

# HL6325/26G

Low Operating Current Visible Laser Diode

# HITACHI

ADE-208-781A (Z)

2nd Edition

Jul. 1999

## Description

The HL6325/26G are 0.63  $\mu\text{m}$  band AlGaInP laser diodes with a multi-quantum well (MQW) structure. They are suitable as light sources for laser levelers, laser scanners and optical equipment for measurement.

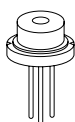
## Application

- Laser leveler
- Laser scanner
- Measurement

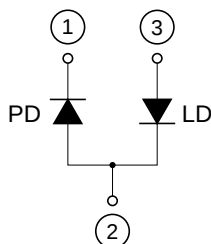
## Features

- Visible light output: 635 nm Typ (nearly equal to He-Ne gas laser)
- Optical output power: 5 mW CW
- Low operating current: 40 mA Typ
- Low operating voltage: 2.4 V Max
- Operating temperature: +60°C
- TM mode oscillation

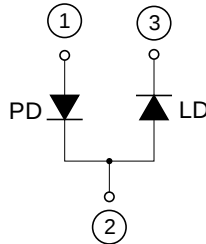
Package Type  
• HL6325/26G: G2



Internal Circuit  
• HL6325G



Internal Circuit  
• HL6326G



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

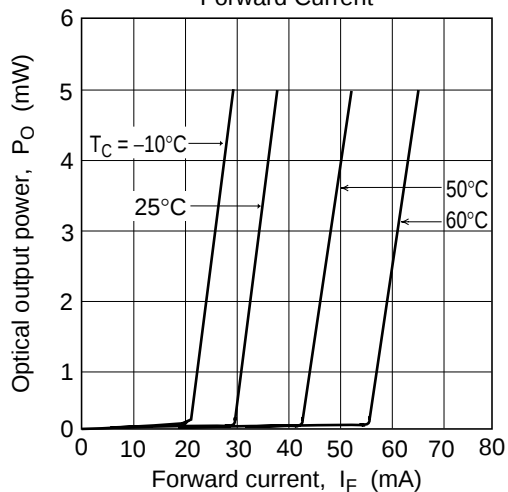
| Item                  | Symbol             | Value      | Unit |
|-----------------------|--------------------|------------|------|
| Optical output power  | P <sub>O</sub>     | 5          | mW   |
| LD reverse voltage    | V <sub>R(LD)</sub> | 2          | V    |
| PD reverse voltage    | V <sub>R(PD)</sub> | 30         | V    |
| Operating temperature | T <sub>opr</sub>   | −10 to +60 | °C   |
| Storage temperature   | T <sub>stg</sub>   | −40 to +85 | °C   |

Optical and Electrical Characteristics (T<sub>C</sub> = 25°C)

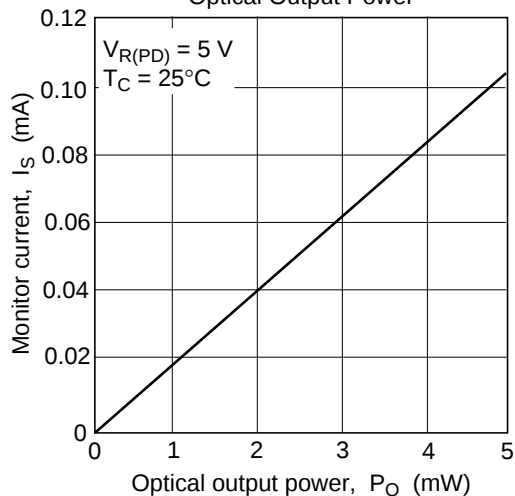
| Item                                          | Symbol          | Min  | Typ | Max  | Unit  | Test Condition                                     |
|-----------------------------------------------|-----------------|------|-----|------|-------|----------------------------------------------------|
| Optical output power                          | P <sub>O</sub>  | 5    | —   | —    | mW    | Kink free                                          |
| Threshold current                             | I <sub>th</sub> | —    | 30  | 50   | mA    |                                                    |
| Operating current                             | I <sub>Op</sub> | —    | 40  | 60   | mA    | P <sub>O</sub> = 5 mW                              |
| Operating voltage                             | V <sub>OP</sub> | —    | 2.2 | 2.4  | V     | P <sub>O</sub> = 5 mW                              |
| Slope efficiency                              | h <sub>s</sub>  | 0.3  | 0.5 | 0.8  | mW/mA | 3(mW) / (I <sub>(4mW)</sub> − I <sub>(1mW)</sub> ) |
| Lasing wavelength                             | λ <sub>p</sub>  | 630  | 635 | 640  | nm    | P <sub>O</sub> = 5 mW                              |
| Beam divergence parallel to the junction      | θ//             | 6    | 8   | 11   | deg.  | P <sub>O</sub> = 5 mW                              |
| Beam divergence perpendicular to the junction | θ^              | 25   | 31  | 37   | deg.  | P <sub>O</sub> = 5 mW                              |
| Monitor current                               | I <sub>S</sub>  | 0.05 | 0.1 | 0.25 | mA    | P <sub>O</sub> = 5 mW, V <sub>R(PD)</sub> = 5V     |

# Typical Characteristic Curves

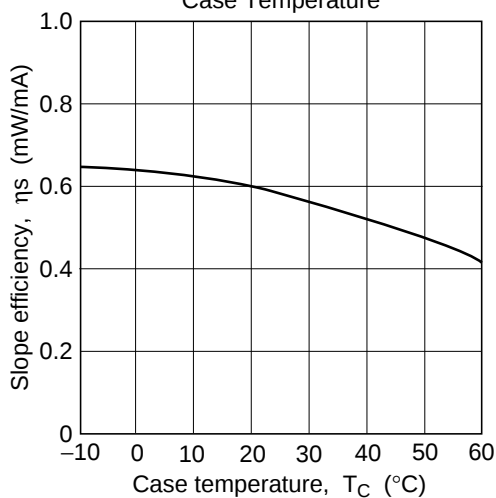
Optical Output Power vs.  
Forward Current



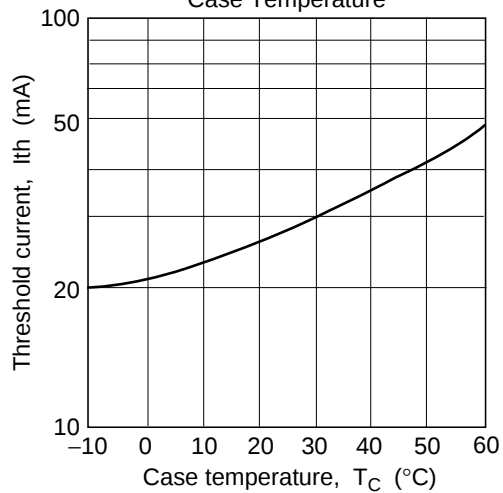
Monitor Current vs.  
Optical Output Power

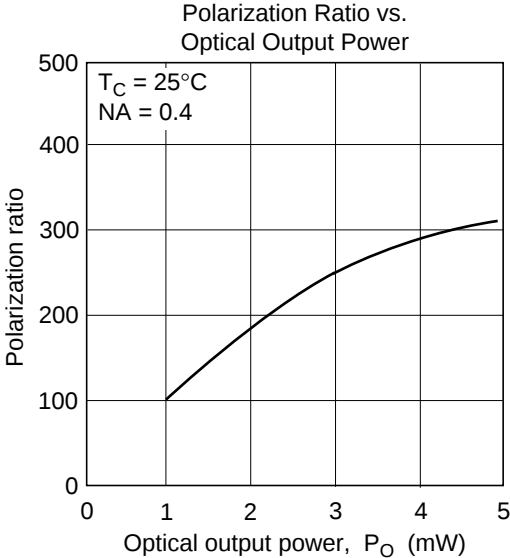
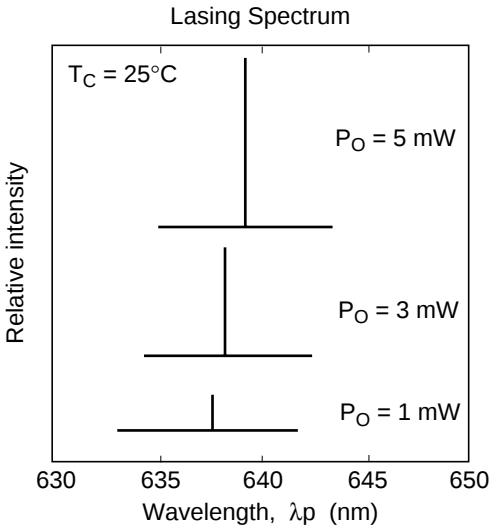
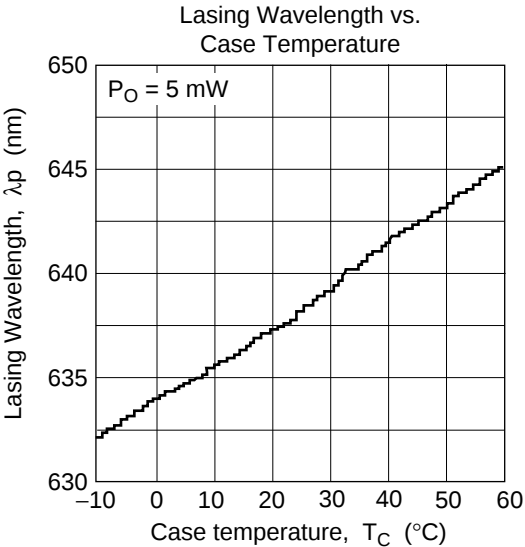
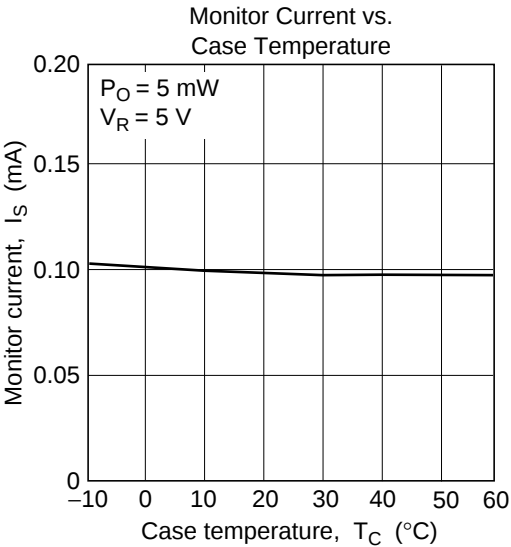


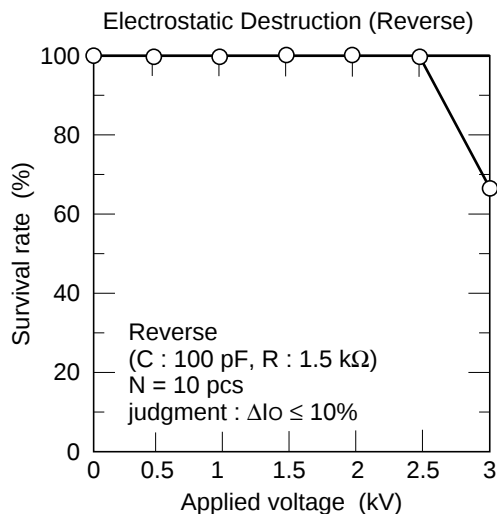
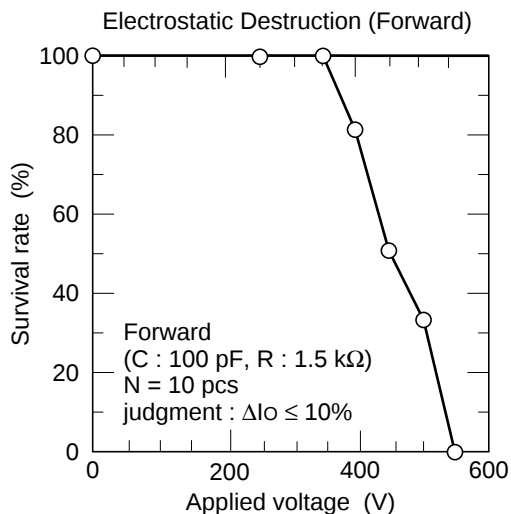
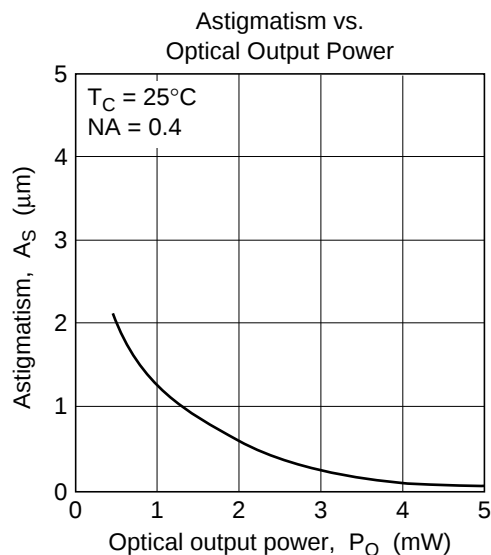
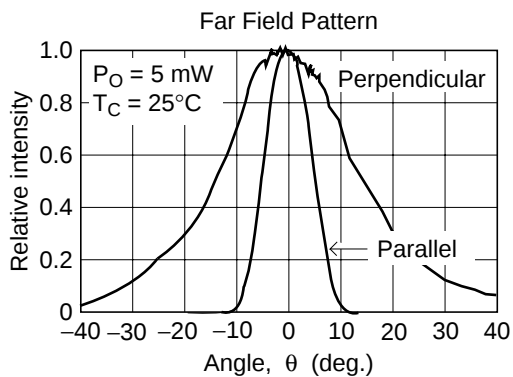
Slope Efficiency vs.  
Case Temperature



Threshold Current vs.  
Case Temperature









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