

Index-Guided High Power AlGaInP Laser Diode

Description

The SLD1239JL-54 is an index-guided AlGaInP 650nm laser diode.

Feature

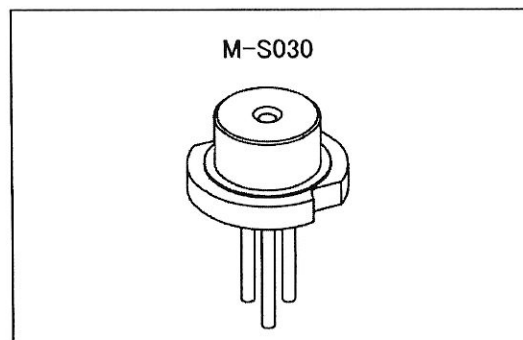
- High power output
- Low power consumption
- Small astigmatism
- Small package ($\Phi 5.6\text{mm}$)
- Cavity length 1450 μm

Applications

- Optical pickup for DVD recording and play back

Structure

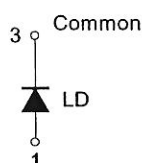
- AlGaInP quantum well structured laser diode



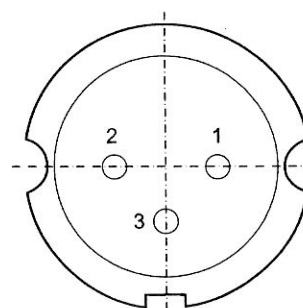
Absolute Maximum Ratings

| | | |
|-------------------------|-------|---|
| • Radiant power output | Pomax | 100 mW(CW) 180 mW(Pulse) Pulse width 30ns or less Duty 40% or less |
| • Reverse voltage | VR LD | 2 V |
| • Operating temperature | Topr | - 10 to + 70 °C (CW) - 10 to + 75 °C (pulse) |
| • Storage temperature | Tstg | - 40 to + 85 °C |

Connection Diagram



Pin Configuration

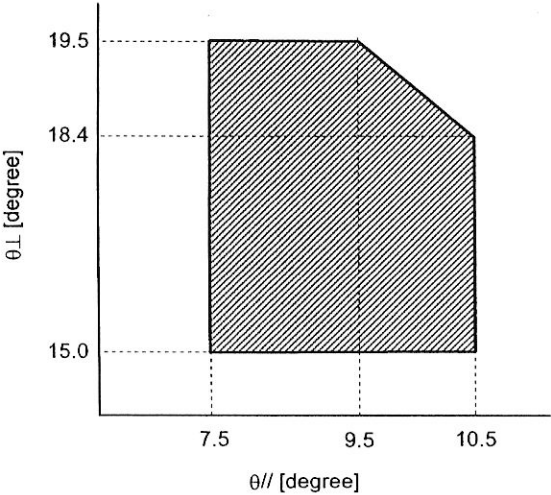


Bottom View

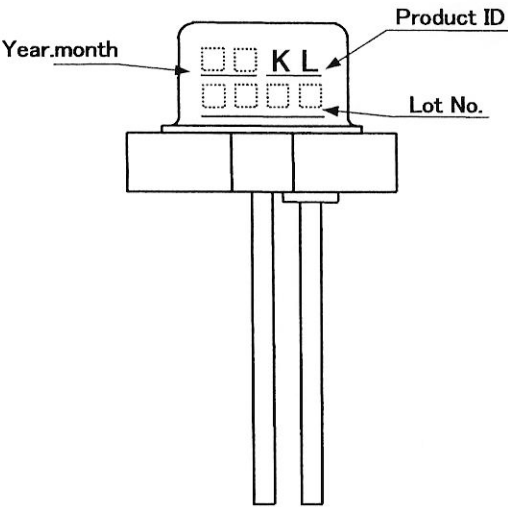
1. LD anode
2. N.C.
3. Common

| Electrical and Optical Characteristics (Tc=25°C) | | | | | Tc:Case temperature | | |
|--|----------------------------|--------------------------------------|----------------------------|------|---------------------|------|--------|
| Item | | Symbol | Conditions | Min. | Typ. | Max. | Unit |
| Threshold current | | I _{th} | CW | – | 50 | 60 | mA |
| Operating current | | I _{op} | CW, P _o = 100mW | – | 150 | 170 | mA |
| Operating voltage | | V _{op} | CW, P _o = 100mW | – | 2.5 | 3.0 | V |
| Wavelength | | λ _p | CW, P _o = 100mW | 653 | 658 | 663 | nm |
| Differential efficiency | | η ^D | CW, P _o = 100mW | 0.75 | 1.0 | 1.25 | mW/mA |
| Radiation angle | Parallel | θ | CW, P _o = 100mW | 7.5 | 9.0 | 10.5 | degree |
| | Perpendicular | θ _⊥ | CW, P _o = 100mW | 15.0 | 17.0 | 19.5 | degree |
| | Sum of radiation angles | 1.2 θ + θ _⊥ | CW, P _o = 100mW | – | – | 31.0 | degree |
| Astigmatism | | A _s | CW, P _o = 100mW | –6 | – | 0 | μm |
| Positional accuracy | Angle | Δφ | CW, P _o = 100mW | – | – | ±1.6 | degree |
| | | Δφ _⊥ | CW, P _o = 100mW | – | – | ±2.5 | degree |
| | Position | ΔX,ΔY,ΔZ | | – | – | ±80 | μm |

Radiation angle (CW,Po=100mW)



Marking



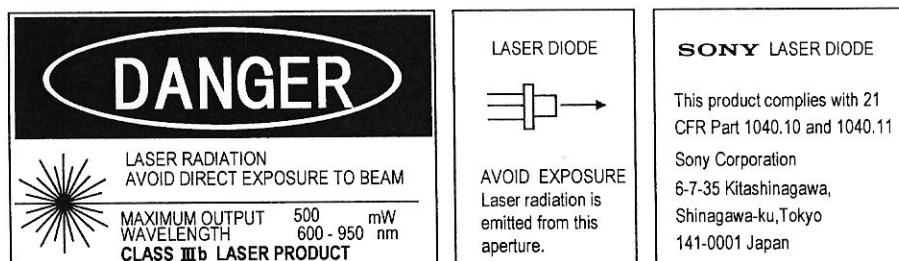
Life target

Po=180mW (pulse width 30ns Duty 40%)
More than MTTF 2000hr at Tc=75°C
0.5% or less Cumulative failure rate after 100 hour drive

Notes on Operation

Care should be taken for the following points When using this product.

- (1) This product corresponds to a Class 3B product under IEC 60825-1.



- (2) Eye protection against laser beams

Take care not to allow laser beams to enter your eyes under any circumstances.

For observing laser beams ALWAYS use Safety goggles that block laser beams. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.

- (3) Gallium Arsenide

This product uses gallium arsenide (GaAs). This is not a problem for normal use, but GaAs vapors may be potentially hazardous to the human body. Therefore, never crush, heat to the maximum storage temperature or higher, or place the product in your mouth.

In addition, the following disposal methods are recommended when disposing of this product.

1. Engaging the services of a contractor certified in the collection, transport and intermediate treatment of items containing arsenic.
2. Managing the product through to final disposal as specially managed industrial waste which is handled separately from general industrial waste and household waste.

- (4) Prevention of surge current and electrostatic discharge

Laser diodes are most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode for even an extremely short time, the strong light emitted from the laser diode promotes deterioration and then destruction of the laser diode. Therefore, note that surge current should not flow to the laser diode driving circuit from switches and others. Also, if the laser diode is handled carelessly, it may be destroyed instantly because electrostatic discharge is easily applied by a human body. Therefore, be extremely careful about overcurrent and electrostatic discharge.

Also, use the power supply that was designed not to exceed the optical power output specified at the absolute maximum ratings.

- (5) Use for special applications

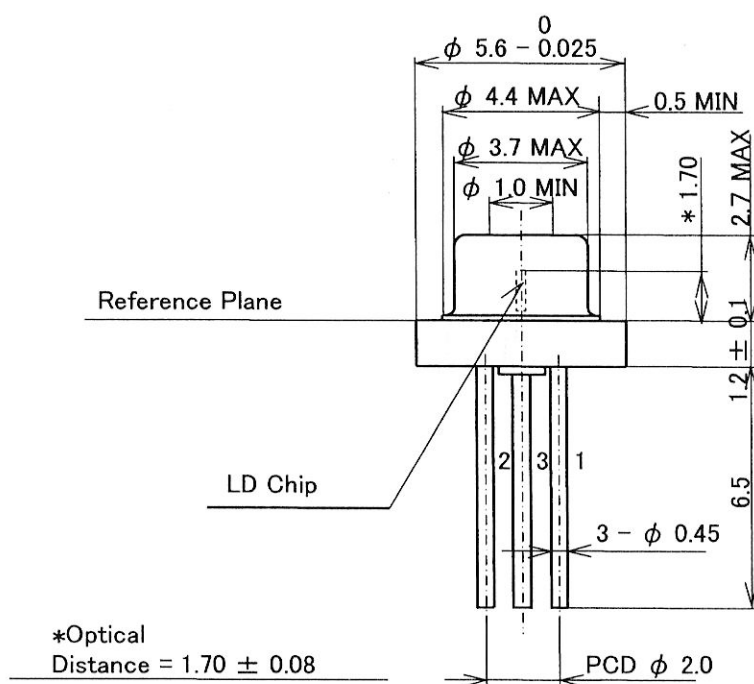
This product is not designed or manufactured for use in equipment used under circumstances where failure may pose a risk to life and limb, or result in significant material damage, etc.

Consult your Sony sales representative when investigating use for medical, vehicle, nuclear power control or other special applications.

Unit: mm

Technical drawing of a circular mechanical part. The drawing includes the following dimensions and labels:

- Reference Slot:** A label pointing to a slot on the top edge of the part.
- 1.0:** Dimension indicating the width of the top edge.
- 0.5:** Dimension indicating the radius of the top edge.
- 0.4:** Dimension indicating the thickness of the part.
- 90°:** Dimension indicating the angle of the top edge.
- 1, 2, 3:** Labels pointing to three small circular features (possibly holes or pins) located near the center of the part.



| | |
|------------|--------|
| SONY CODE | M-S030 |
| EIAJ CODE | _____ |
| JEDEC CODE | _____ |

| | |
|--------------|------|
| PACKAGE MASS | 0.3g |
|--------------|------|

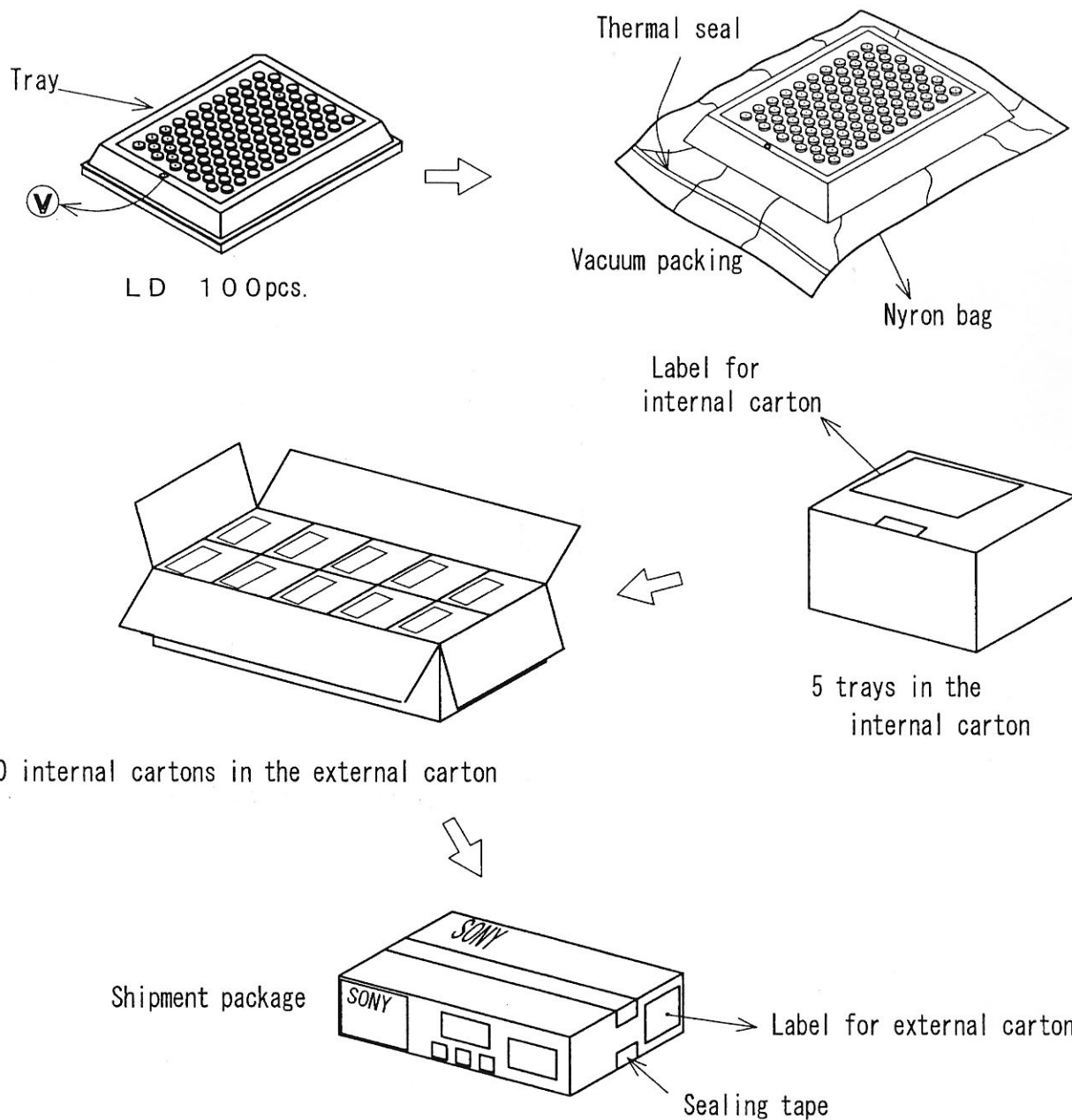
Sony Corporation

梱包仕様

PACKING SPECIFICATION

1/1

| 品 名 PRODUCT NAME | LD | |
|------------------------|--------------------|--|
| トレー TRAY | 収納数 NO. OF PCS. | 1 0 0 pcs. |
| 内 箱 INTERNAL CARTON | 収納数 NO. OF PCS. | 5 trays 5 X 1 0 0 = 5 0 0 pcs. |
| 外 箱 EXTERNAL CARTON | 収納数 NO. OF PCS. | 1 0 internal cartons 1 0 X 5 0 0 = 5 0 0 0 pcs. |



PA-X0167