SONY

SLD323V

High Power Density 1W Laser Diode

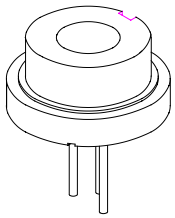
Description

The SLD323V 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

M-248



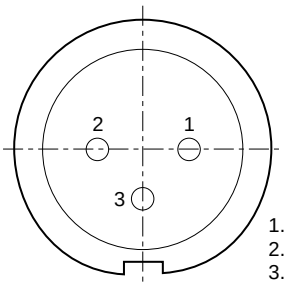
Features

- High power
  Recommended optical power output: Po = 1.0W
- Low operating current: Iop = 1.4A (Po = 1.0W)

Applications

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

Pin Configuration



1. LD cathode
2. PD anode
3. COMMON

Bottom View

Structure

GaAlAs quantum well structure laser diode

Operating Lifetime

MTTF 10,000H (effective value) at Po = 1.0W, Tc = 25°C

Absolute Maximum Ratings (Tc = 25°C)

• Optical power output	Pomax		1.1	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

Warranty

This warranty period shall be 90 days after receipt of the product or 1,000 hours operation time whichever is shorter.

Sony Quality Assurance Department shall analyze any product that fails during said warranty period, and if the analysis results show that the product failed due to material or manufacturing defects on the part of Sony, the product shall be replaced free of charge.

Laser diodes naturally have differing lifetimes which follow a Weibull distribution.

Special warranties are also available.

E93207C19-PS

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

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		Ith			0.3	0.5	A
Operating current		Iop	P_O = 1.0W		1.4	2.0	A
Operating voltage		Vop	P_O = 1.0W		2.1	3.0	V
Wavelength*1		λp	P_O = 1.0W	790		840	nm
Monitor current		Imon	P_O = 1.0W V_R = 10V	0.3	1.5	6.0	mA
Radiation angle (F. W. H. M.*)	Perpendicular	θ⊥	P_O = 1.0W	20	30	40	degree
	Parallel	θ//		4	9	17	degree
Positional accuracy	Position	ΔX, ΔY	P_O = 1.0W			±50	μm
	Angle	Δϕ⊥				±3	degree
Differential efficiency		η_D	P_O = 1.0W	0.5	0.9		W/A

* F. W. H. M. : Full Width at Half Maximum

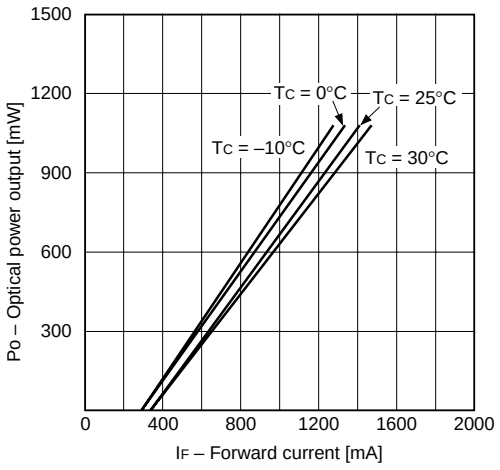
***1 Wavelength Selection Classification**

Type	Wavelength (nm)
SLD323V-1	795 ± 5
SLD323V-2	810 ± 10
SLD323V-3	830 ± 10

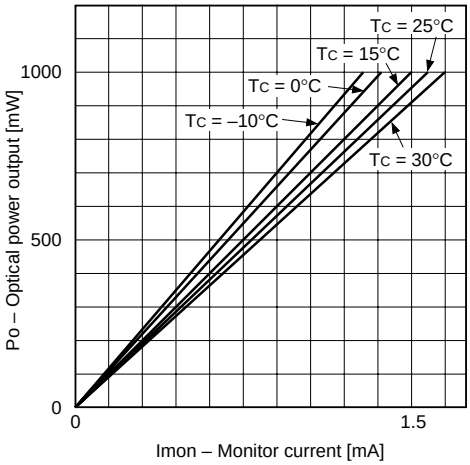
Type	Wavelength (nm)
SLD323V-21	798 ± 3
SLD323V-24	807 ± 3
SLD323V-25	810 ± 3

Example of Representative Characteristics

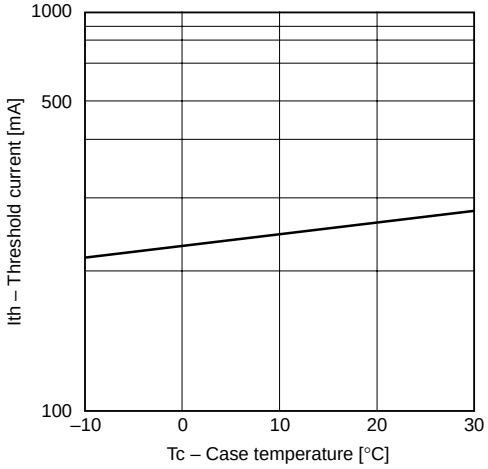
Optical power output vs. Forward current characteristics



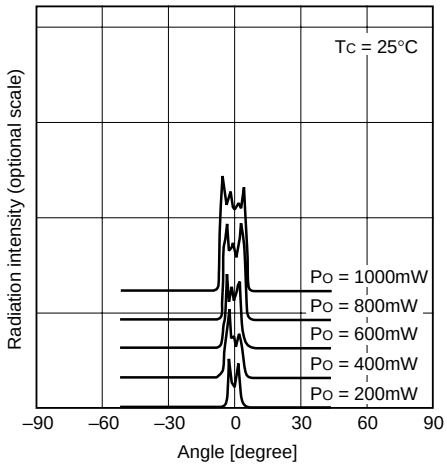
Optical power output vs. Monitor current characteristics



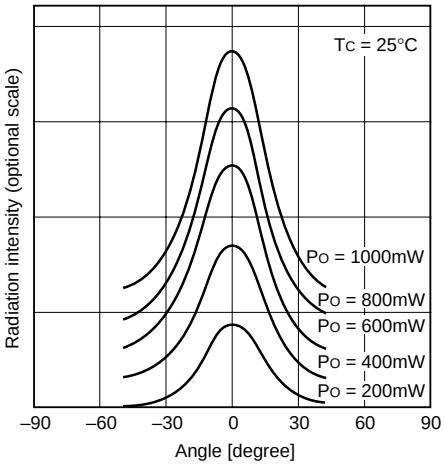
Threshold current vs. Temperature characteristics



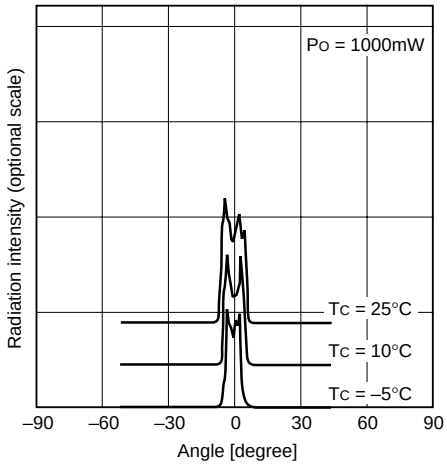
Power dependence of far field pattern (Parallel to junction)



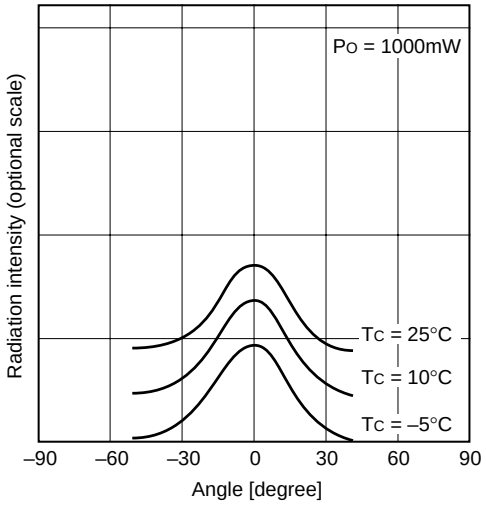
Power dependence of far field pattern (Perpendicular to junction)



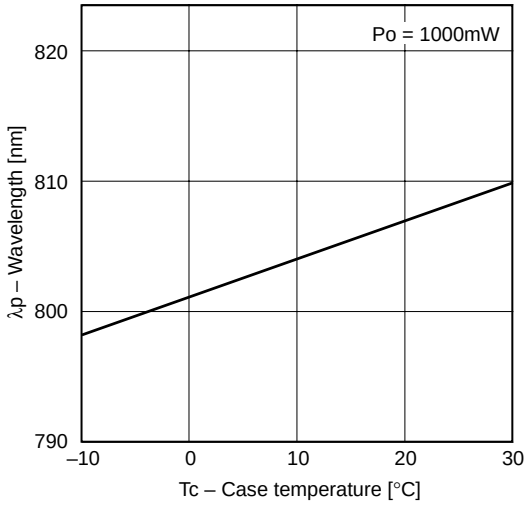
Tempareture dependence of far field pattern (Parallel to junction)



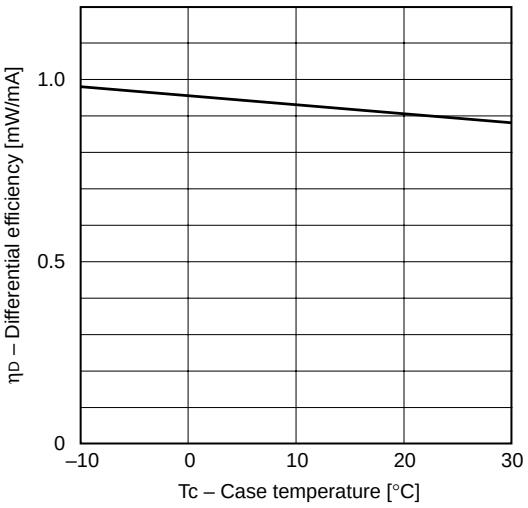
Temperature dependence of far field pattern (Perpendicular to junction)



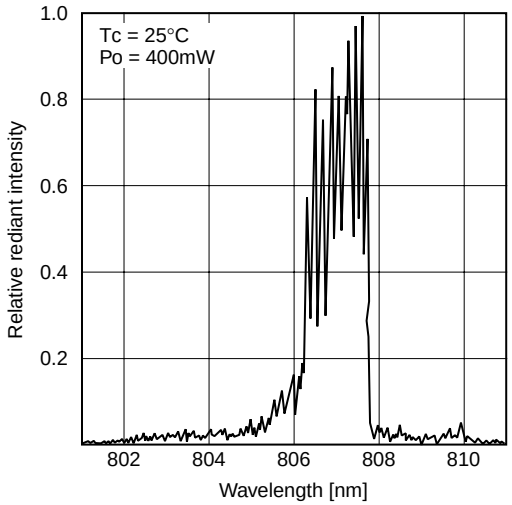
Dependence of wavelength

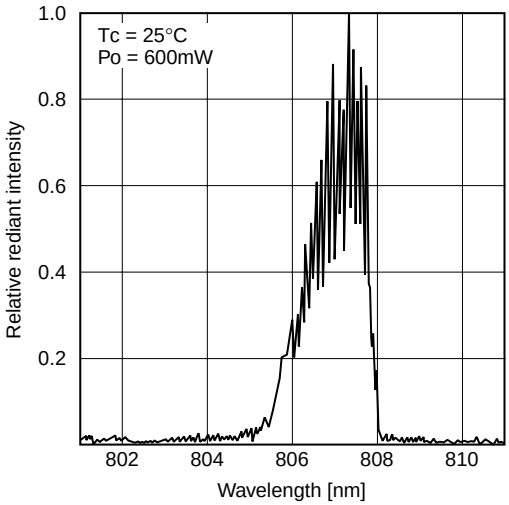


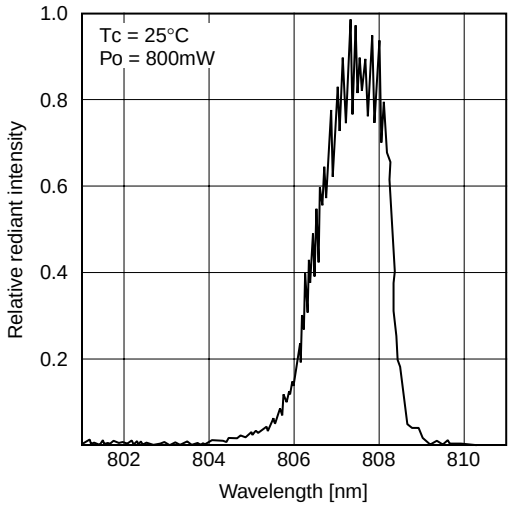
Differential efficiency vs. Temperature characteristics

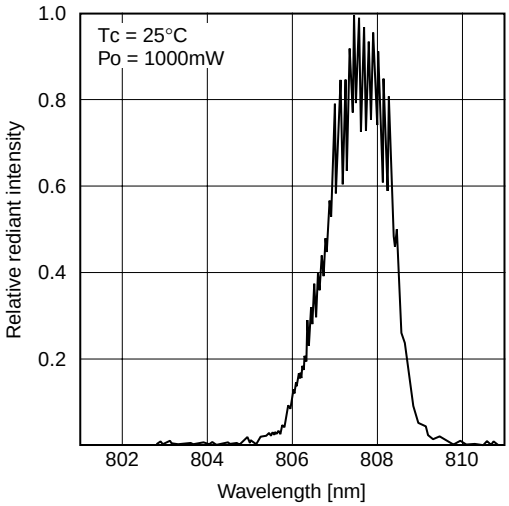


Power dependence of spectrum

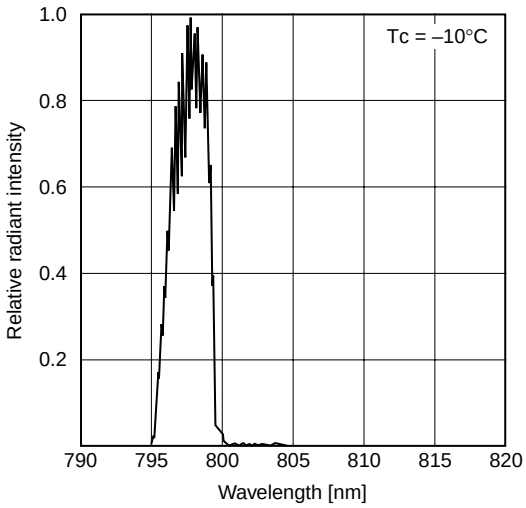


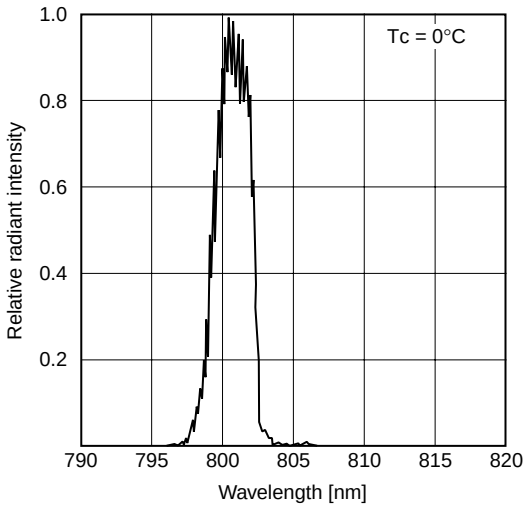


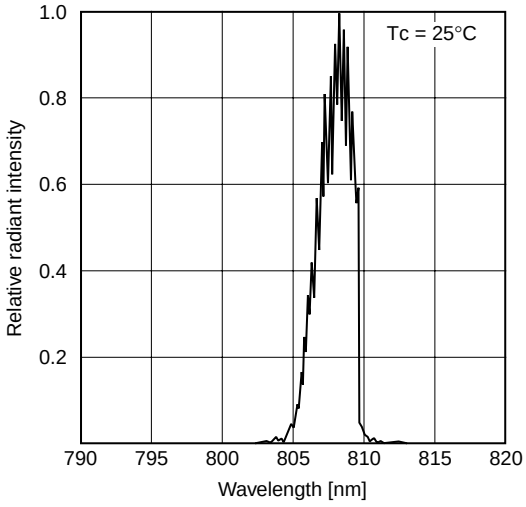


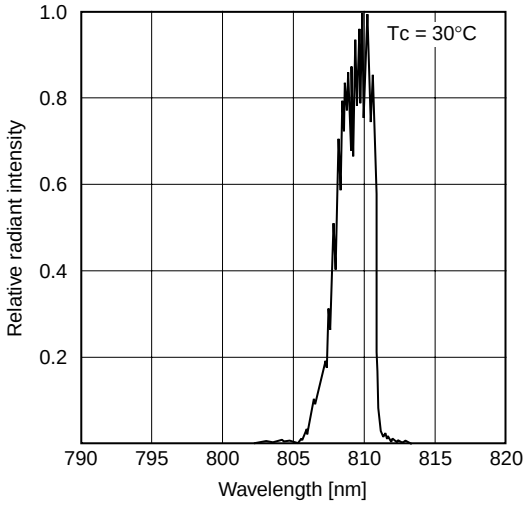


Temperature dependence of spectrum (Po = 1.0W)





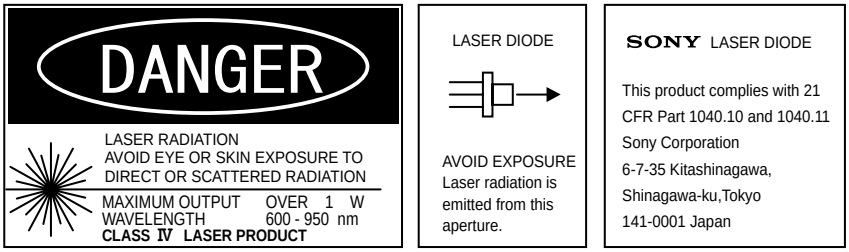




Notes on Operation

Care should be taken for the following points when using this product.

(1) This product corresponds to a Class 4 product under IEC60825-1 and JIS standard C6802 "Laser Product Emission Safety Standards".



(2) Eye protection against laser beams

Take care not to allow laser beams to enter your eyes under any circumstances.

For observing laser beams, ALWAYS use safety goggles that block laser beams. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.

(3) Gallium Arsenide

This product uses gallium arsenide (GaAs). This is not a problem for normal use, but GaAs vapors may be potentially hazardous to the human body. Therefore, never crush, heat to the maximum storage temperature or higher, or place the product in your mouth.

In addition, the following disposal methods are recommended when disposing of this product.

1. Engaging the services of a contractor certified in the collection, transport and intermediate treatment of items containing arsenic.
2. Managing the product through to final disposal as specially managed industrial waste which is handled separately from general industrial waste and household waste.

(4) Prevention of surge current and electrostatic discharge

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

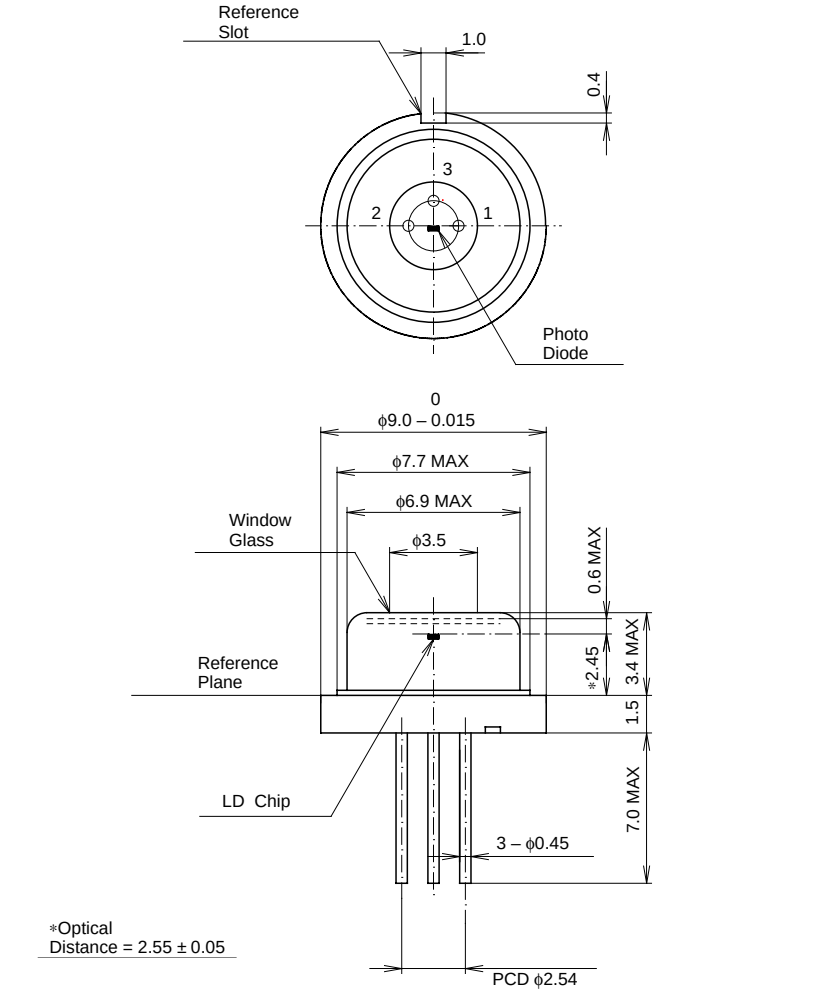
(5) Use for special applications

This product is not designed or manufactured for use in equipment used under circumstances where failure may pose a risk to life and limb, or result in significant material damage, etc.

Consult your Sony sales representative when investigating use for medical, vehicle, nuclear power control or other special applications. Also, use the power supply that was designed not to exceed the optical power output specified at the absolute maximum ratings.

Package Outline Unit: mm

M-248 (LO-11)



SONY CODE	M-248
EIAJ CODE	————
JEDEC CODE	————

PACKAGE MASS	1.2g