

1000mW High Power Laser Diode

**Description**

SLD304V are gain-guided, high-power laser diodes fabricated by MOCVD.

MOCVD: Metal Organic Chemical Vapor Deposition

**Features**

- High power  
Recommended power output  $P_o=900mW$
- Small operating current

**Applications**

- Solid state laser excitation
- Medical use

**Structure**

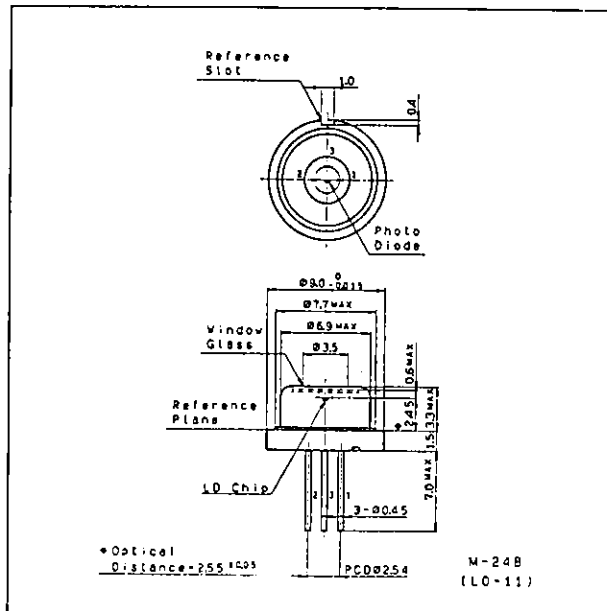
GaAlAs double-hetero laser diode

**Absolute Maximum Ratings (Tc=15°C)**

- Radiant power output  $P_o$  1000 mW
- Reverse voltage  $V_R$  LD 2 V  
PD 15 V
- Operating temperature  $T_{opr}$  -10 to +30 °C
- Storage temperature  $T_{stg}$  -40 to +85 °C

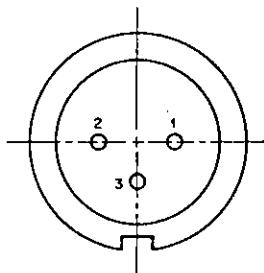
**Package Outline**

Unit: mm



**Pin Configuration (Bottom View)**

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



Optical and Electrical Characteristics

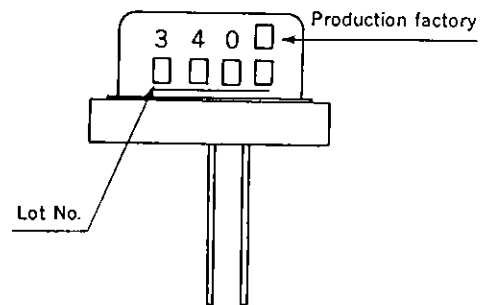
T<sub>c</sub>=15°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	
Threshold current	I <sub>th</sub>			500	700	mA	
Operating current	I <sub>OP</sub>	P <sub>o</sub> =900mW		1550	2000	mA	
Operating voltage	V <sub>OP</sub>	P <sub>o</sub> =900mW		2.1	3.0	V	
Wavelength*	λ <sub>p</sub>	P <sub>o</sub> =900mW	770		840	nm	
Monitor current	I <sub>mon</sub>	P <sub>o</sub> =900mW V <sub>R</sub> =10V		1.5		mA	
Radiation angle (F. W. H. M)	Perpendicular	θ <sub>⊥</sub>	P <sub>o</sub> =900mW		28	40	degree
	Parallel				13	17	degree
Positional accuracy	Position	ΔX, ΔY	P <sub>o</sub> =900mW			±50	μm
	Angle	Δφ <sub>⊥</sub>				±3	degree
Slope efficiency	η <sub>D</sub>	P <sub>o</sub> =900mW	0.65	0.85		mW/mA	

\*Wavelength Selection Classification

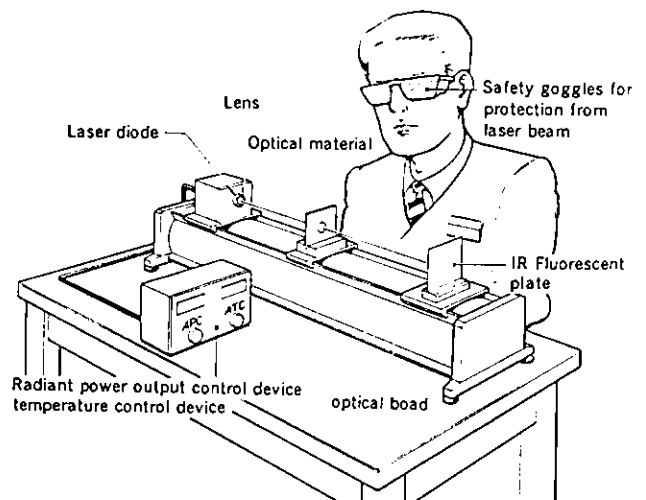
Type	Wavelength (nm)
SLD304V-1	785±15
SLD304V-2	810±10
SLD304V-3	830±10
SLD304V-21	798± 3
-24	807± 3
-25	810± 3

Marking

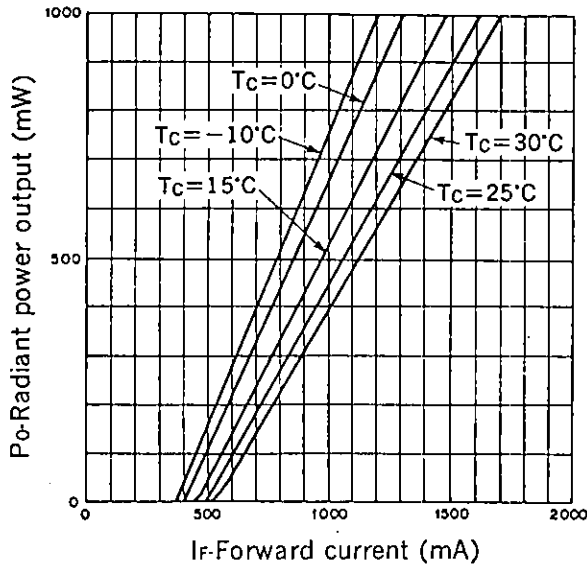


Precautions

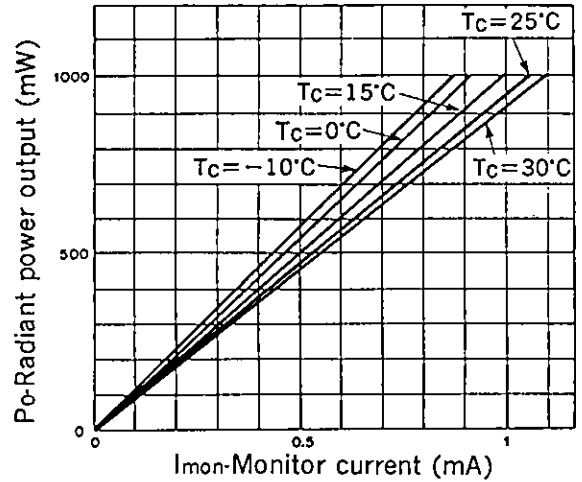
Eye protection against laser beams  
 The optical output of laser diodes ranges from several milliwatts to one watt. However the optical density of the laser beam at the diode chip reaches 1 megawatt per square centimeter. Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode 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.



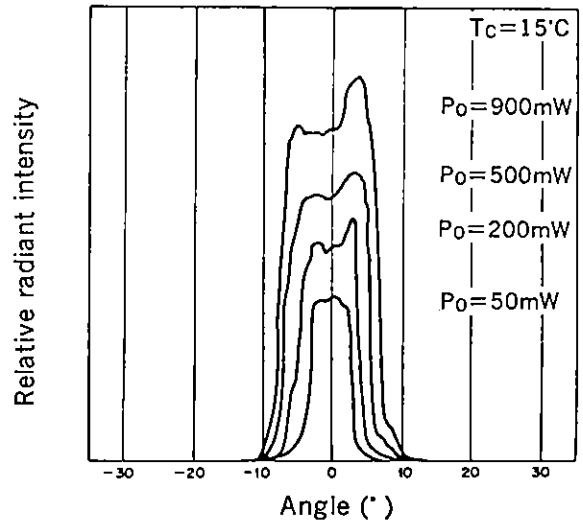
**Radiant power output vs. Forward current characteristics**



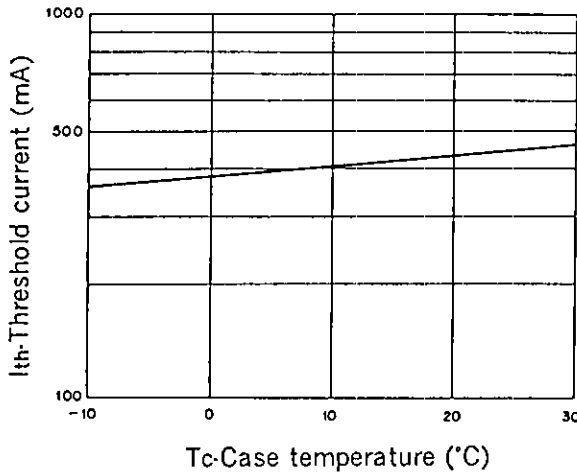
**Radiant power output vs. Monitor current characteristics**



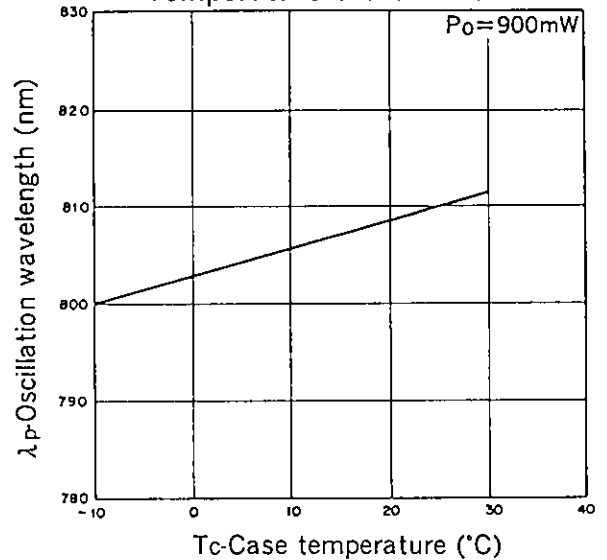
**Power dependence of far field pattern (parallel to junction)**



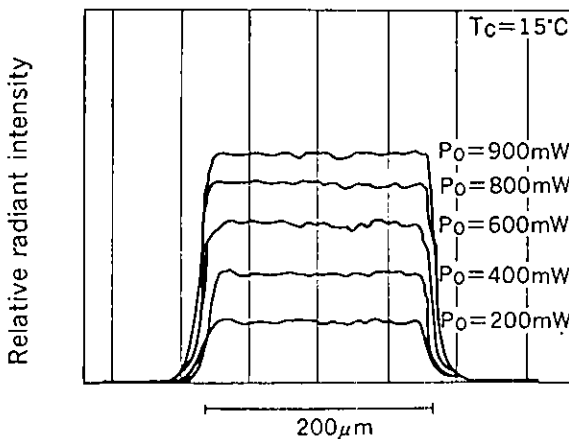
**Threshold current vs. Temperature characteristics**



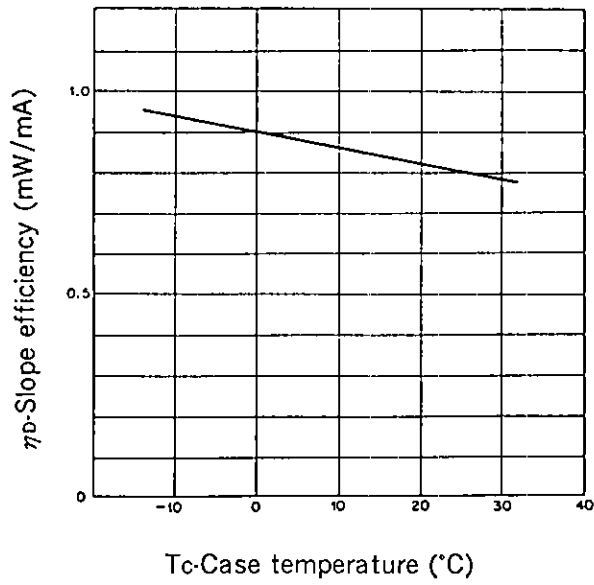
**Oscillation wavelength vs. Temperature characteristics**



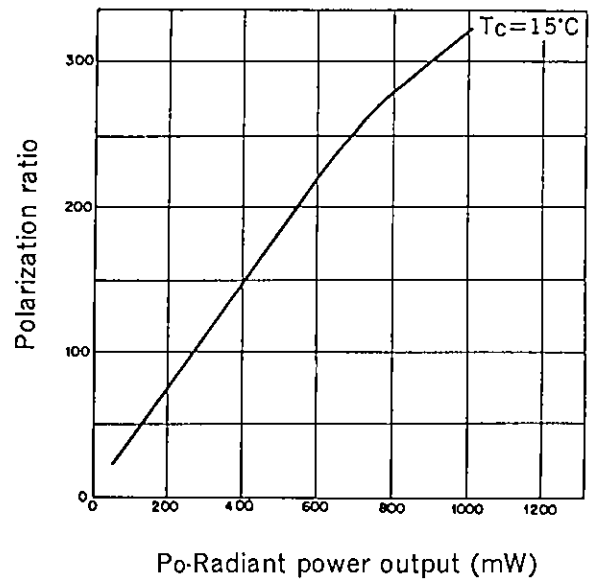
**Power dependence of near field pattern**



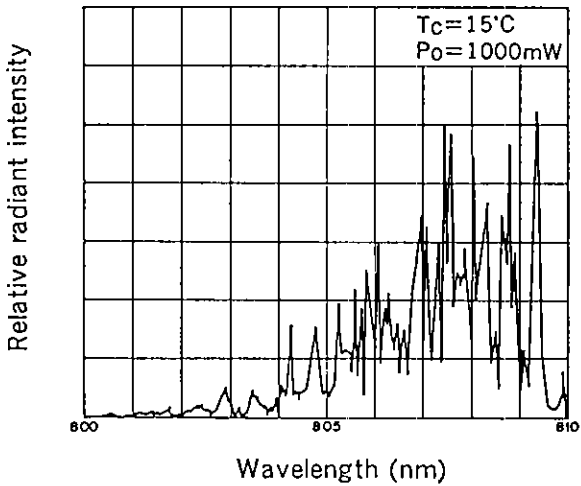
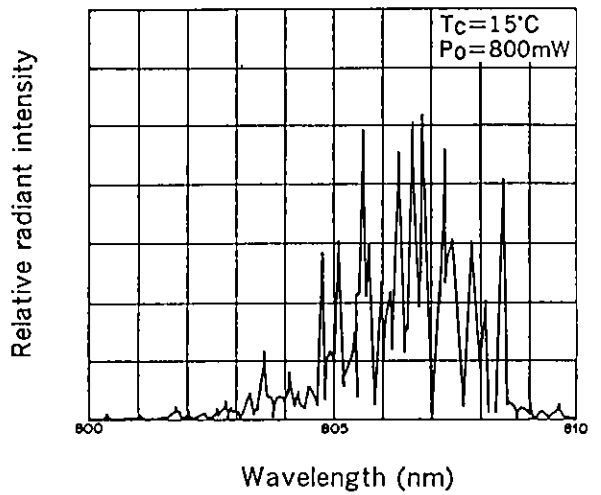
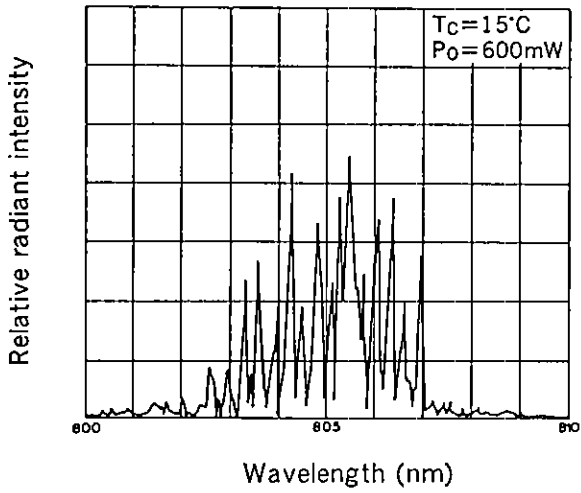
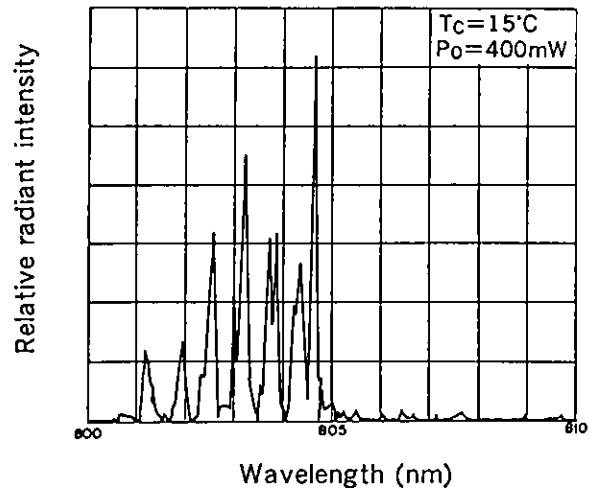
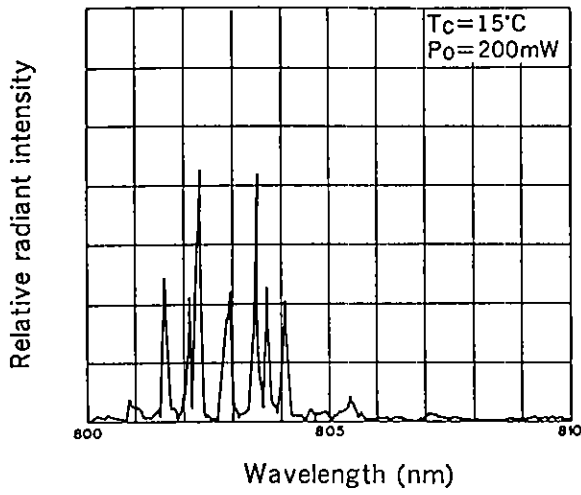
Slope efficiency vs. Temperature characteristics



Power dependence of polarization ratio



Power dependence of wavelength



Temperature dependence of wavelength ( $P_o=900mW$ )

