

## Index-Guided Red Laser Diode

### Description

The SLD1131VS is an index-guided red laser diode. It features small astigmatism and high-speed pulse response.

### Features

- Red visible light (670nm typ.)
- Small astigmatism (7 $\mu$ m typ.)
- High-speed pulse response (Rise time = 5ns typ.)
- Low operating current (40mA typ.)
- Small package ( $\phi$ 5.6mm)
- Longitudinal single mode

### Applications

- Bar code readers
- Measuring instruments

### Structure

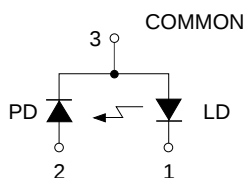
- AlGaInP quantum well-structured laser diode
- PIN photo diode for optical power output monitor

**Recommend Optical Power Output** 4 mW

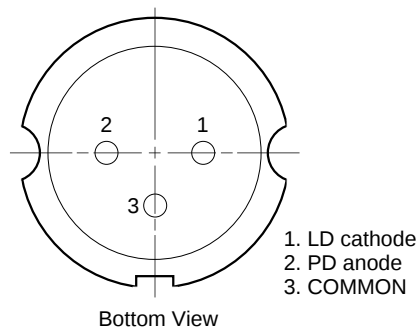
### Absolute Maximum Ratings (T<sub>c</sub> = 25°C)

|                         |                   |            |    |
|-------------------------|-------------------|------------|----|
| • Optical power output  | P <sub>o</sub>    | 6          | mW |
| • Reverse voltage       | V <sub>R</sub> LD | 2          | V  |
|                         | PD                | 15         | V  |
| • Operating temperature | T <sub>opr</sub>  | −10 to +50 | °C |
| • Storage temperature   | T <sub>stg</sub>  | −40 to +85 | °C |

### Connection Diagram



### Pin Configuration

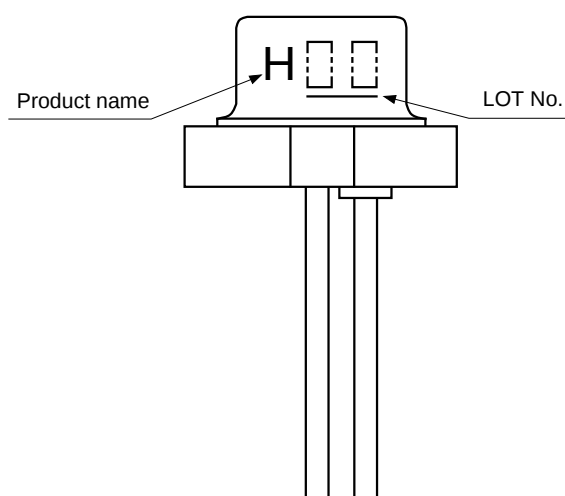


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Optical and Electrical Characteristics (T<sub>c</sub> = 25°C)T<sub>c</sub> : Case temperature

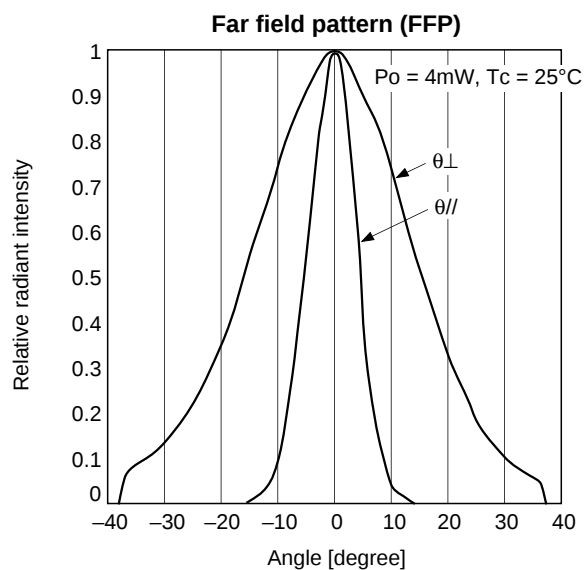
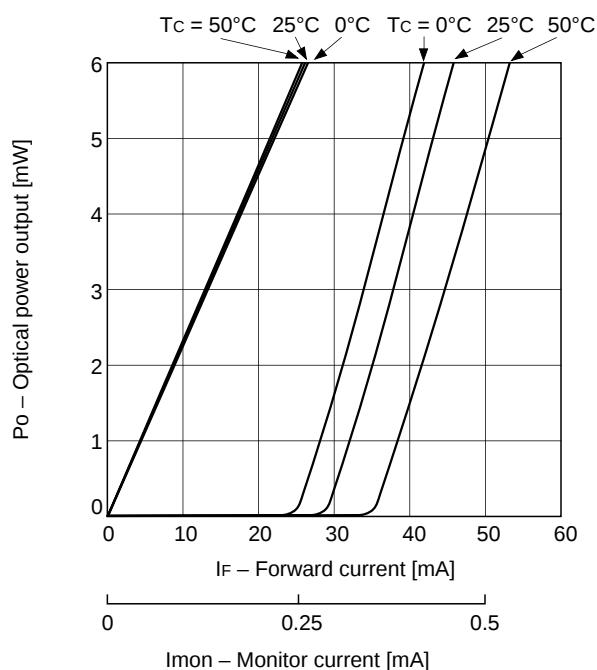
| Item                    |               | Symbol          | Conditions                                | Min. | Typ. | Max. | Unit   |
|-------------------------|---------------|-----------------|-------------------------------------------|------|------|------|--------|
| Threshold current       |               | I <sub>th</sub> |                                           |      | 30   | 50   | mA     |
| Operating current       |               | I <sub>op</sub> | P <sub>o</sub> = 4mW                      |      | 40   | 60   | mA     |
| Operating voltage       |               | V <sub>op</sub> | P <sub>o</sub> = 4mW                      |      | 2.3  | 2.8  | V      |
| Wavelength              |               | λ               | P <sub>o</sub> = 4mW                      | 660  | 670  | 680  | nm     |
| Radiation angle         | Perpendicurar | θ⊥              | P <sub>o</sub> = 4mW                      | 24   | 30   | 35   | degree |
|                         | Parallel      | θ//             |                                           | 7    | 8.5  | 12   | degree |
| Positional accuracy     | Position      | ΔX, ΔY, ΔZ      | P <sub>o</sub> = 4mW                      |      |      | ±80  | μm     |
|                         | Angle         | Δφ//            |                                           |      |      | ±3   | degree |
|                         |               | Δφ⊥             |                                           |      |      | ±3   | degree |
| Differential efficiency |               | ηD              | P <sub>o</sub> = 4mW                      | 0.15 | 0.3  | 0.7  | mW/mA  |
| Astigmatism             |               | As              | P <sub>o</sub> = 4mW                      |      | 7    | 15   | μm     |
| Monitor current         |               | I <sub>m</sub>  | P <sub>o</sub> = 4mW, V <sub>r</sub> = 5V | 0.08 | 0.20 | 0.60 | mA     |

## Marking

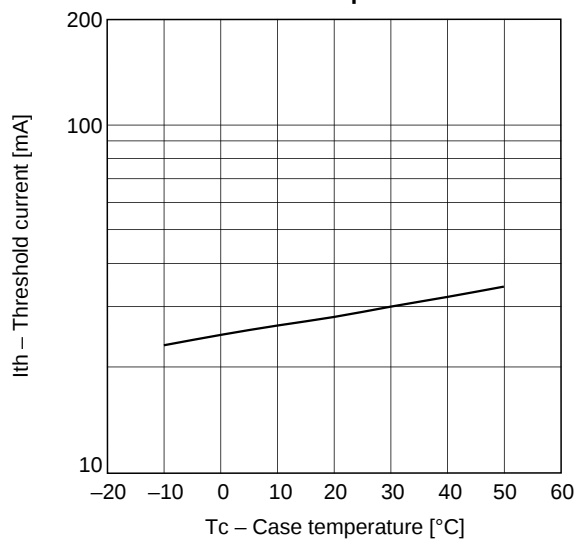


## Example of Representative Characteristics

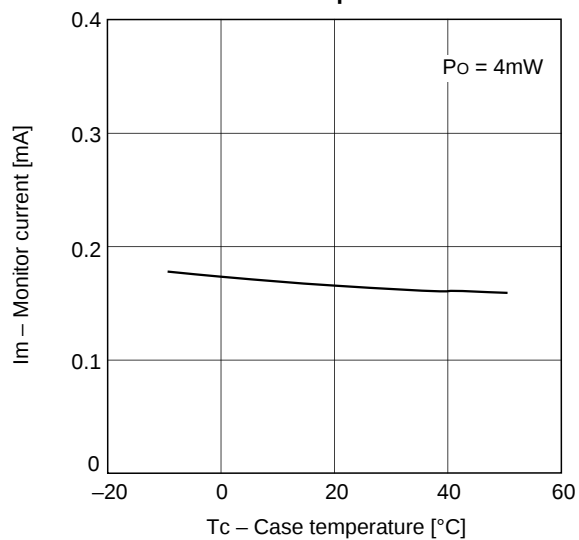
Optical power output vs. Forward current characteristics  
Optical power output vs. Monitor current characteristics



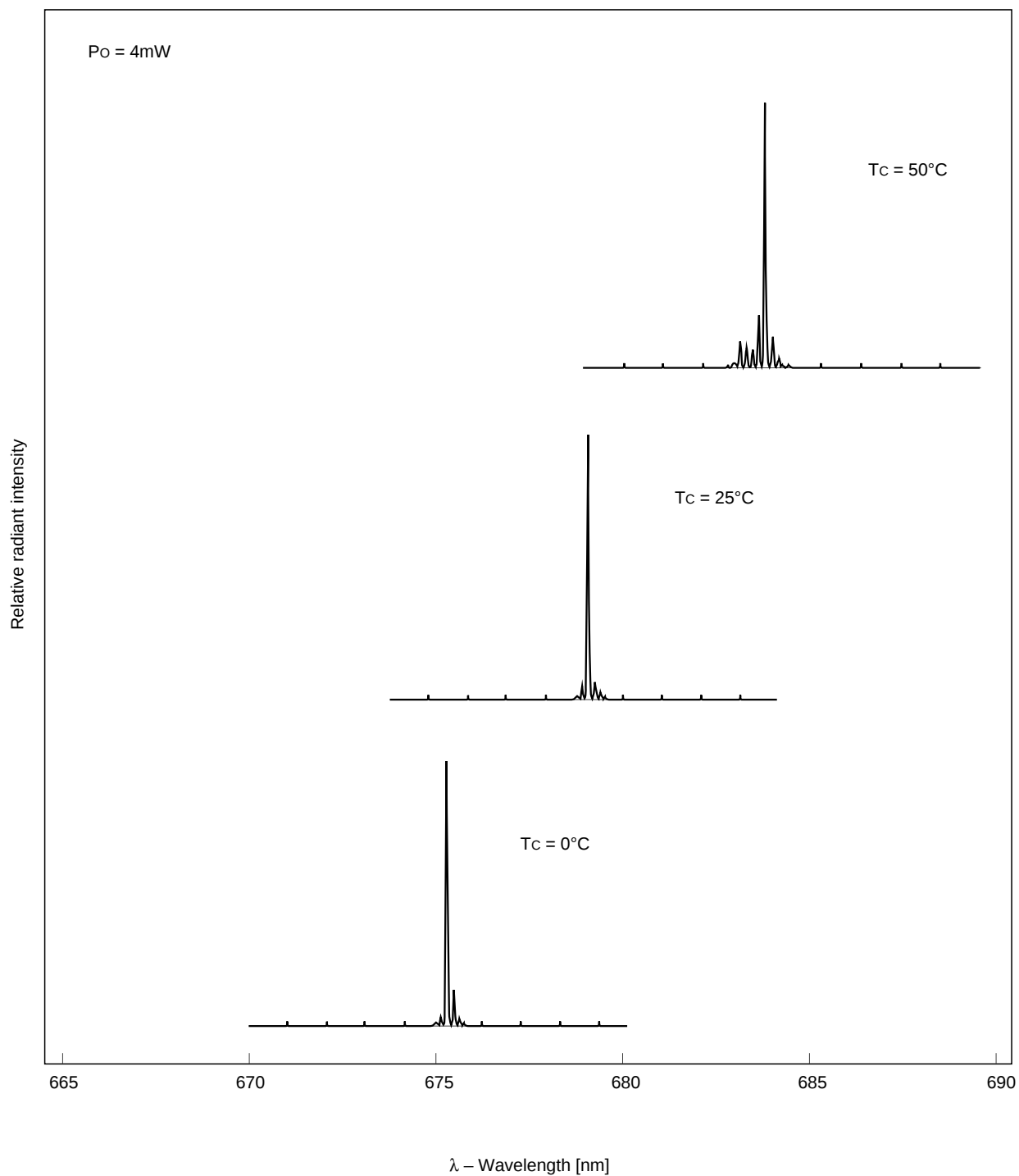
Threshold current vs. Temperature characteristics



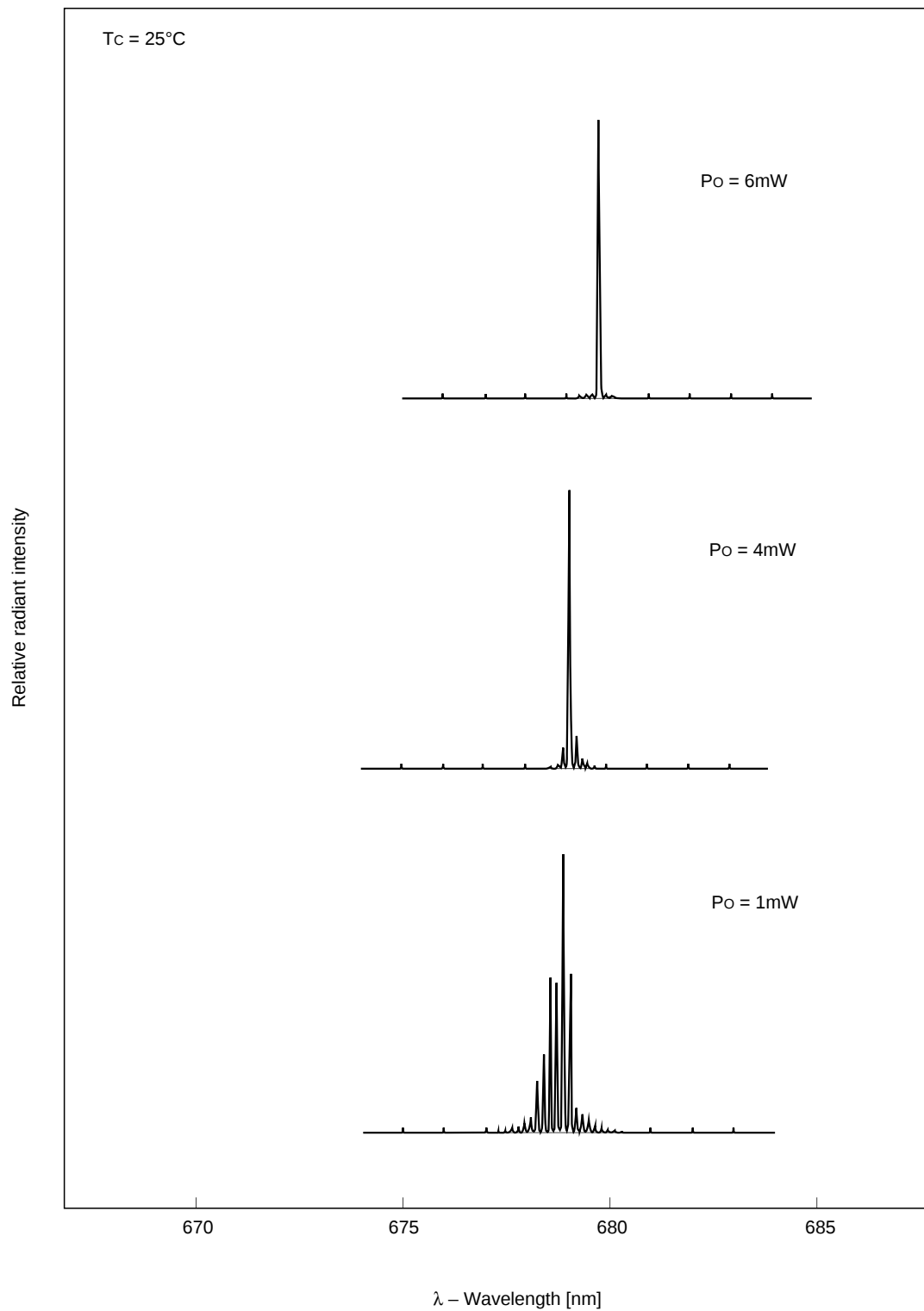
Monitor current vs. Temperature characteristics



## Temperature dependence of spectrum



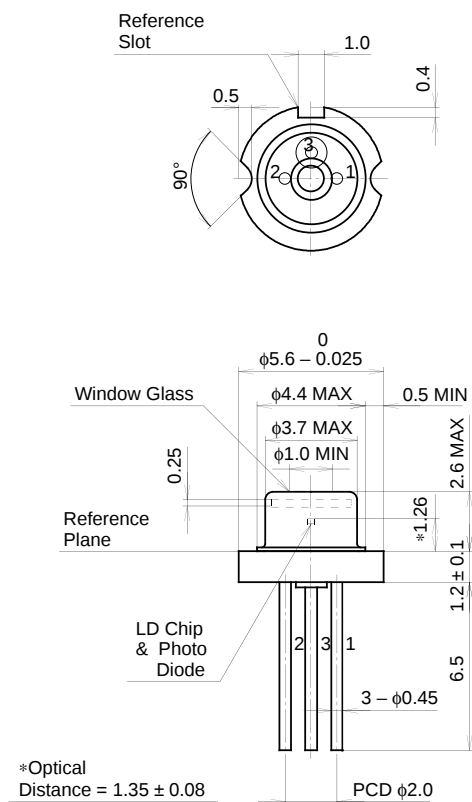
## Power output dependence of spectrum



## Package Outline

Unit: mm

## M-294



|            |       |
|------------|-------|
| SONY CODE  | M-294 |
| EIAJ CODE  |       |
| JEDEC CODE |       |

|                |      |
|----------------|------|
| PACKAGE WEIGHT | 0.3g |
|----------------|------|