

5mW Visible Laser Diode

Description

The SLD1121VS is a red laser diode designed for bar code readers and measuring instruments. This features a small package and lower power consumption.

Features

- Visible light (670nm typ.)
- Small package (φ5.6mm)
- Low operating current ($I_{op} = 50\text{mA typ.}$)
- Fundamental transverse mode

Applications

- Bar code readers
- Measuring instruments

Structure

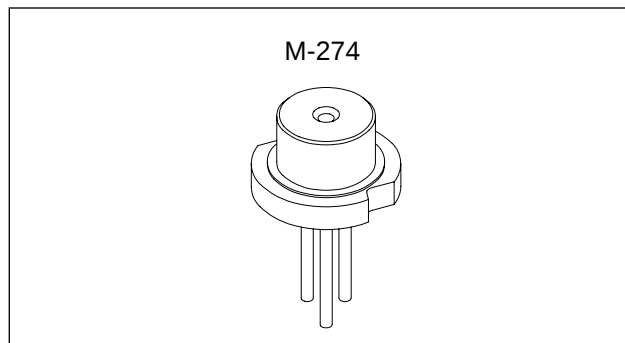
- AlGaInP quantum well structure laser diode
- PIN photo diode for optical power output monitor

Recommended Optical Power Output

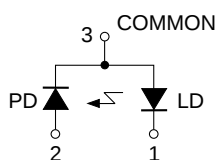
3mW

Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$)

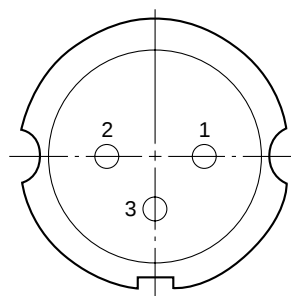
• Optical power output	P_{Omax}	5	mW
• Reverse voltage	V_R	LD 2	V
		PD 15	V
• Operating temperature	T_{opr}	-10 to +50	$^\circ\text{C}$
• Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$



Connection Diagram



Pin Configuration



Bottom View

1. LD cathode
2. PD anode
3. COMMON

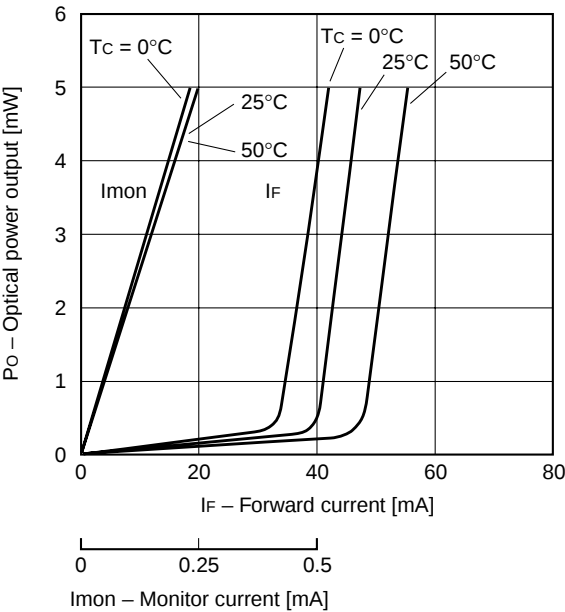
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Electrical and Optical Characteristics (T_c = 25°C)T_c: Case temperature

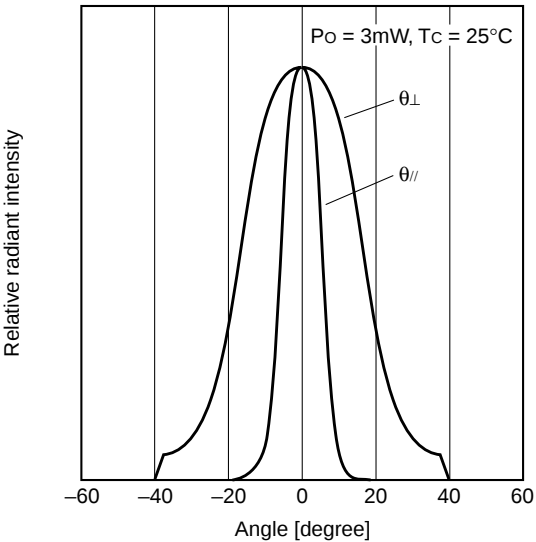
Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold current		I _{th}			40	60	mA
Operating current		I _{op}	P _O = 3mW		50	70	mA
Operating voltage		V _{op}	P _O = 3mW		2.2	2.8	V
Wavelength		λ	P _O = 3mW	660	670	680	nm
Radiation angle	Perpendicular	θ⊥	P _O = 3mW	24	32	35	degree
	Parallel	θ//		7	11	15	degree
Positional accuracy	Position	ΔX, ΔY, ΔZ	P _O = 3mW			±80	μm
	Angle	Δφ//				±3	degree
		Δφ⊥				±3	degree
Differential efficiency		ηD	P _O = 3mW	0.15	0.45	0.7	mW/mA
Astigmatism		As	Z// – Z⊥		32		μm
Monitor current		I _{mon}	P _O = 3mW, V _R = 5V	0.08	0.20	0.60	mA

Example of Representative Characteristics

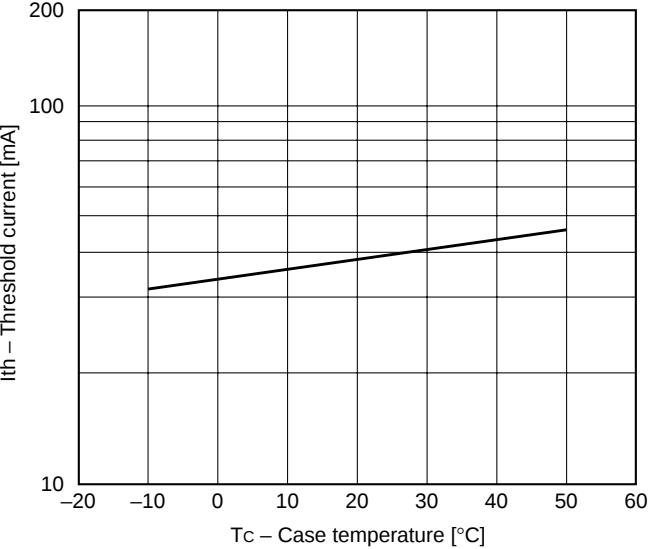
Optical power output vs. Forward current characteristics
Optical power output vs. Monitor current characteristics



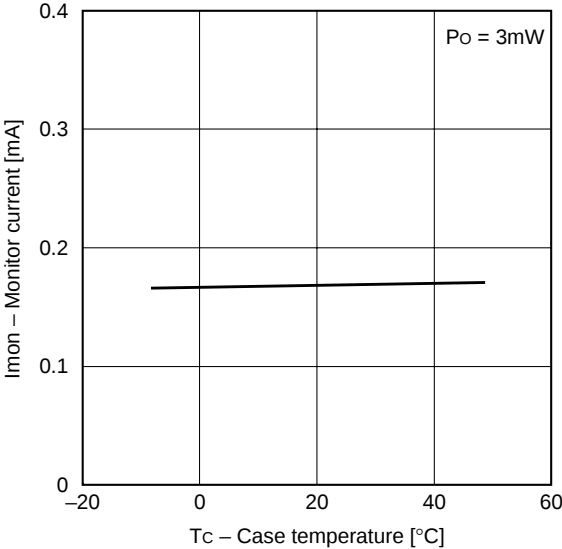
Far field pattern (FFP)

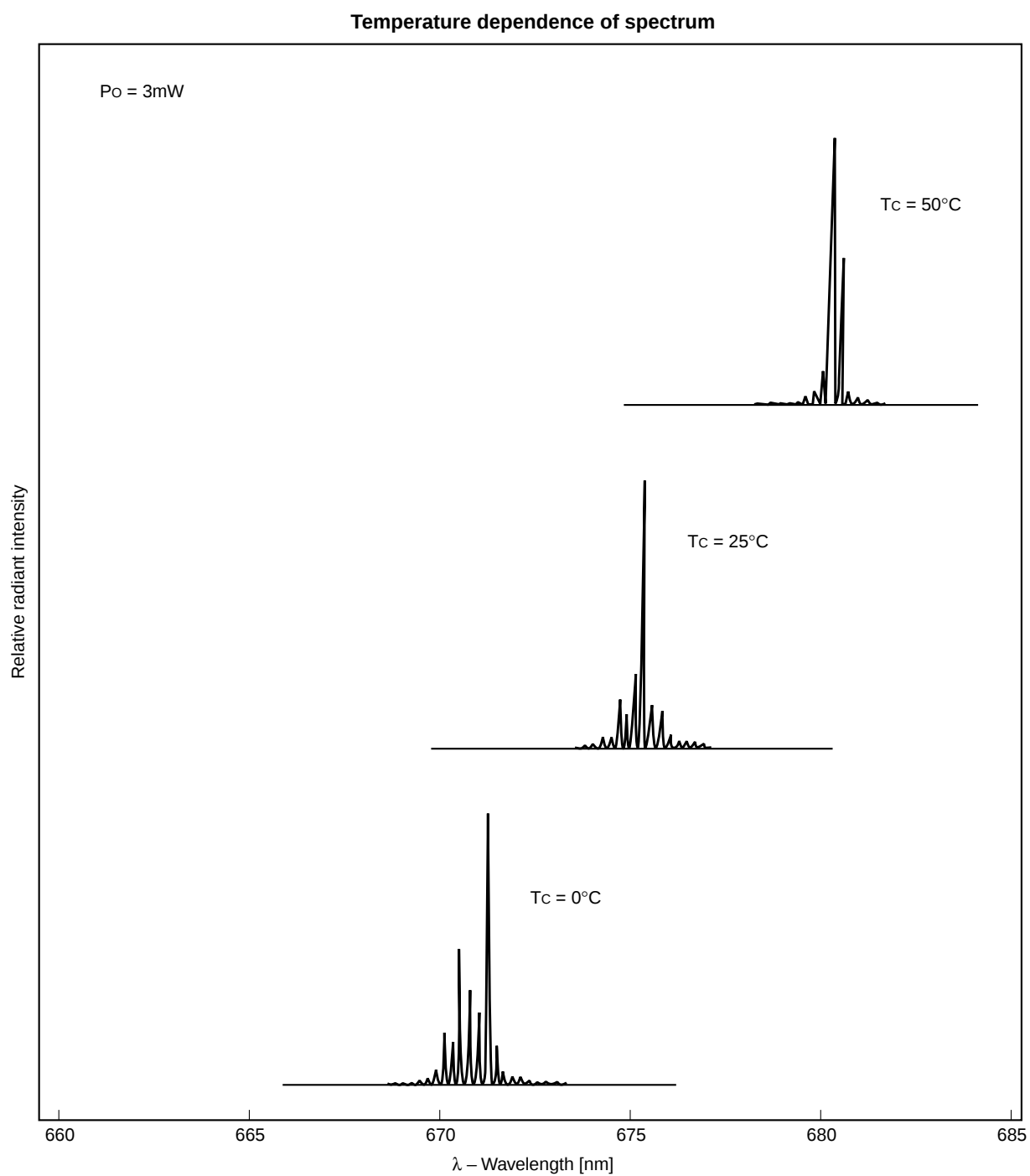


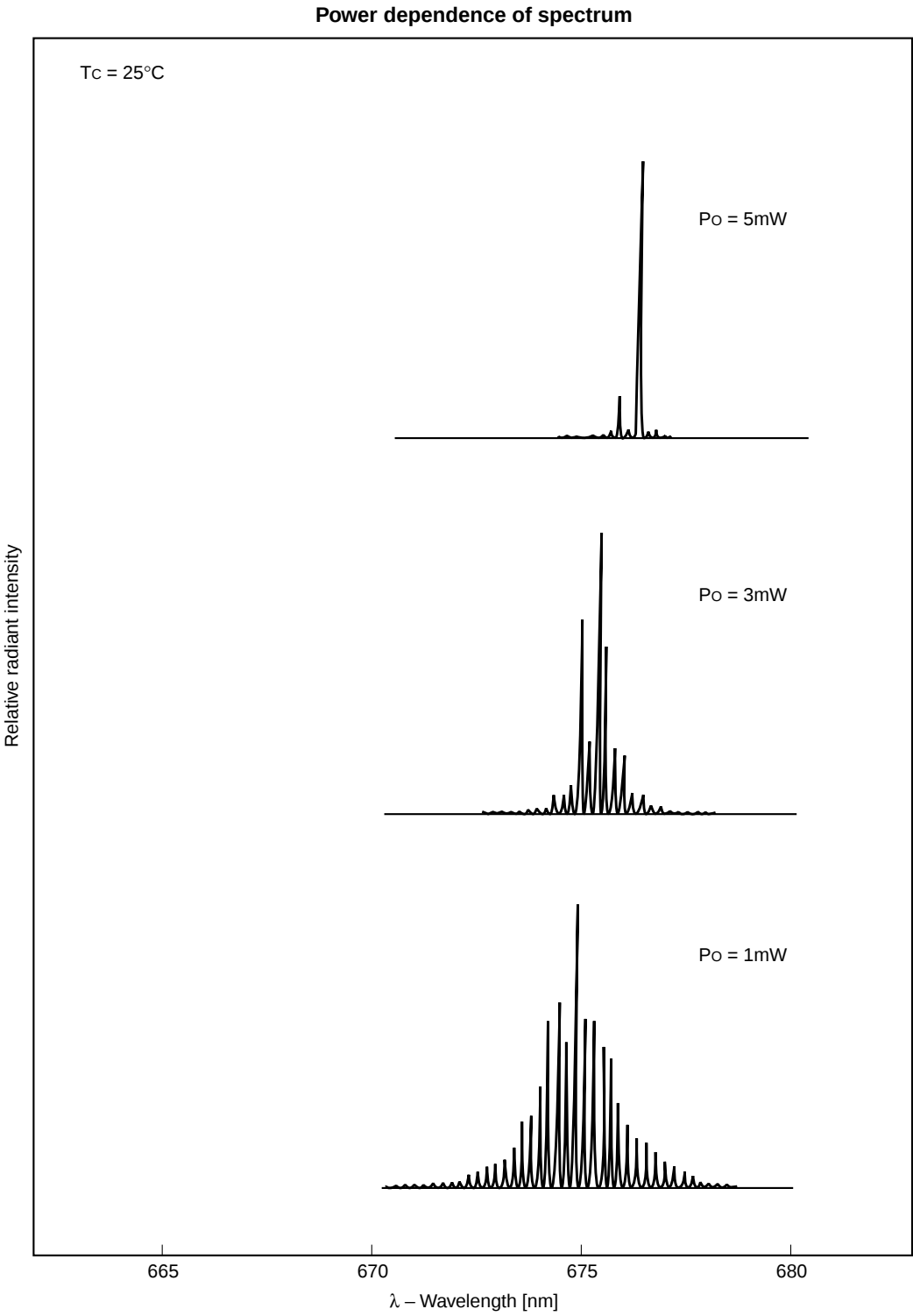
Threshold current vs. Temperature characteristics



Monitor current vs. Temperature characteristics



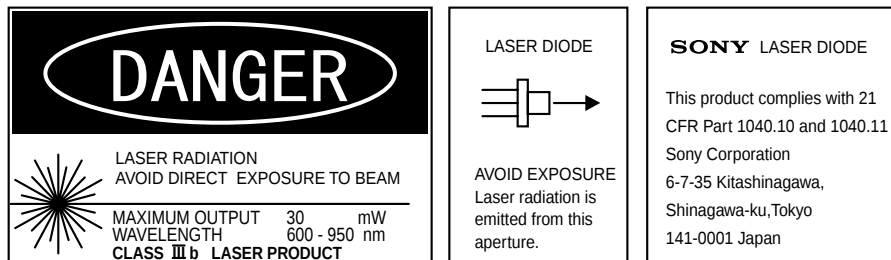




Notes on Operation

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

- (1) This product corresponds to a Class 3B 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

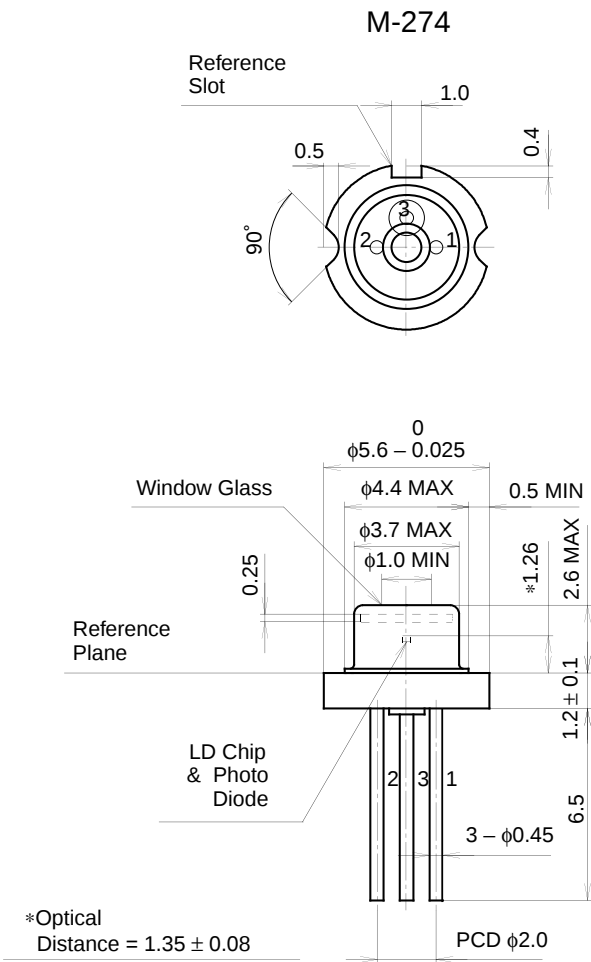
Laser diodes are most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode for even an extremely short time, the strong light emitted from the laser diode promotes deterioration and then destruction of the laser diode. Therefore, note that 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



SONY CODE	M-274
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE MASS	0.3g
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