

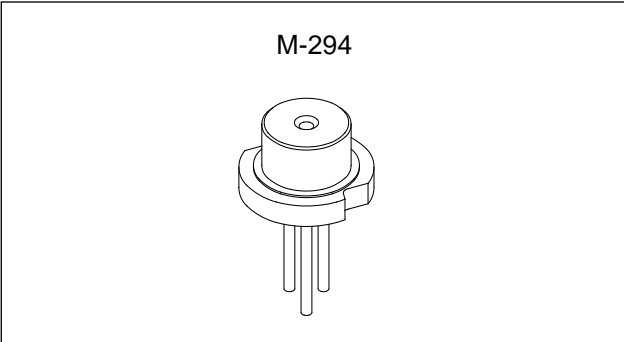
5mW Visible Laser Diode

Description

The SLD1122VS is a red laser diode designed for laser pointers. This features a small package and lower power consumption.

Features

- Visible light (670nm typ.)
- Small package (φ5.6mm)
- Low operating current (I_{op} = 50mA typ.)
- Low operating voltage (V_{op} = 2.4V max.)
- Fundamental transverse mode



Applications

Laser pointers

Structure

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

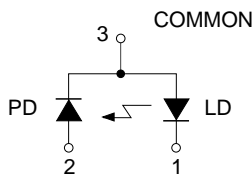
Recommended Operating Output

3mW

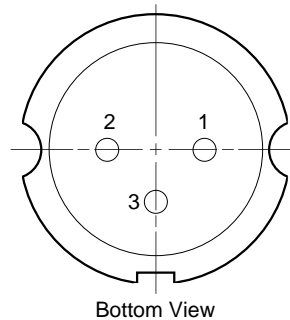
Absolute Maximum Ratings (T_c = 25°C)

- | | | | |
|-------------------------|-------------------|------------|----|
| • Optical power output | P _o | 5 | mW |
| • Reverse voltage | V _R LD | 2 | V |
| | PD | 15 | V |
| • Operating temperature | T _{opr} | -10 to +50 | °C |
| • Storage temperature | T _{stg} | -40 to +85 | °C |

Cinnection Diagram



Pin Configuration



- 1. LD cathode
- 2. PD anode
- 3. COMMON

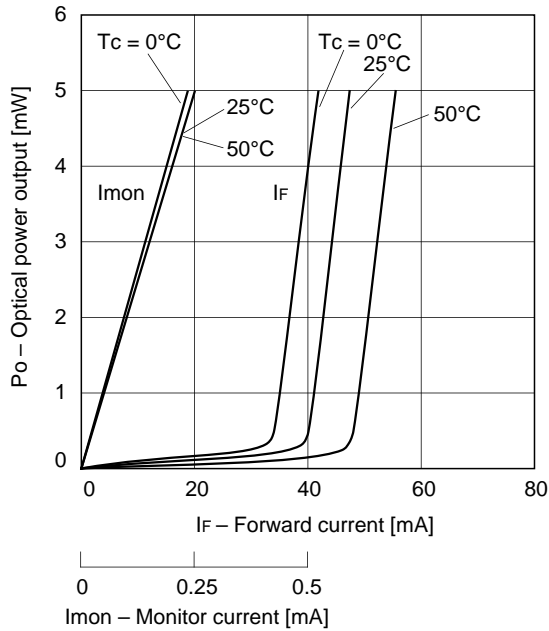
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Electrical and Optical Characteristics (T_c = 25°C)T_c: Case temperature

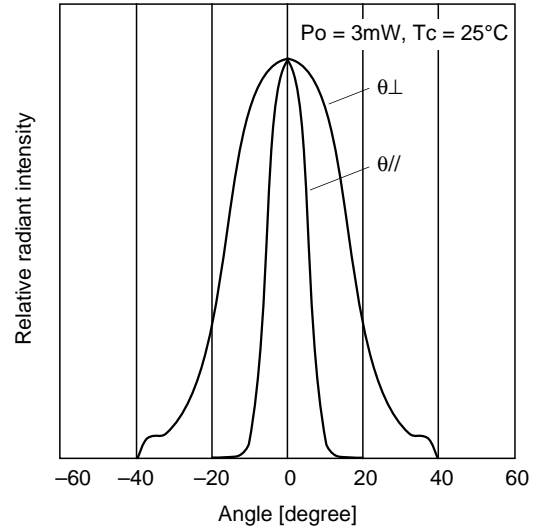
| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit | |
|-------------------------|------------------|-------------------------------------------|----------------------|-----------------|------|-------|--------|
| Threshold current | I _{th} | | | 40 | 60 | mA | |
| Operating current | I _{op} | P _o = 3mW | | 50 | 70 | mA | |
| Operating voltage | V _{op} | P _o = 3mW | | 2.2 | 2.4 | V | |
| Wavelength | λ | P _o = 3mW | 660 | 670 | 685 | nm | |
| Radiation angle | Perpendicular | θ _⊥ | P _o = 3mW | 24 | 32 | 40 | degree |
| | Parallel | | | θ _{//} | 7 | 11 | 15 |
| Positional accuracy | Position | ΔX, ΔY, ΔZ | P _o = 3mW | | | ±150 | μm |
| | Angle | Δφ _{//} | | | | ±4 | degree |
| | | Δφ _⊥ | | | | ±4 | degree |
| Differential efficiency | η _D | P _o = 3mW | 0.15 | 0.45 | 0.7 | mW/mA | |
| Astigmatism | A _s | 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

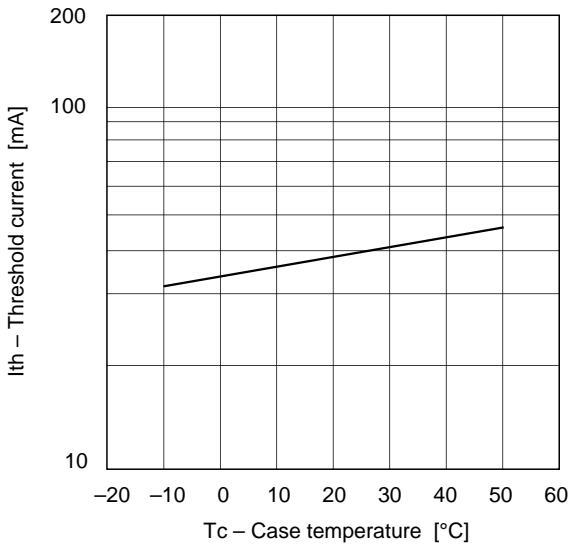
Optical power output vs. Forward current characteristics
Optical power output vs. Monitor current characteristics



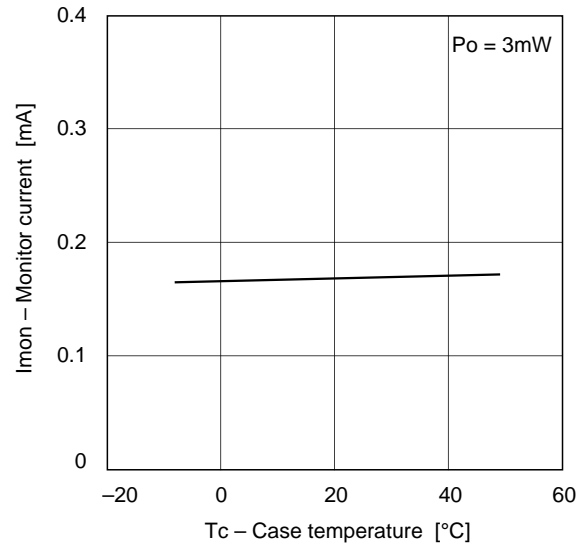
Far field pattern (FFP)



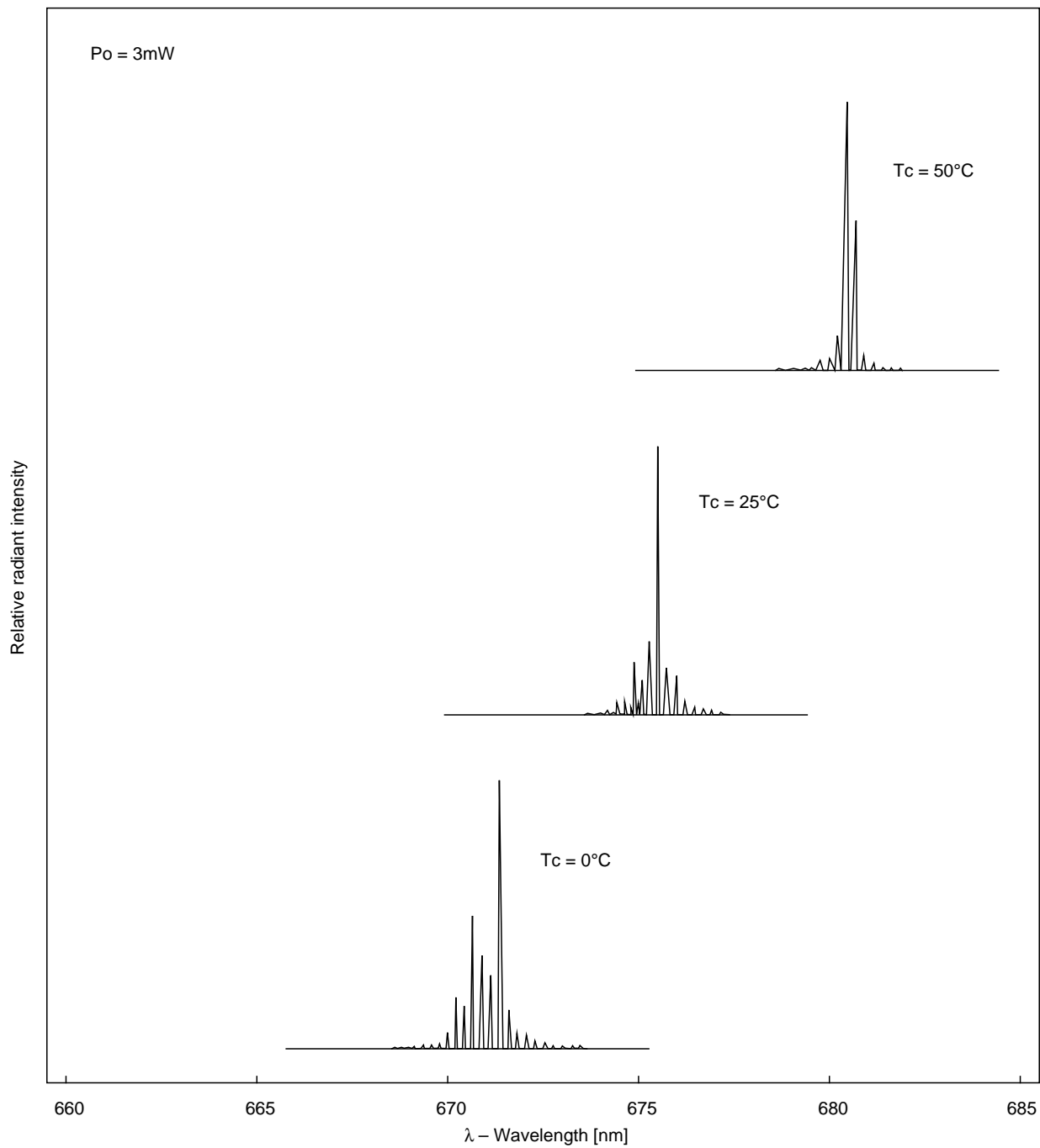
Threshold current vs. Temperature characteristics



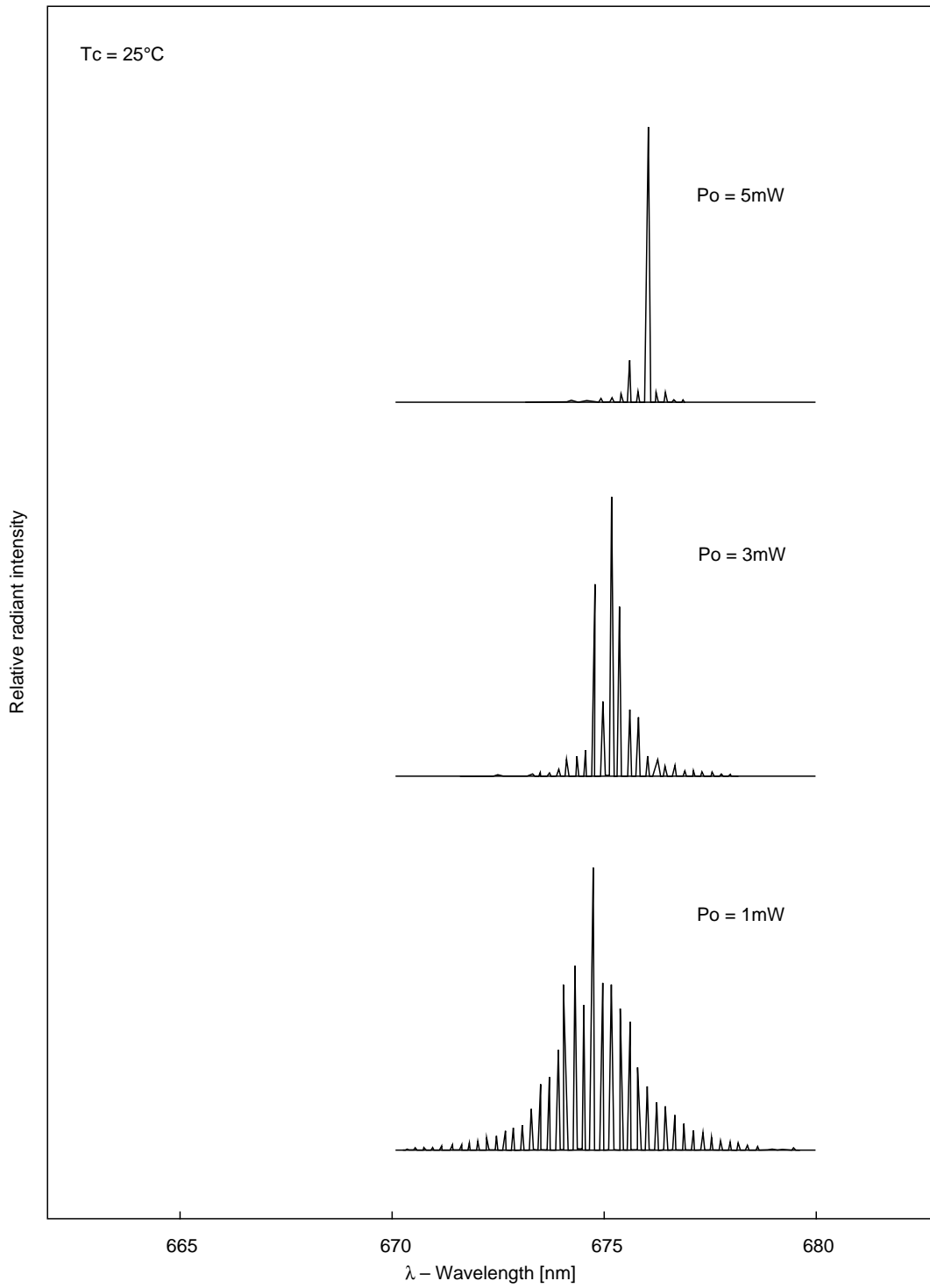
Monitor current vs. Temperature characteristics



Temperature dependence of spectrum

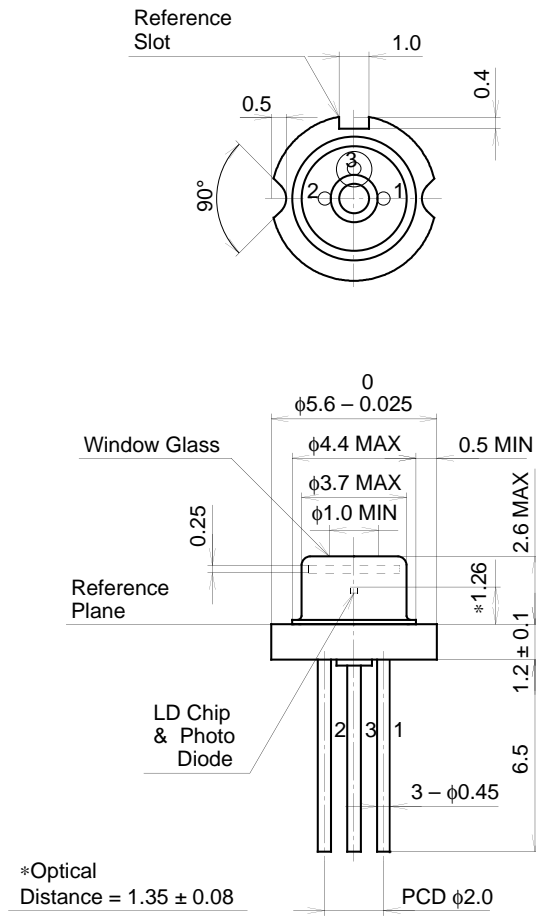


Power dependence of spectrum



Package Outline Unit: mm

M-294



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

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