

650nm Pulsation Red Laser Diode

Description

The SLD1134VL is a pulsation red laser diode designed for DVD systems.

Features

- Low noise
- Standard package (φ5.6mm)

Application

DVD

Structure

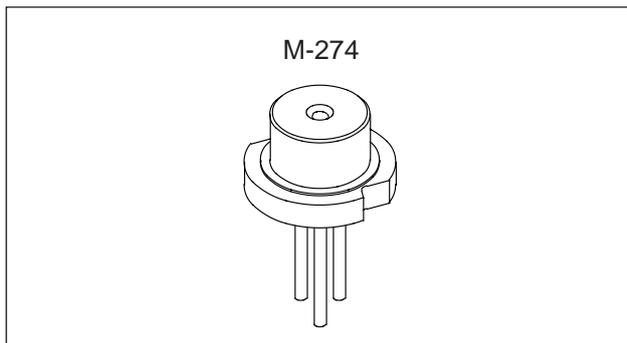
- AlGaInP quantum well-structure laser diode
- PIN photo diode for optical power output monitor

Recommended Optical Power Output

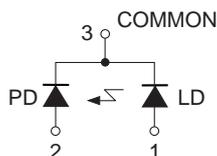
4mW

Absolute Maximum Ratings (T_c = 25°C)

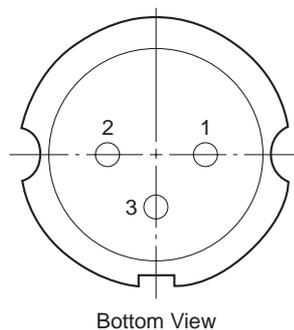
- | | | | |
|-------------------------|-------------------|------------|----|
| • Optical power output | P _o | 5 | mW |
| • Reverse voltage | V _R LD | 2 | V |
| | PD | 20 | V |
| • Operating temperature | T _{opr} | -10 to +70 | °C |
| • Storage temperature | T _{stg} | -40 to +85 | °C |



Connection Diagram



Pin Configuration



1. LD Anode
2. PD Anode
3. Common

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Electrical and Optical Characteristics

Tc: Case temperature

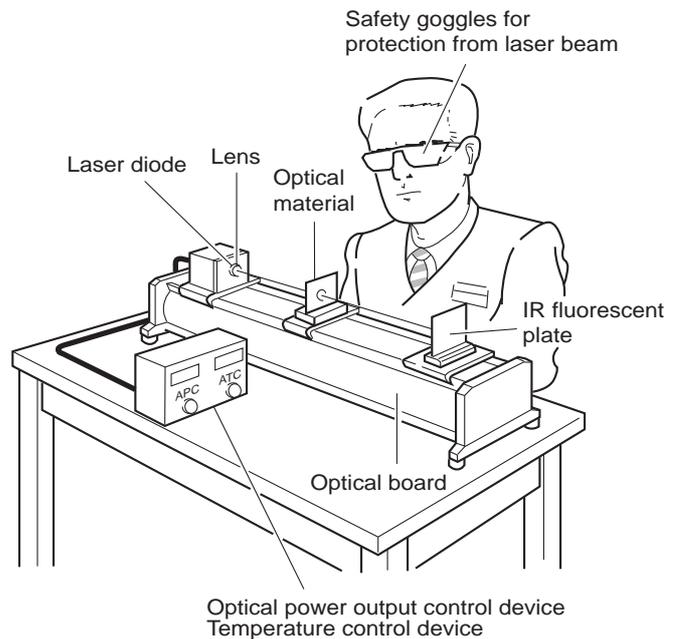
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Threshold current	I _{th}			65	80	mA	
Operating current	I _{op1}	P _o = 4mW		75	90	mA	
	I _{op2} *1				120	mA	
Operating voltage	V _{op}	P _o = 4mW		2.3	2.8	V	
Wavelength	λ _p	P _o = 4mW	640	655	660	nm	
Radiation Angle	Perpendicular	P _o = 4mW		25	35	40	degree
	Parallel			7	8.5	12	degree
Positional accuracy	Position	P _o = 4mW			±80	μm	
	Angle		Δφ//			±2	degree
			Δφ⊥			±3	degree
Differential efficiency	η _D	P _o = 4mW	0.15	0.4	0.7	mW/mA	
Astigmatism	A _s	P _o = 4mW		10		μm	
Monitor current	I _{mon}	P _o = 4mW VR = 5V	0.05	0.1	0.25	mA	

*1 T_c = 70°C

Handling Precautions

(1) Eye protection against laser beams

The optical output of laser diodes ranges from several mW to 4W. However the optical power density of the laser beam at the diode chip reaches 1MW/cm². 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.

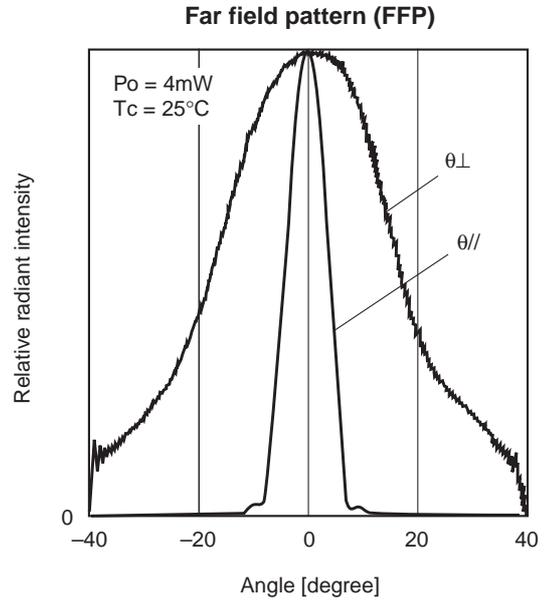
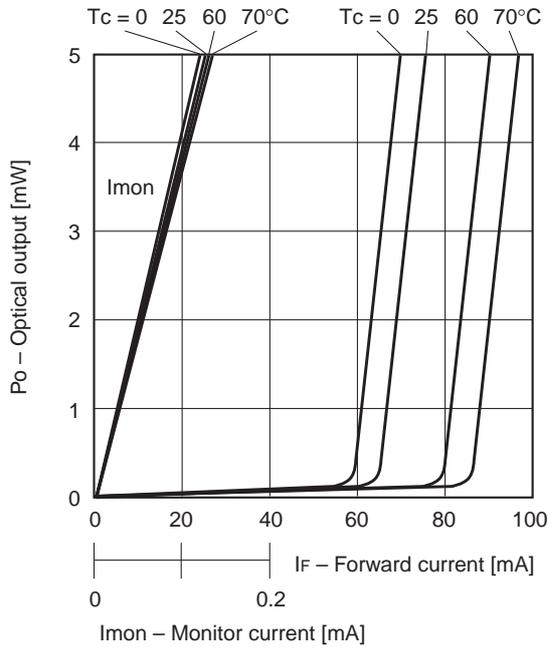


(2) Prevention of surge current and electrostatic discharge

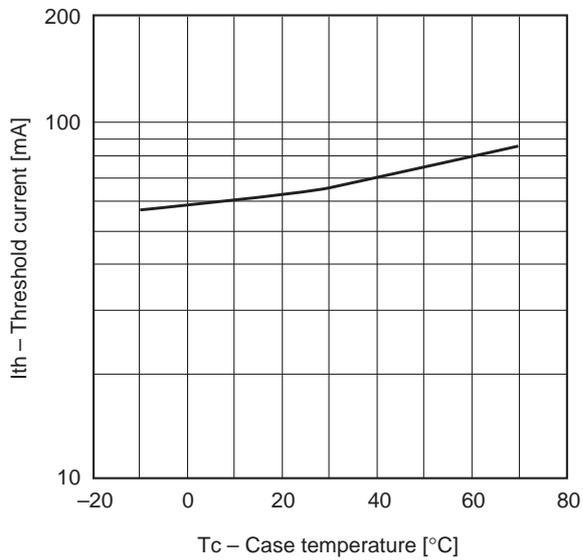
Laser diode is most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode even for an extremely short time (in the order of nanosecond), the strong light emitted from the laser diode promotes deterioration and then laser diodes are destroyed. 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

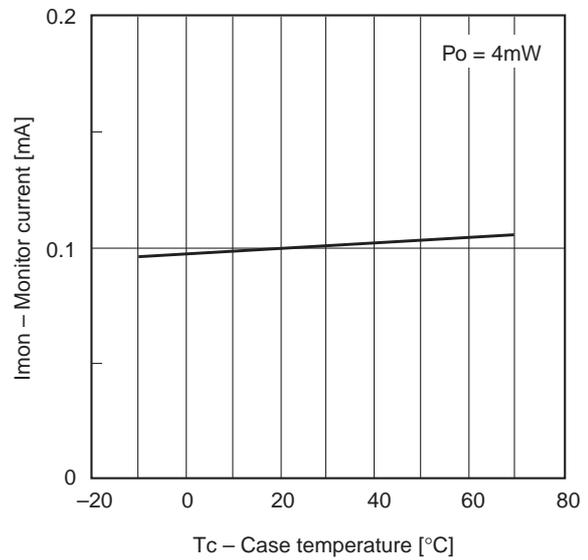
Optical power output vs. Forward current characteristics
Optical power output vs. Monitor current characteristics



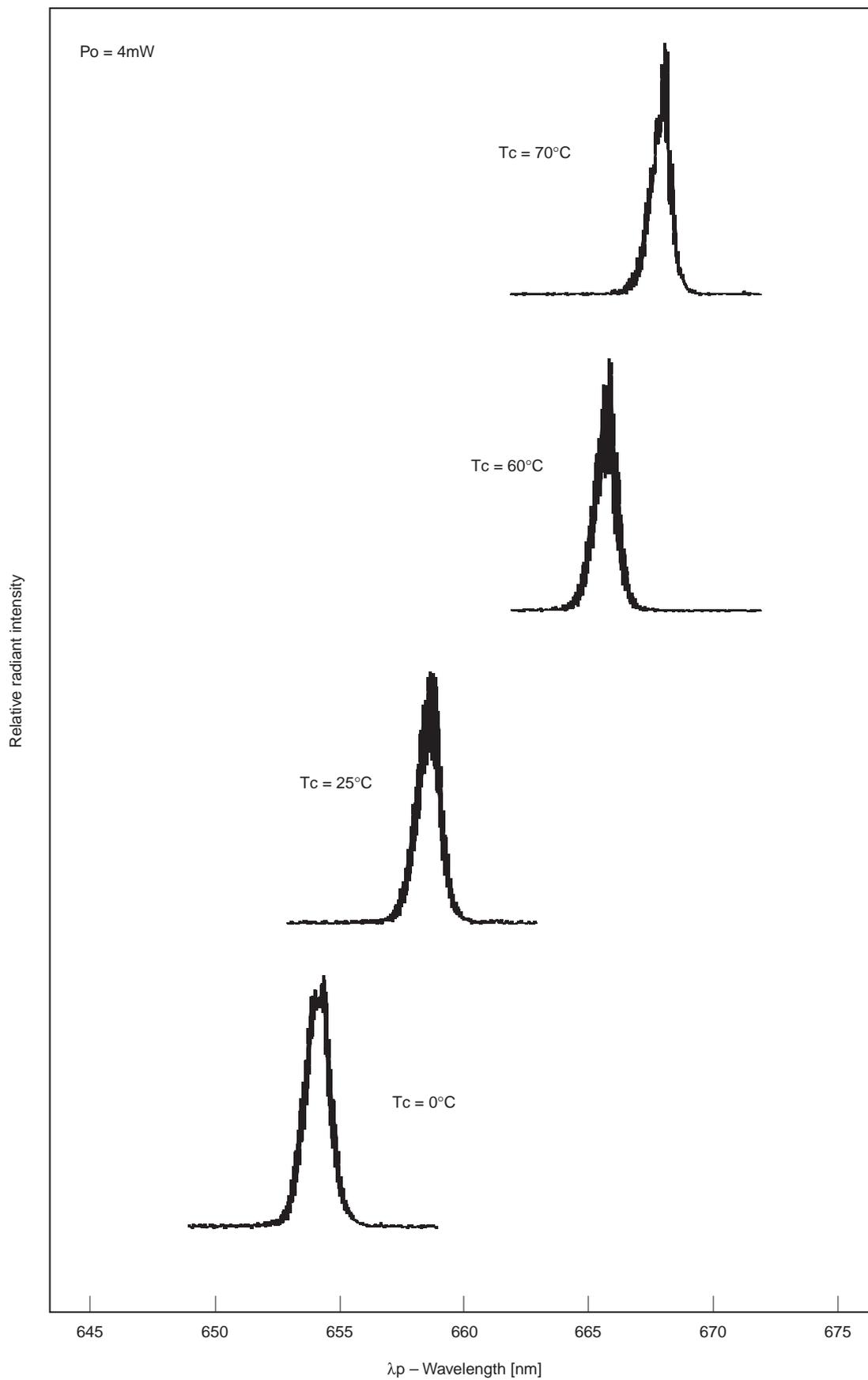
Threshold current vs. Temperature characteristics



Monitor current vs. Temperature characteristics



Temperature dependence of spectrum



Power output dependence of spectrum

