HL6319G/20G
AIGaInP Laser Diode

638nm/10mW

Features:
- Optical output power: 10mW (CW)
- Visible light output: 638nm Typ.
- Low operating current: 95mA Max.
- Low operating voltage: 2.7V Max.
- Single transverse mode
- TM mode oscillation

Applications
- Laser lever
- Laser module
- Optical equipment for measurement

Outline

Internal Circuit

(unit: mm)
<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical output power</td>
<td>Po</td>
<td>10</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>V&lt;sub&gt;R(LD)&lt;/sub&gt;</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>PD Reverse Voltage</td>
<td>V&lt;sub&gt;R(PD)&lt;/sub&gt;</td>
<td>30</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>-10 ~ +50</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tstg</td>
<td>-40 ~ +85</td>
<td>°C</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
<th>Test Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold current</td>
<td>I&lt;sub&gt;th&lt;/sub&gt;</td>
<td>20</td>
<td>50</td>
<td>75</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>I&lt;sub&gt;op&lt;/sub&gt;</td>
<td>-</td>
<td>70</td>
<td>95</td>
<td>mA</td>
<td>Po=10mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>V&lt;sub&gt;op&lt;/sub&gt;</td>
<td>-</td>
<td>-</td>
<td>2.7</td>
<td>V</td>
<td>Po=10mW</td>
</tr>
<tr>
<td>Slope efficiency</td>
<td>η&lt;sub&gt;s&lt;/sub&gt;</td>
<td>0.3</td>
<td>0.5</td>
<td>0.7</td>
<td>mW/mA</td>
<td>6(mW)/(I&lt;sub&gt;(8mW)&lt;/sub&gt;-I&lt;sub&gt;(2mW)&lt;/sub&gt;)</td>
</tr>
<tr>
<td>Monitor current</td>
<td>I&lt;sub&gt;s&lt;/sub&gt;</td>
<td>0.05</td>
<td>0.17</td>
<td>0.30</td>
<td>mA</td>
<td>Po=10mW, V&lt;sub&gt;R(PD)&lt;/sub&gt;=5V</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λ&lt;sub&gt;p&lt;/sub&gt;</td>
<td>625</td>
<td>638</td>
<td>640</td>
<td>nm</td>
<td>Po=10mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to</td>
<td>θ&lt;sub&gt;/&lt;/sub&gt;</td>
<td>5</td>
<td>8</td>
<td>11</td>
<td>°</td>
<td>Po=10mW</td>
</tr>
<tr>
<td>the junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ&lt;sub&gt;⊥&lt;/sub&gt;</td>
<td>25</td>
<td>31</td>
<td>37</td>
<td>°</td>
<td>Po=10mW</td>
</tr>
<tr>
<td>Astigmatism</td>
<td>As</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>μm</td>
<td>Po=10mW, NA=0.55</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- Optical Output Power vs. Forward Current
  - $T_C = -10^\circ C$
  - $25^\circ C$
  - $50^\circ C$

- Threshold Current vs. Case Temperature

- Slope Efficiency vs. Case Temperature

- Monitor Current vs. Case Temperature
  - $P_0 = 10 \text{ mW}$
  - $V_{R,PD} = 5 \text{ V}$

- Lasing Wavelength vs. Case Temperature
  - $P_0 = 10 \text{ mW}$
  - $T_C = 25^\circ C$

- Far Field Pattern
  - Perpendicular
  - Parallel

oclaro.com
Cautions

1. Oclaro Japan, Inc. (OCJ) neither warrants nor grants licenses of any our lights or any third party’s patent, copyright, trademark, or other intellectual property rights for information contained in this document. OCJ bears no responsibility for problems that may arise with third party’s right, including intellectual property rights, in connection with use of the information contained in this document.

2. Products and product specifications may be subject to change without notice. Confirm that you have received the latest product standards or specifications before final design, purchase or use.

3. OCJ makes every attempt to ensure that its products are of high quality and reliability. However, contact our sales office before using the product in an application that demands especially high quality and reliability or where its failure or malfunction may directly threaten human life or cause risk of bodily injury, such as aerospace, aeronautics, nuclear power, combustion control, transportation, traffic safety equipment or medical equipment for life support.

4. Design your application so that the products is used within the ranges guaranteed by OCJ. Particularly for maximum rating, operating supply voltage range, heat radiation characteristics, installation conditions and other characteristics. OCJ bears no responsibility for failure or damage when used beyond the guaranteed ranges. Even within the guaranteed ranges, consider normally foreseeable failure rates or failure modes in semiconductor devices and employ systemic measures such as fail-safes, so that the equipment incorporating OCJ product does not cause bodily injury, fire or other consequential damage due to operation of the OCJ product.

5. This product is not designed to be radiation resistant.

6. No one is permitted to reproduce or duplicate, in any form, the whole or part of this document without written approval from OCJ.

7. Contact our sales office for any questions regarding this document or OCJ products.

---

Contact Information

www.oclaro.com

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by Oclaro before they become applicable to any particular order or contract. In accordance with the Oclaro policy of continuous improvement specifications may change without notice. Further details are available from any Oclaro sales representative.