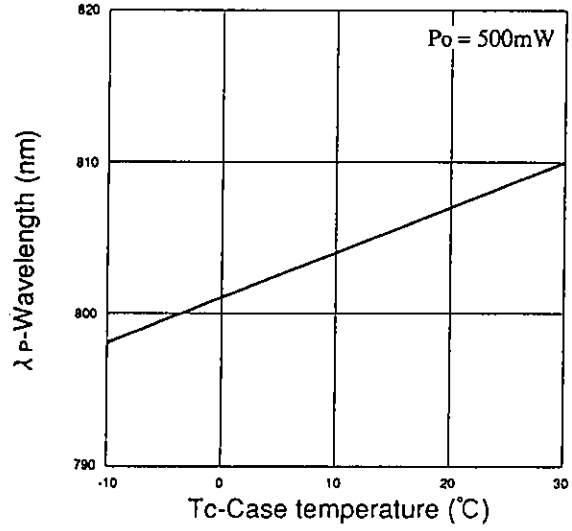
Temperature dependence of far field pattern (Parallel to junction)



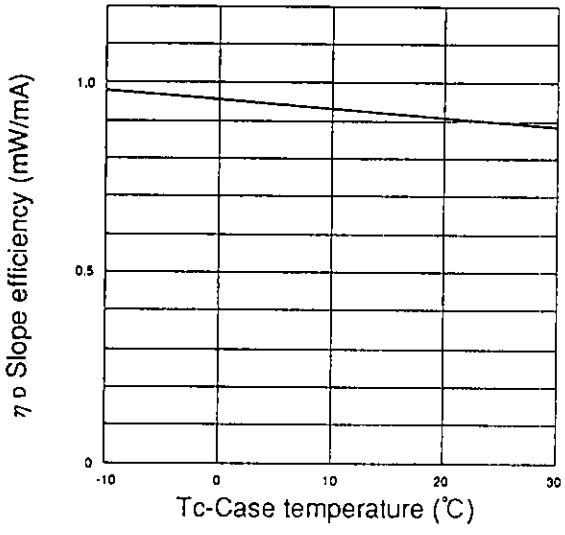
Temperature dependence of far field pattern (Perpendicular to junction)



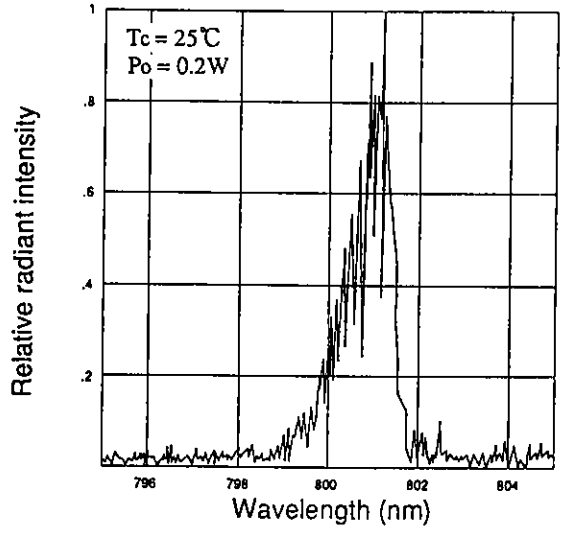
Dependence of wavelength

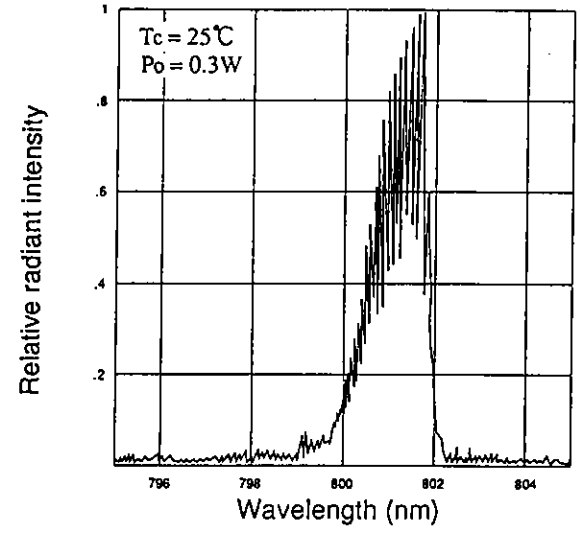


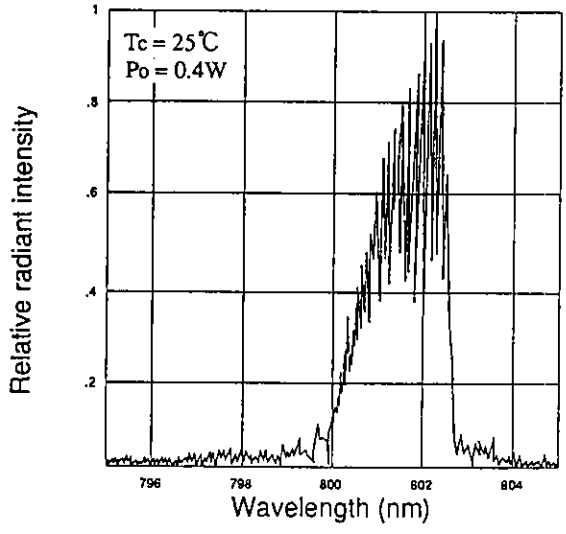
Slope efficiency vs. Temperature characteristics

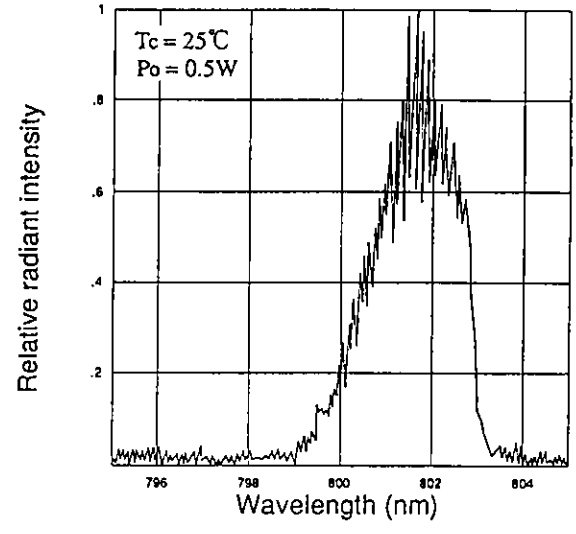


Power dependence of spectrum









Temperature dependence of spectrum (Po=0.5 W)