SONY

SLD1132VS

635nm Red Laser Diode

Preliminary

Description

The SLD1132VS is a red laser diode designed for laser pointers. Its wavelength (635nm typ.) is shortened by 35nm and visibility is increased by approximately 7 times, compared to the conventional visible laser diode (670nm typ.).

Features

- Short wavelength (635nm typ.)
- Small package (ϕ5.6)
- Fundamental traverse/single longitudinal mode

Applications

Laser pointers

Structure

- AlGaInP quantum well structure laser diode
- PIN photo diode for optical power output monitor

Recommended Optical Power Output

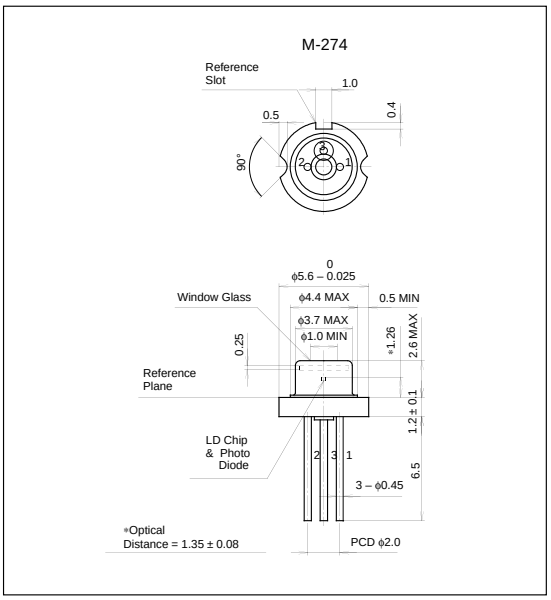
3mW

Absolute Maximum Ratings

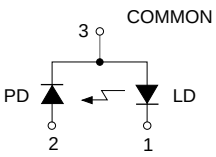
• Optical power output	Po		5	mW
• Reverse voltage	V_R	LD	2	V
		PD	15	V
• Operating temperature	Topr		–10 to +50	°C
• Storage temperature	Tstg		–40 to +85	°C

Package Outline

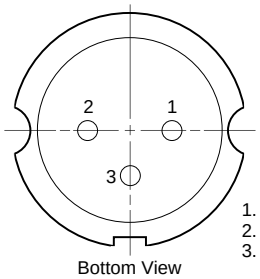
Unit : mm



Connection Diagram



Pin Configuration



1. LD cathode
2. PD anode
3. COMMON

Bottom View

E94Y01-PS

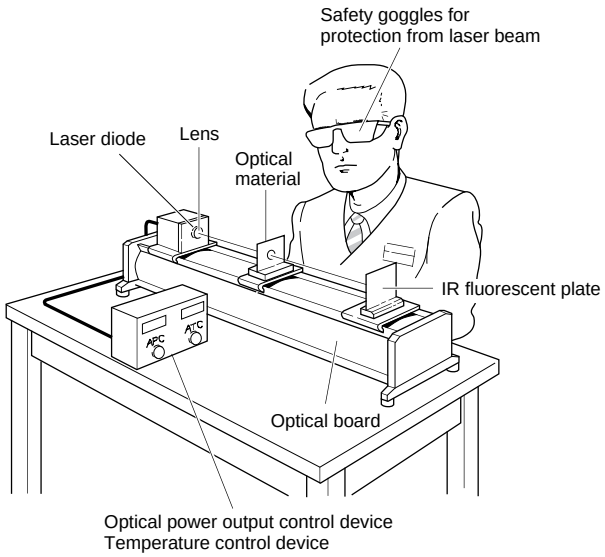
Electrical and Optical Characteristics (Tc = 25°C) Tc: Case temperature

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		Ith			50	70	mA
Operating current		Iop	Po = 3mW		60	80	mA
Operating voltage		Vop	Po = 3mW		2.4	3.0	V
Wavelength		λ	Po = 3mW	625	635	645	nm
Radiation angle	Perpendicular	θ⊥	Po = 3mW	24	32	40	degree
	Parallel	θ//		5	10	15	degree
Positional accuracy	Position	ΔX, ΔY, ΔZ	Po = 3mW			±80	µm
	Angle	Δϕ//				±3	degree
		Δϕ⊥				±4	degree
Differential efficiency		ηD	Po = 3mW	0.15	0.35	0.8	mW/mA
Astigmatism		As	| Z// – Z⊥ |		15		µm
Monitor current		Imon	Po = 3mW, Vr = 5V	0.05	0.20	0.60	mA

Handling Precautions

(1) Eye protection against laser beams

The optical output of laser diodes ranges from several mW to 3W. However the optical power density of the laser beam at the diode chip reaches 1MW/cm^2. 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.

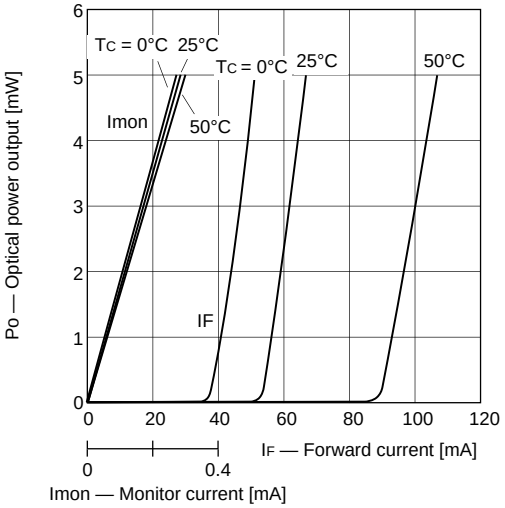


(2) Prevention of surge current and electrostatic discharge

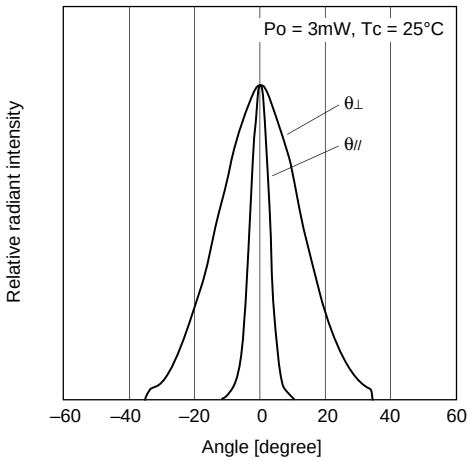
Laser diode is most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode even for an extremely short time (in the order of nanosecond), the strong light emitted from the laser diode promotes deterioration and then laser diodes are destroyed.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

Example of Representative Characteristics

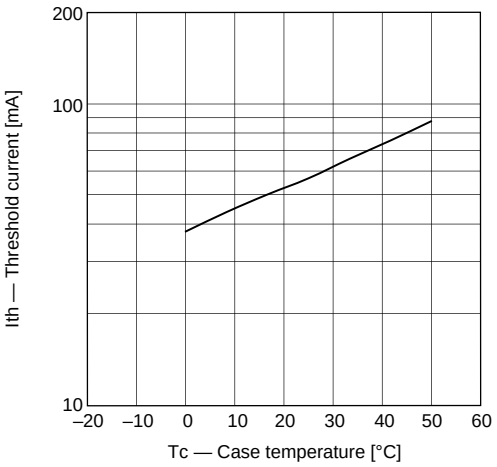
Optical power output vs. Forward current characteristics
Optical power output vs. Monitor current characteristics



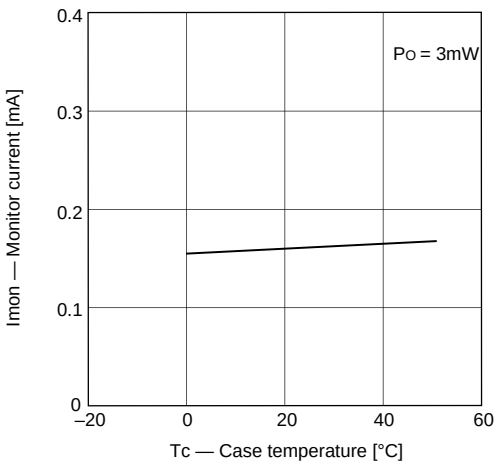
Far field pattern (FFP)



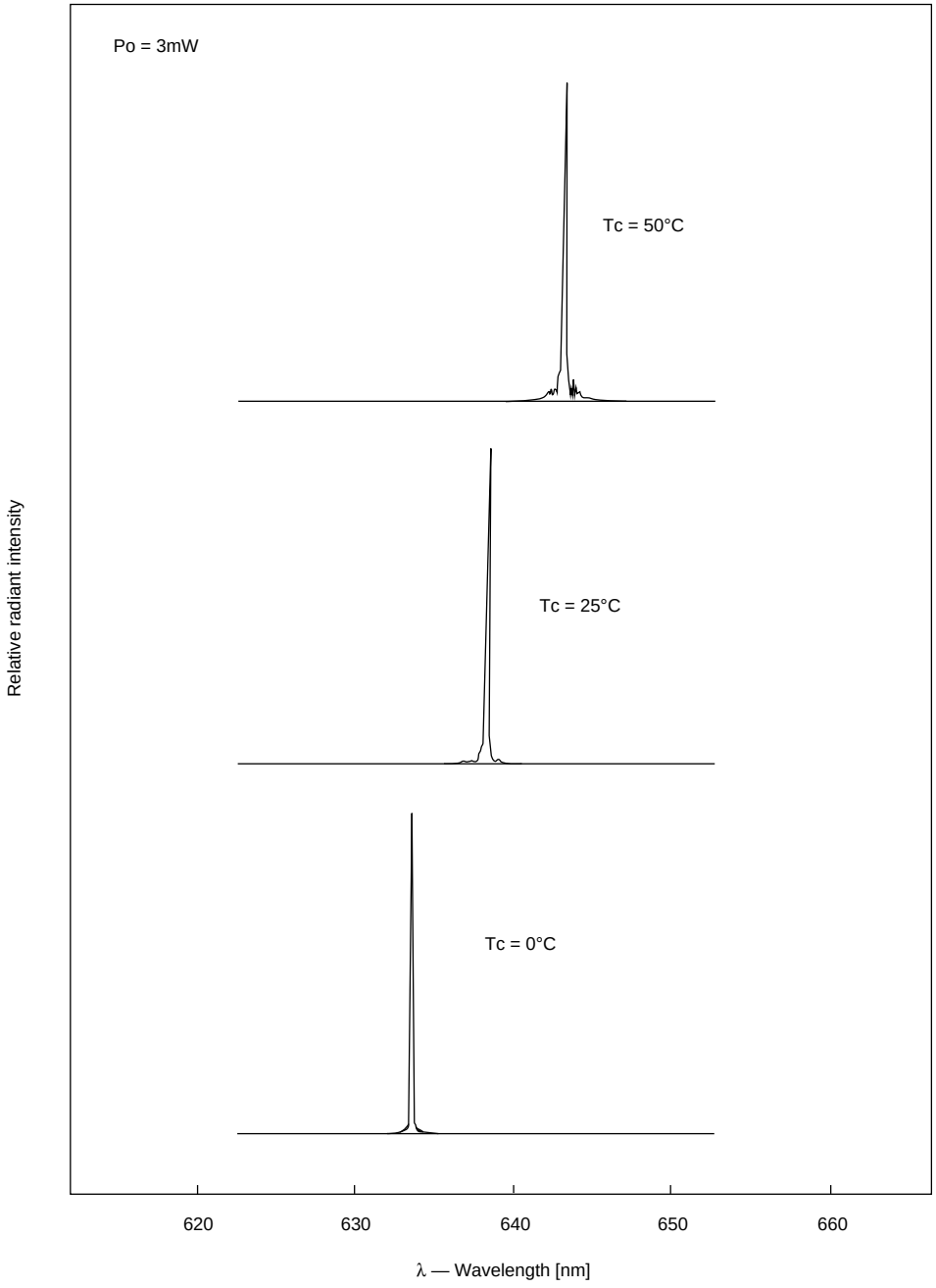
Threshold current vs. Temperature characteristics



Monitor current vs. Temperature characteristics



Temperature dependence of spectrum



Power dependence of spectrum