SONY

SLD304V

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

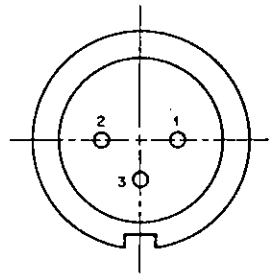
GaAlAs double-hetero laser diode

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

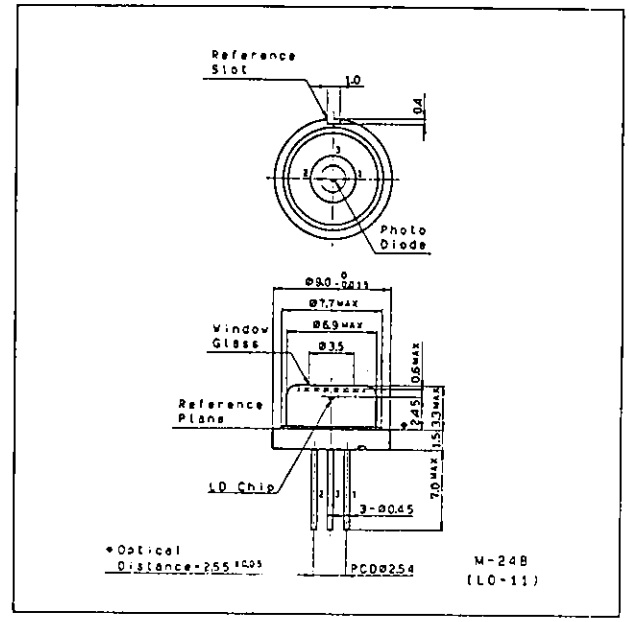
Pin Configuration (Bottom View)

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



Package Outline

Unit: mm



E70778C13-HP

Optical and Electrical Characteristics

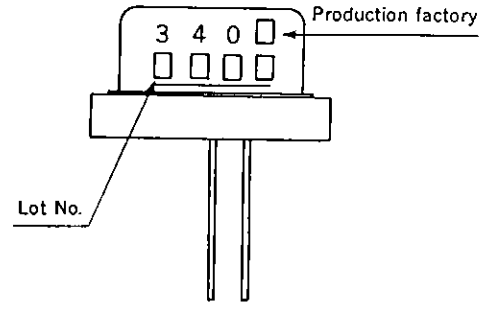
T_c=15°C

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current		Ith			500	700	mA
Operating current		I_{OP}	P_O=900mW		1550	2000	mA
Operating voltage		V_{OP}	P_O=900mW		2.1	3.0	V
Wavelength*		λ_P	P_O=900mW	770		840	nm
Monitor current		Imon	P_O=900mW V_R=10V		1.5		mA
Radiation angle (F. W. H. M)	Perpendicular	$\theta\perp$	P_O=900mW		28	40	degree
	Parallel	$\theta_{//}$			13	17	degree
Positional accuracy	Position	ΔX, ΔY	P_O=900mW			±50	μm
	Angle	$\Delta\phi\perp$				±3	degree
Slope efficiency		η_D	P_O=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

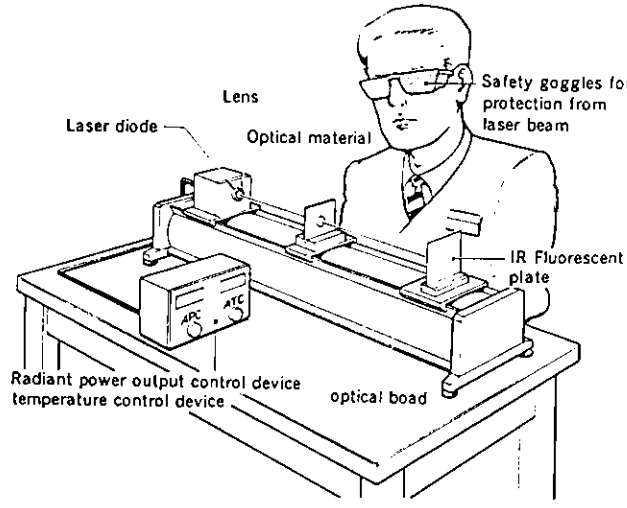
Marking



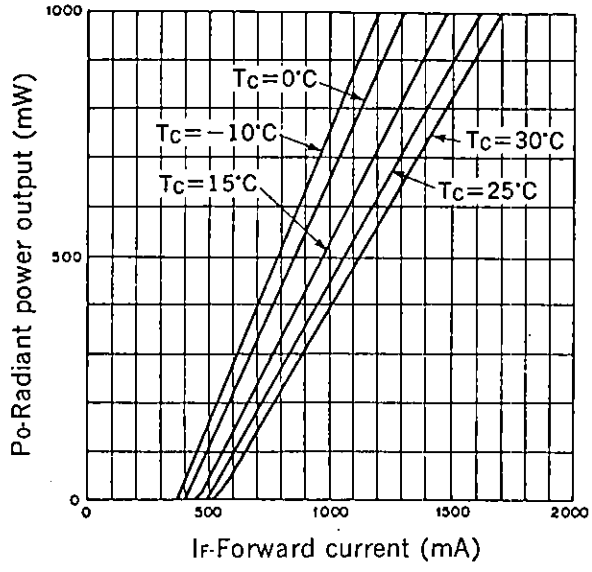
Precautions

Eye protection against laser beams

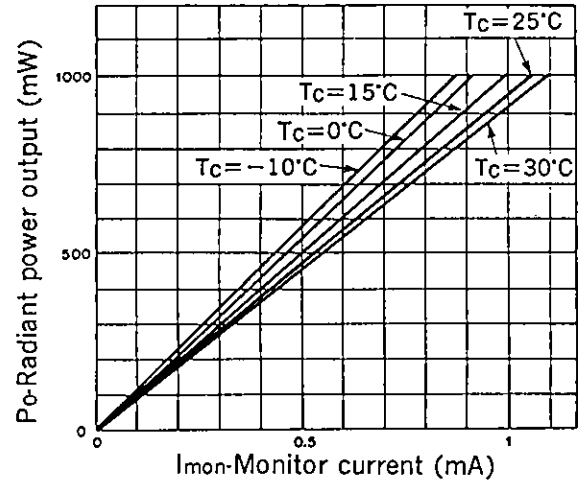
The optical output of laser diodes ranges from several milliwatts to one watt. However the optical density of the laser beam at the diode chip reaches 1 megawatt per square centimeter. Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser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



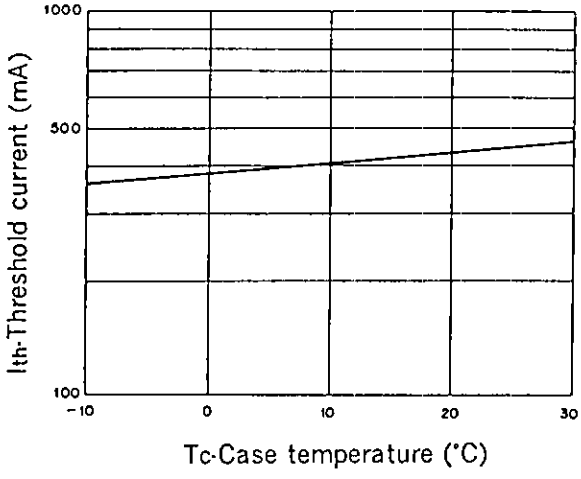
Radiant power output vs. Forward current characteristics



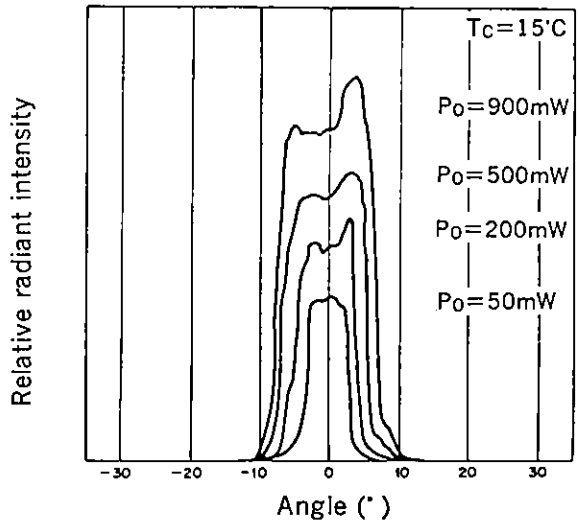
Radiant power output vs. Monitor current characteristics



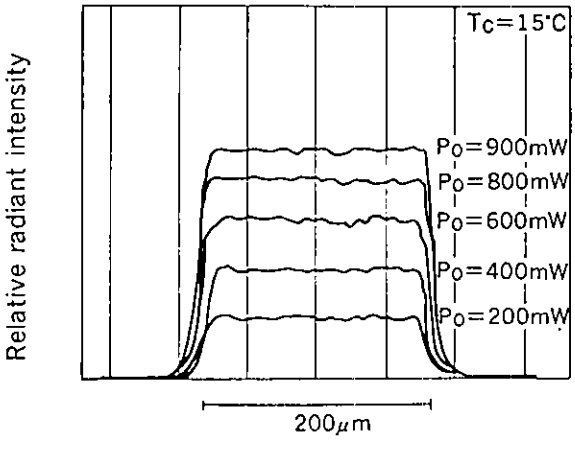
Threshold current vs. Temperature characteristics



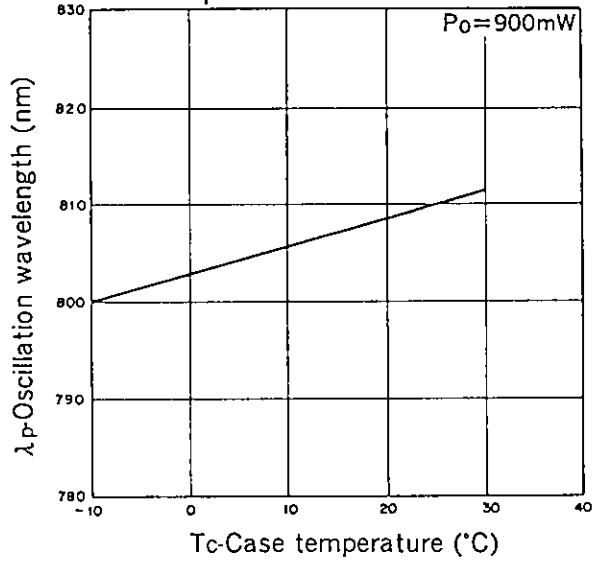
Power dependence of far field pattern (parallel to junction)



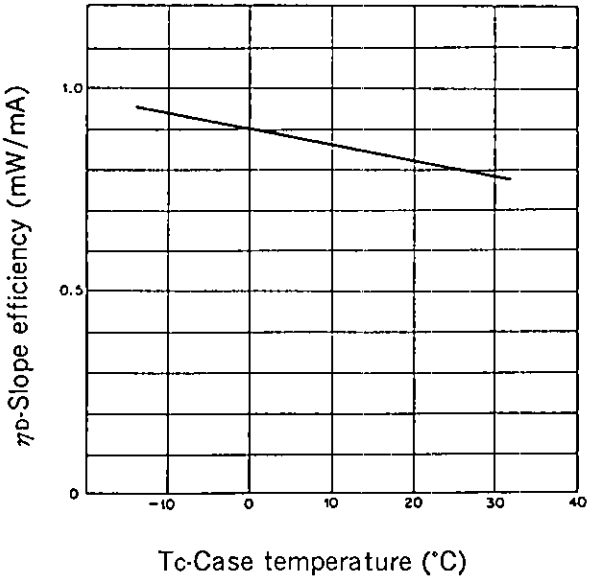
Power dependence of near field pattern



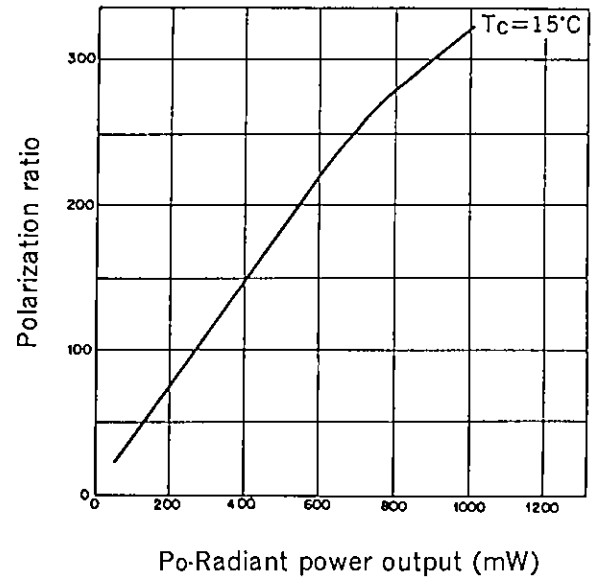
Oscillation wavelength vs. Temperature characteristics



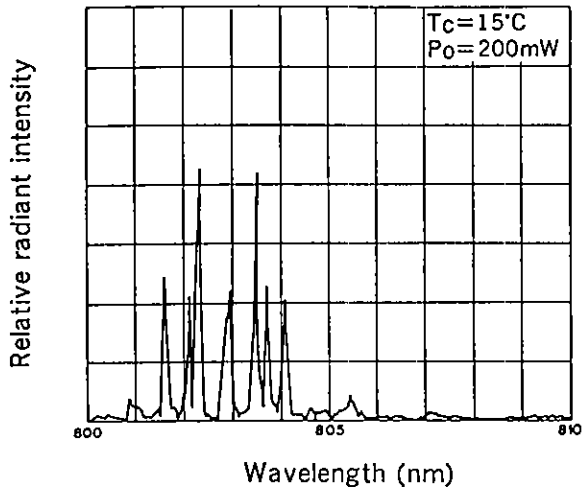
Slope efficiency vs.
Temperature characteristics

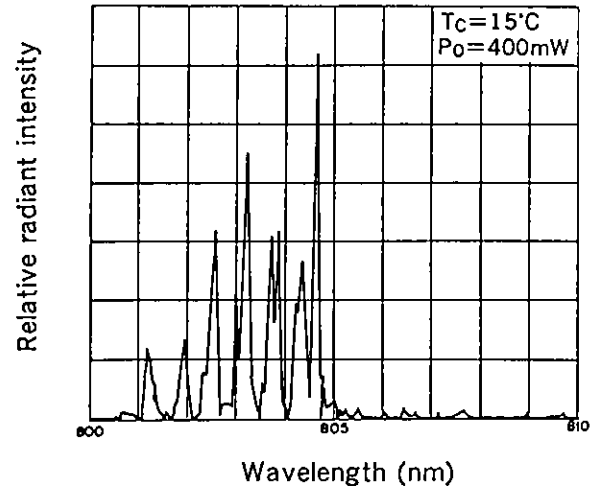


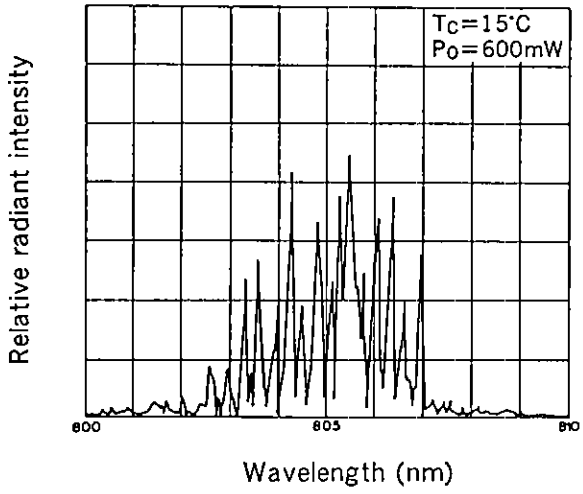
Power dependence of polarization ratio

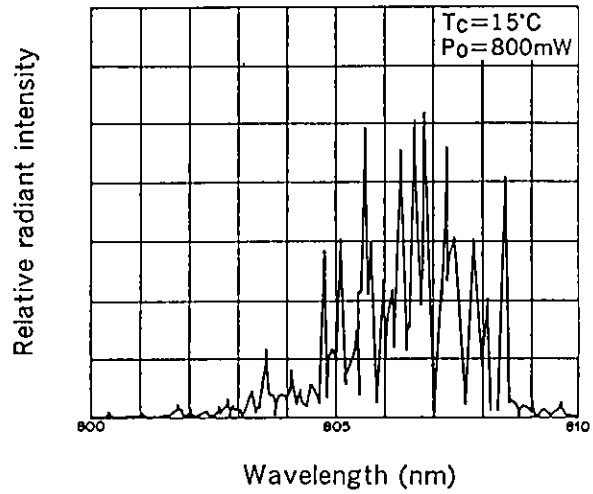


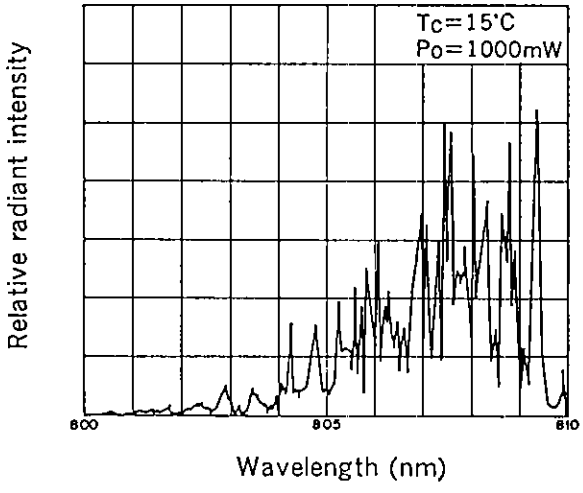
Power dependence of wavelength



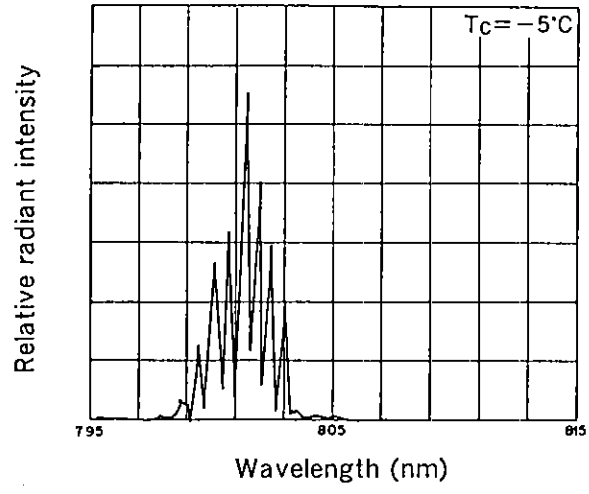


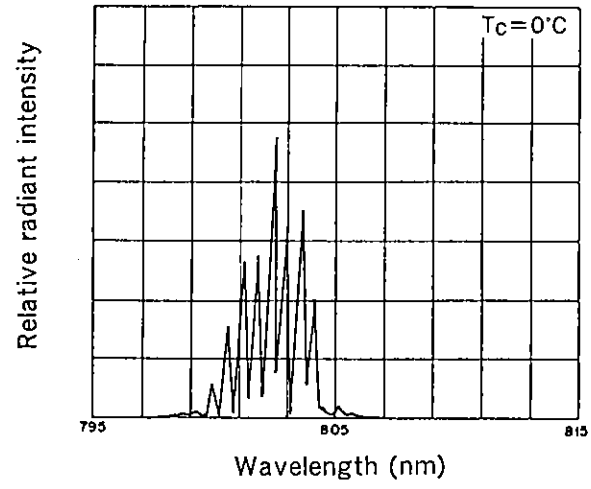


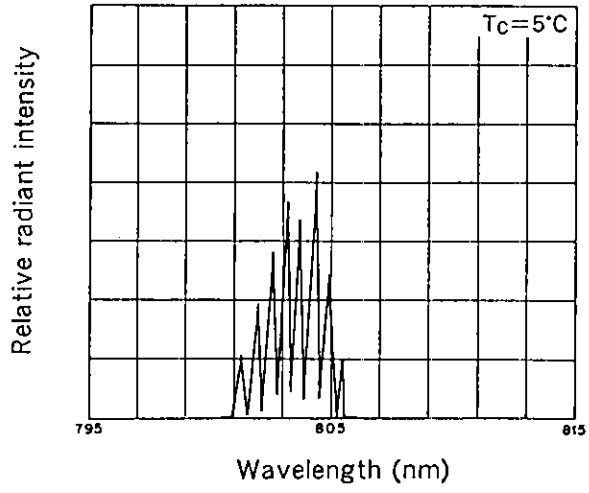


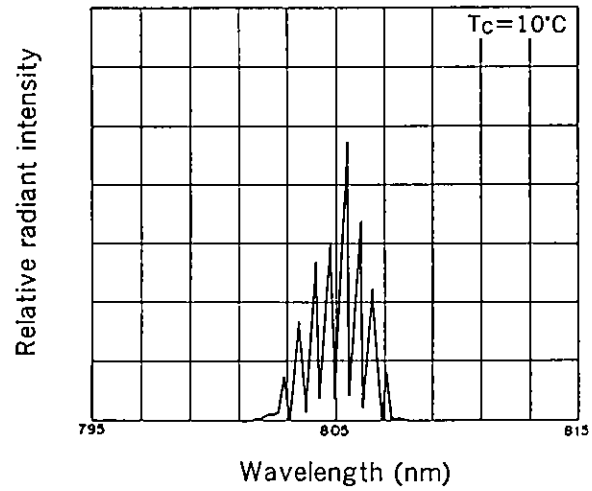


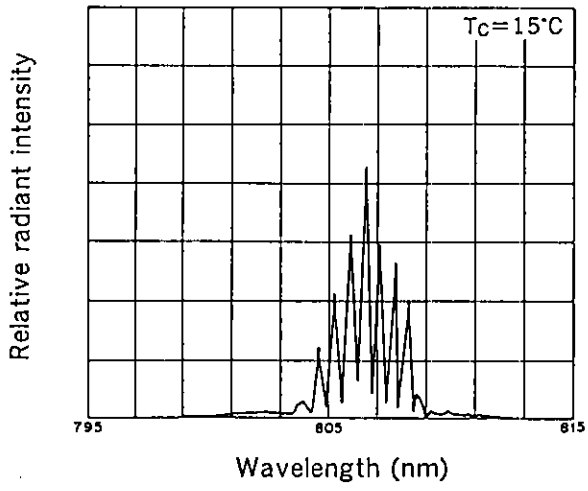
Temperature dependence of wavelength (Po=900mW)

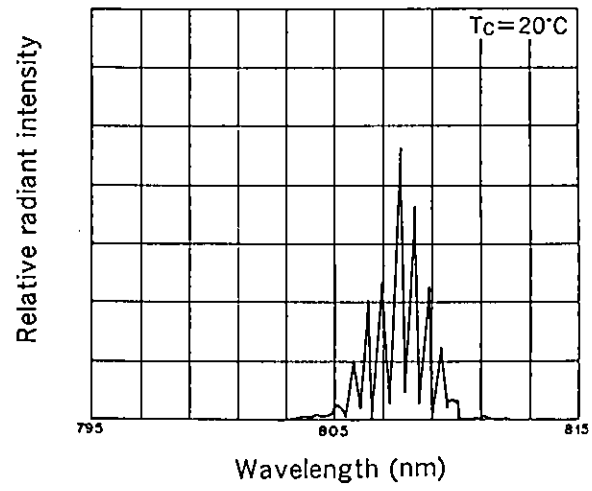


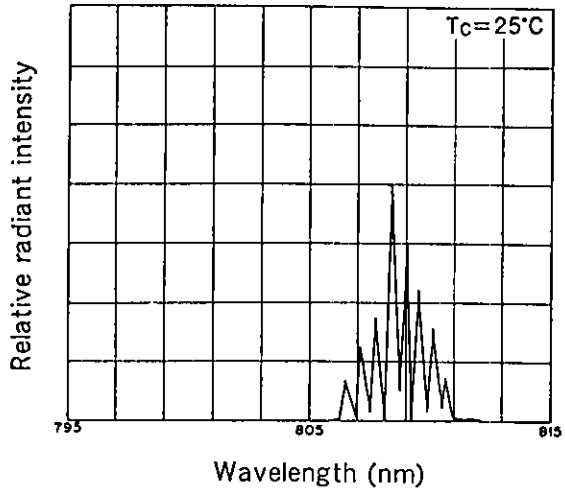


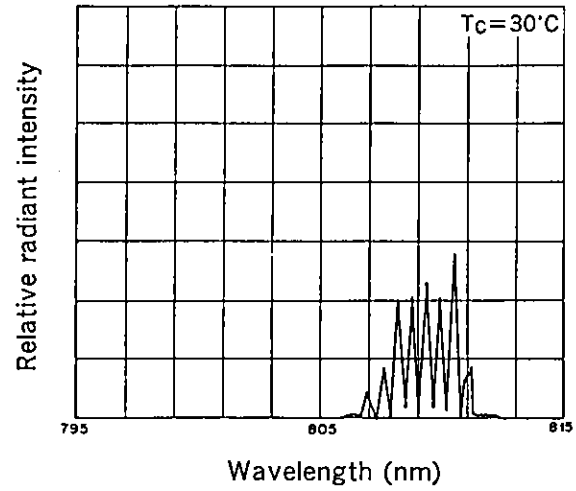









Tc=25°C
Relative radiant intensity
795
805
815
Wavelength (nm)


Tc=30°C
Relative radiant intensity
795
805
815
Wavelength (nm)