

AlGaAs Laser Diode

Description

The SLD104AU is a AlGaAs laser diode developed for positive power supplies. In comparison with the SLD104U, this device attains even lower power consumption levels.

Features

- Low power consumption
- Single power supply
- Low noise
- Microminiaturized package ($\phi 5.6\text{mm}$)

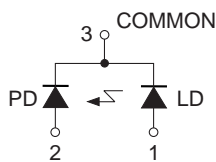
Structure

- AlGaAs double hetero-type laser diode
- PIN photo diode for laser optical power output monitor

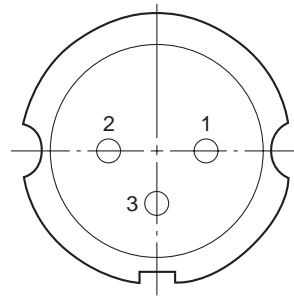
Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

| | | | |
|-------------------------|-----------|------------|------------------|
| • Optical power output | P_o | 5 | mW |
| • Reverse voltage | V_R LD | 2 | V |
| | PD | 15 | V |
| • Operating temperature | T_{opr} | -10 to +60 | $^\circ\text{C}$ |
| • Storage temperature | T_{stg} | -40 to +85 | $^\circ\text{C}$ |

Connection Diagram



Pin Configuration



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

Bottom View

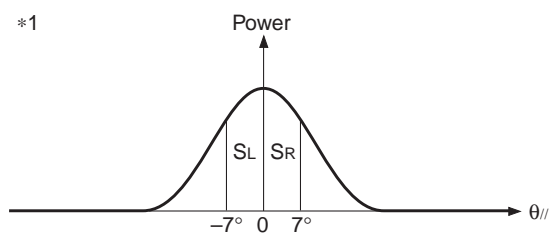
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Electrical and Optical Characteristics (Tc = 25°C)

Tc: Case temperature

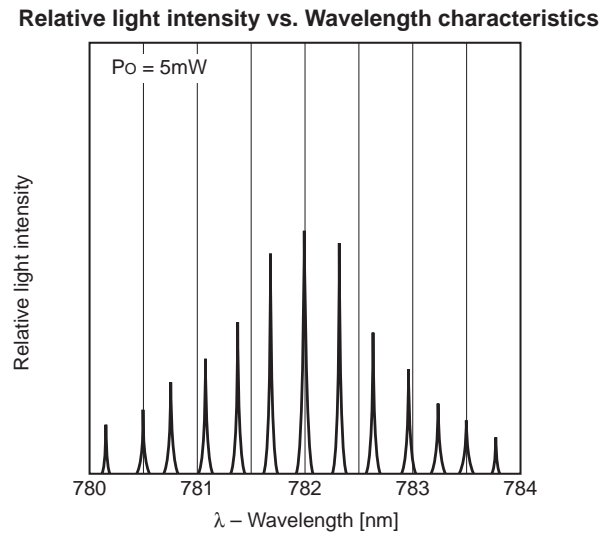
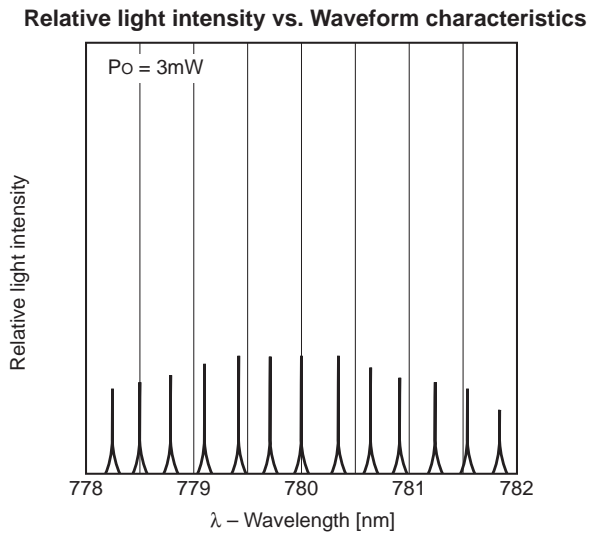
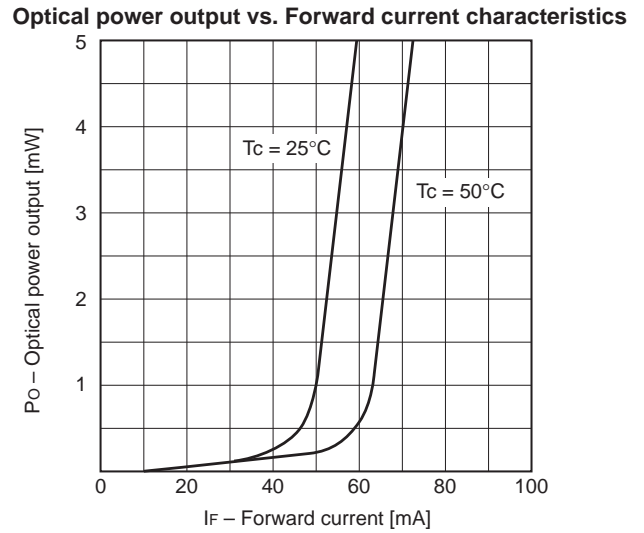
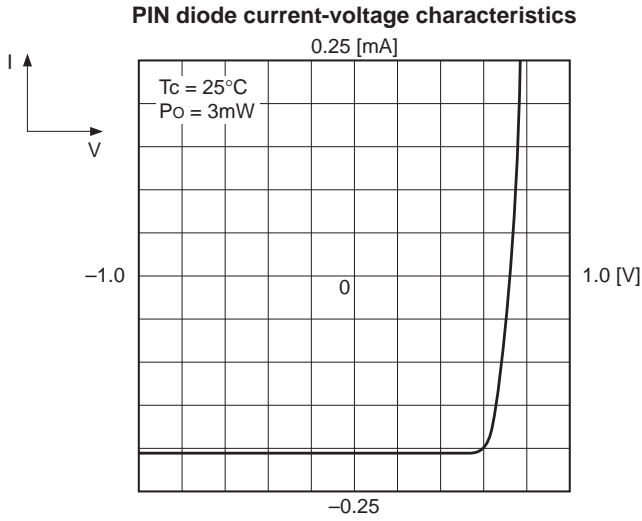
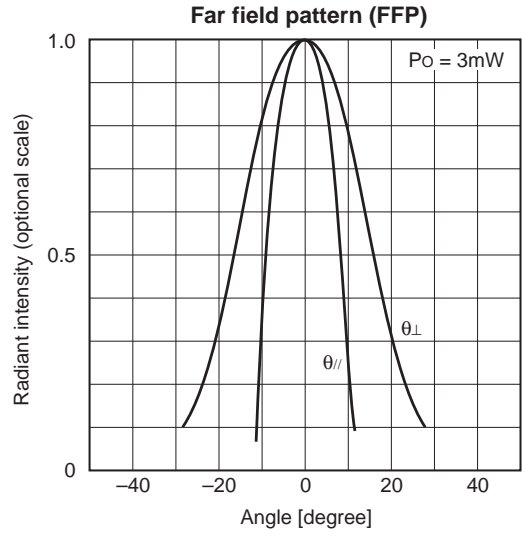
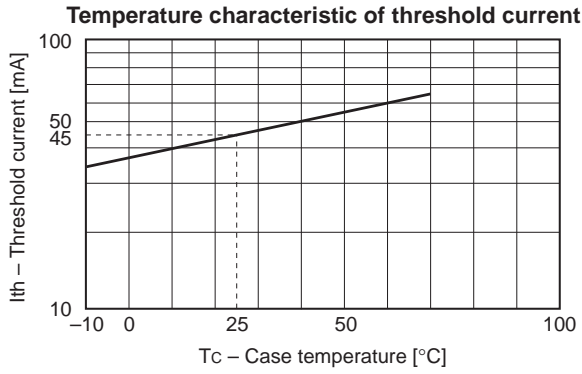
| Item | Symbol | Condition | Min. | Typ. | Max. | Unit | |
|------------------------------------|-----------------|---|----------------------|------|------|-------|--------|
| Threshold current | I _{th} | | | 45 | 60 | mA | |
| Operating current | I _{op} | P _O = 3mW | | 52 | 70 | mA | |
| Operating voltage | V _{op} | P _O = 3mW | 1.7 | 1.9 | 2.5 | V | |
| Wavelength | λ | P _O = 3mW | 760 | 780 | 800 | nm | |
| Monitor current | I _m | P _O = 3mW, V _R = 5V | 0.08 | 0.15 | 0.4 | mA | |
| Radiation angle (F. W. H. M. *) | Perpendicular | θ _⊥ | P _O = 3mW | 20 | 32 | 45 | degree |
| | Parallel | θ _{//} | | 9 | 17 | 25 | degree |
| | Asymmetry | ΔS _R *1 | | | | 20 | % |
| Positional accuracy | Position | ΔX, ΔY, ΔZ | P _O = 3mW | | | ±150 | μm |
| | Angle | Δφ _⊥ | | | | ±3 | degree |
| Differential efficiency | η _D | P _O = 3mW | 0.2 | 0.45 | 0.7 | mW/mA | |
| Astigmatism | A _s | P _O = 3mW Z _{//} - Z _⊥ | | | 15 | μm | |
| Signal to noise ratio | S/N | f _c = 7.5MHz Δf = 30kHz P _O = 4mW | | 88 | | dB | |
| Dark current of PD | I _D | V _R = 5V | | | 150 | nA | |
| Capacitance of PD | C _T | V _R = 5V, f = 1MHz | | | 30 | pF | |

* F. W. H. M. : Full Width at Half Maximum



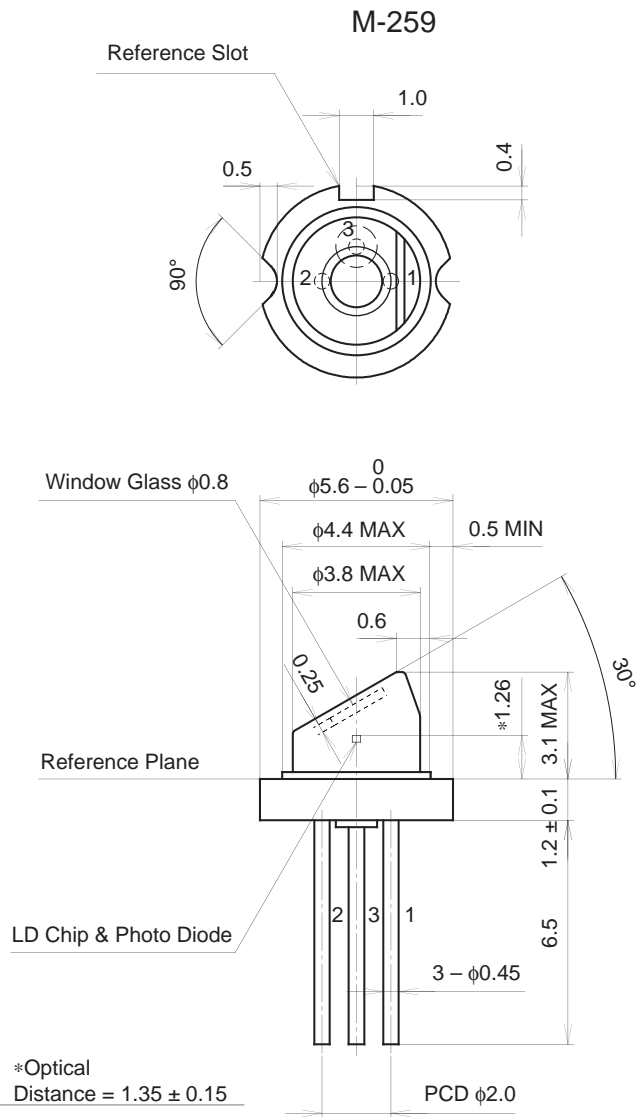
$$\Delta S_R = \frac{|S_L - S_R|}{S_L + S_R}$$

Example of Representative Characteristics



Package Outline

Unit: mm



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

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