

GaAlAs Laser Diode

Description

The SLD131UL is a low-power consumption and low-noise laser diode developed for portable CDs.

Features

- Low current consumption I_{OP} : 20mA ($P_O = 2.5mW$)
- Supports single power supply.
- Low noise

Applications

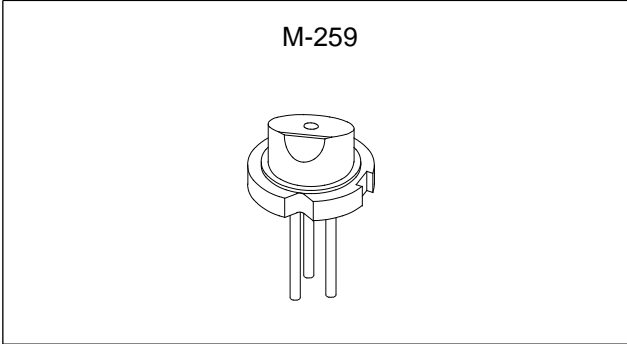
- Portable CDs

Structure

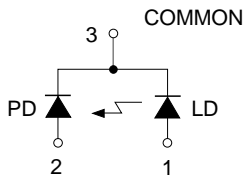
- GaAlAs double hetero laser diode
- PIN photodiode to monitor laser beam output

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

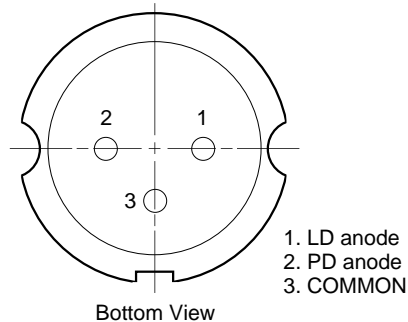
- Optical power output P_O 4 mW
- Reverse voltage V_R LD 2 V
- PD 15 V
- Operating temperature T_{opr} -10 to $+60$ °C
- Storage temperature T_{stg} -40 to $+85$ °C



Connection Diagram



Pin Configuration

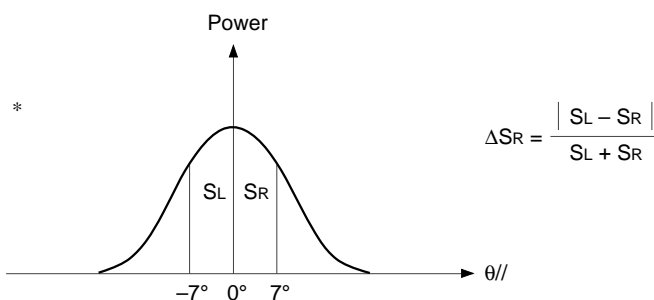


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Electrical and Optical Characteristics (T_c = 25°C)

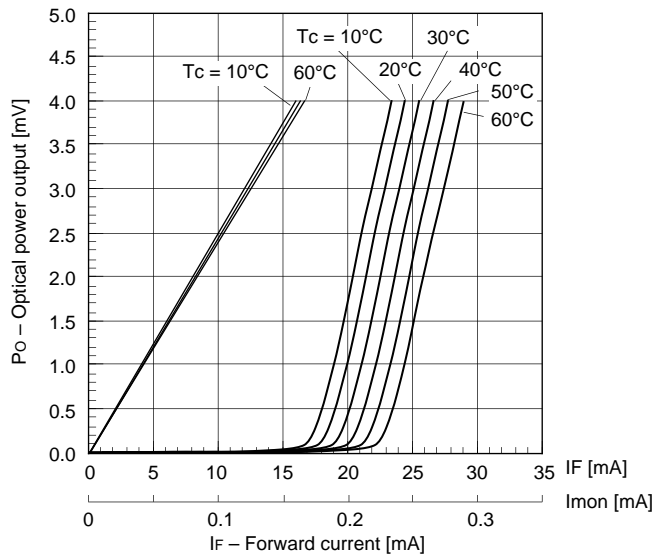
T_c : Case temperature

| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit | |
|-------------------------|-----------------|---|------------------------|------|------|-------|--------|
| Threshold current | I _{th} | | | 16 | 28 | mA | |
| Operating current | I _{op} | P _o = 2.5mW | | 20 | 30 | mA | |
| Operating voltage | V _{op} | P _o = 2.5mW | 1.7 | 1.9 | 2.5 | V | |
| Wavelength | λ _p | P _o = 2.5mW | 760 | 790 | 810 | nm | |
| Monitor current | I _m | P _o = 2.5mW V _R = 5V | 0.08 | 0.11 | 0.6 | mA | |
| Radiation angle | Perpendicular | θ _⊥ | P _o = 2.5mW | 20 | 39 | 45 | degree |
| | Parallel | θ _{//} | | 8 | 13 | 25 | degree |
| | Asymmetry | ΔS _R [*] | | | | 25 | % |
| Positional accuracy | Position | ΔX, ΔY, ΔZ | P _o = 2.5mW | | | ±150 | μm |
| | Angle | Δφ _⊥ | | | | ±4 | degree |
| Differential efficiency | η _D | P _o = 2.5mW | 0.2 | 0.6 | 0.9 | mW/mA | |
| Astigmatism | A _s | Z // -Z _⊥ | | | 15 | μm | |
| Dark current of PD | I _D | V _R = 5V | | | 150 | nA | |
| capacitance of PD | C _T | V _R = 5V, f = 1kHz | | | 30 | pF | |

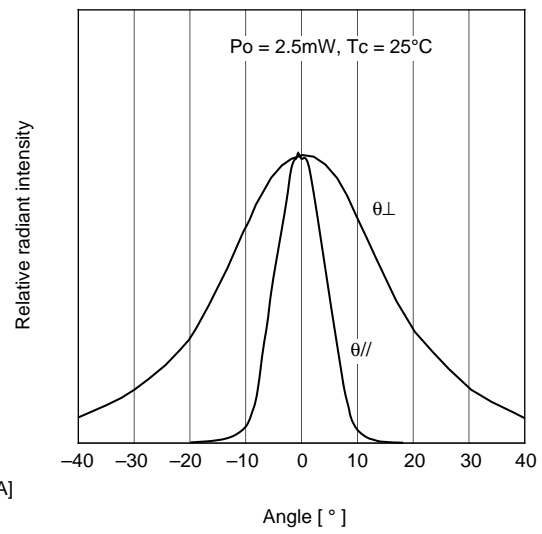


Example of Representative Characteristics

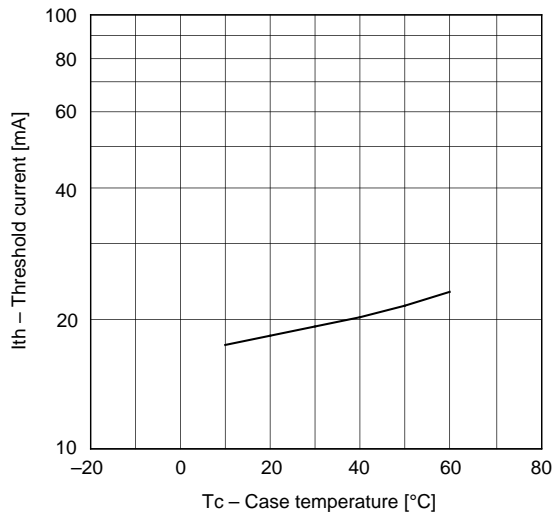
Optical power output vs. Forward current characteristics



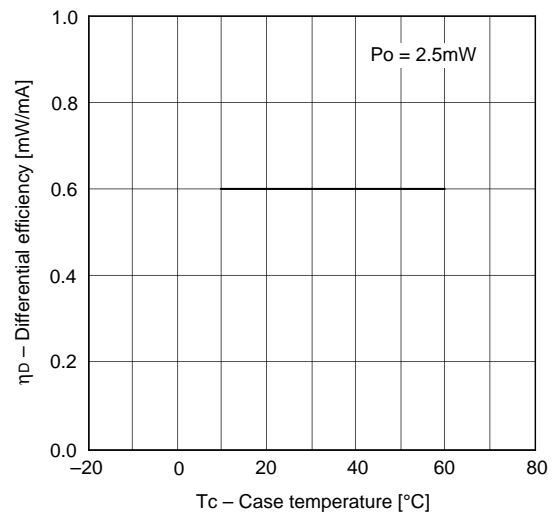
Far field pattern (FFP)



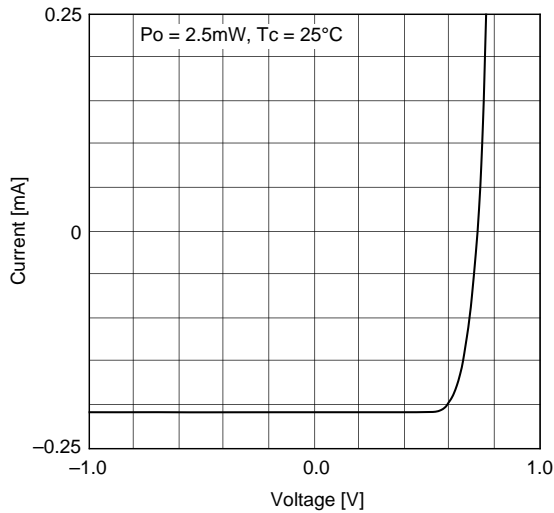
Threshold current vs. Temperature characteristics



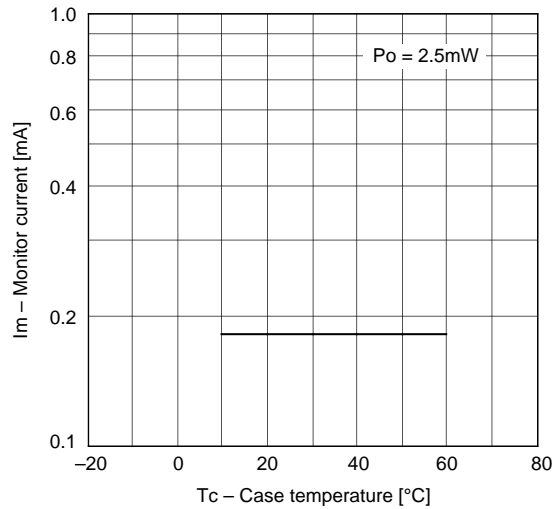
Differential efficiency vs. Temperature characteristics



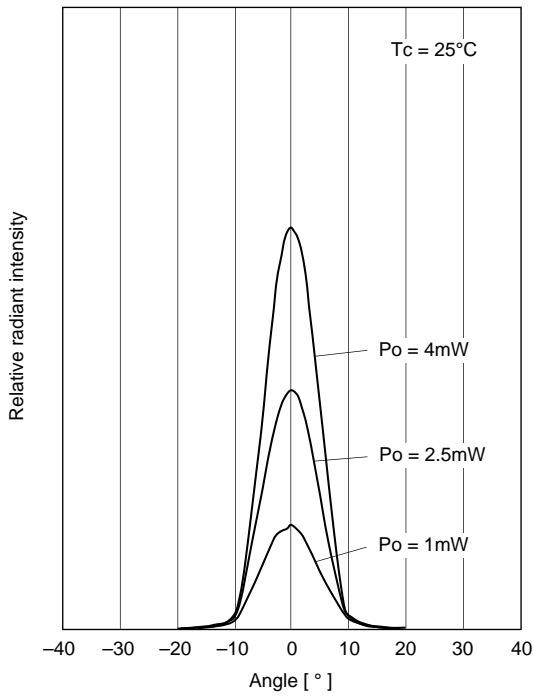
PIN diode voltage and current characteristics



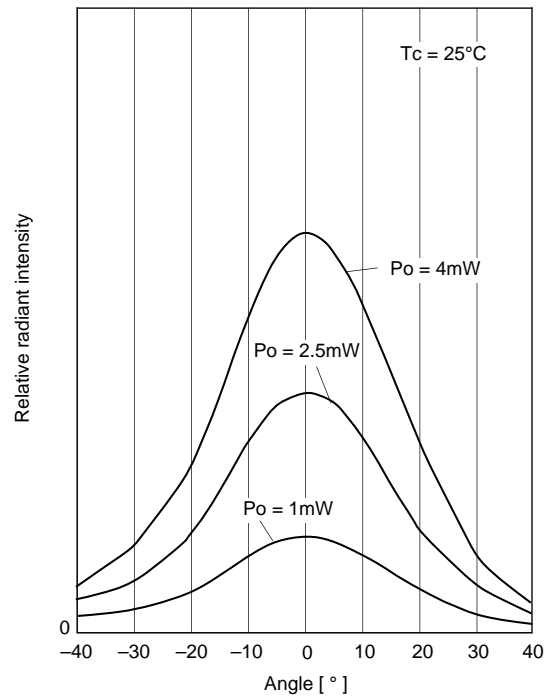
Monitor current vs. Temperature characteristics



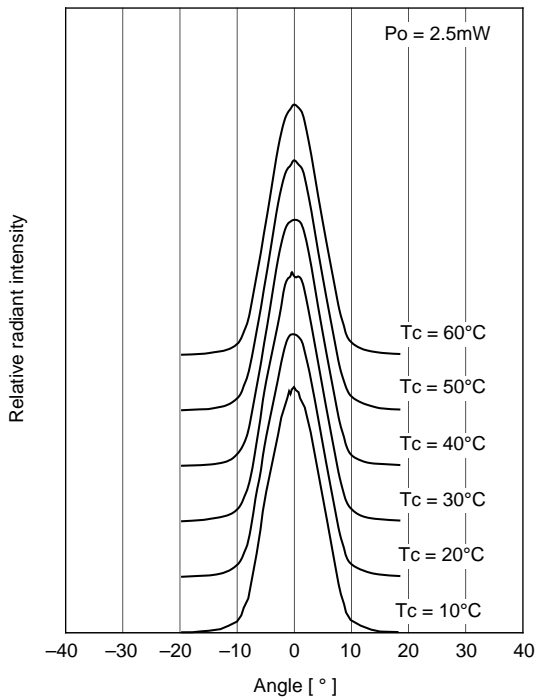
Power dependence of far field pattern
(Parallel to junction)



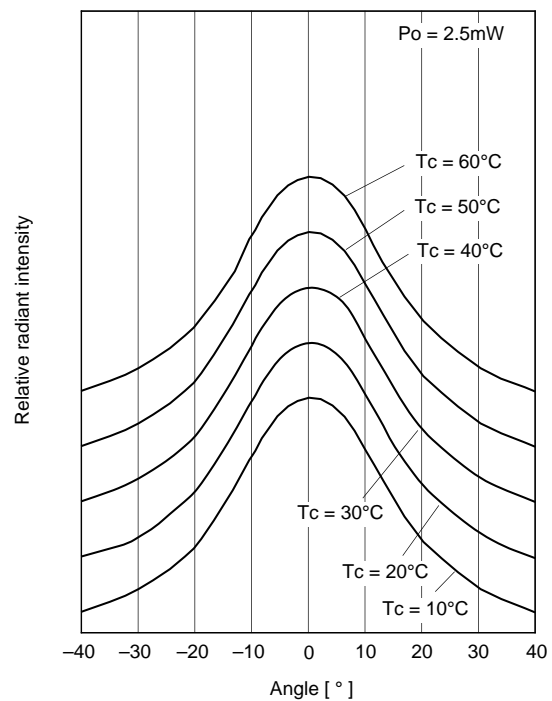
Power dependence of far field pattern
(Perpendicular to junction)



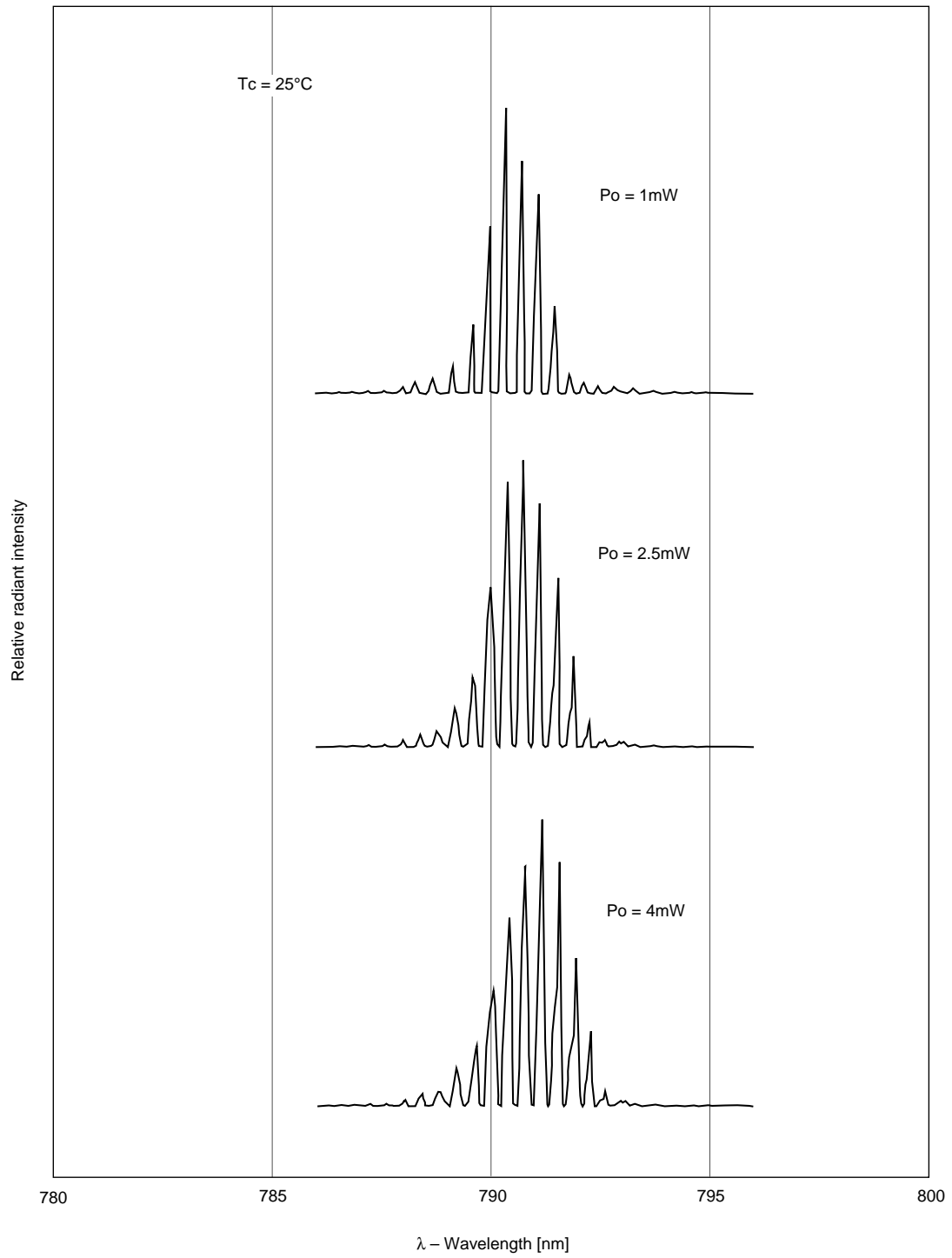
Temperature dependence of far field pattern
(Parallel to junction)



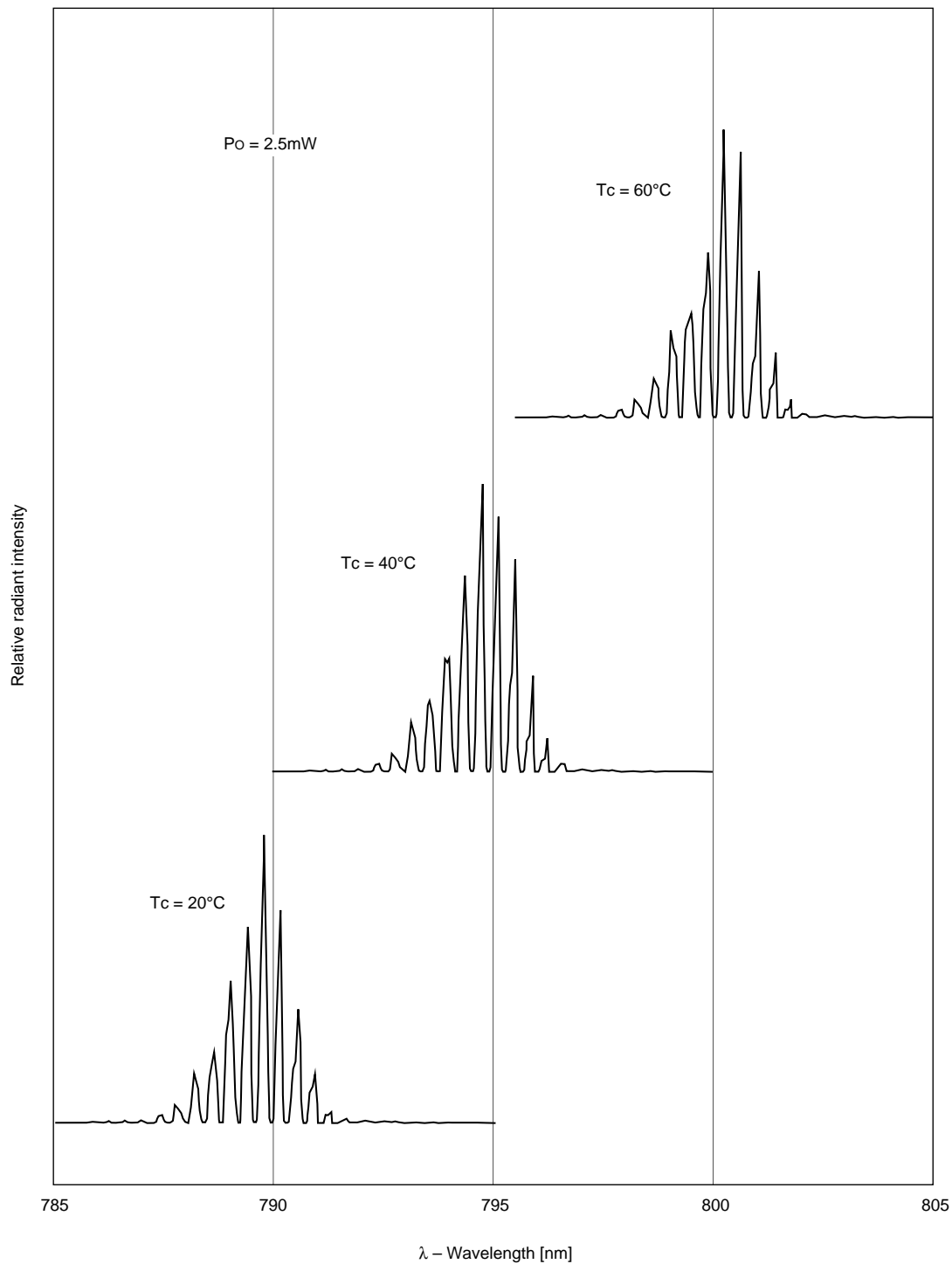
Temperature dependence of far field pattern
(Perpendicular to junction)



Power dependence of oscillating spectrum

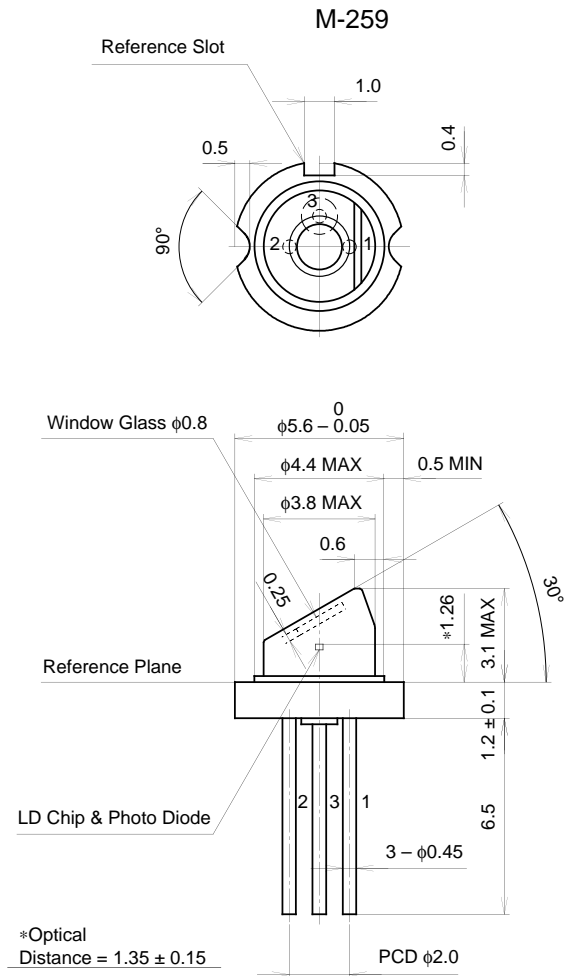


Temperature dependence of oscillating spectrum



Package Outline

Unit: mm



| | |
|------------|-------|
| SONY CODE | M-259 |
| EIAJ CODE | _____ |
| JEDEC CODE | _____ |

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