Data Sheet

HL63163DG
633nm / 100mW AlGaInP Laser Diode

Features
- Shorter wavelength: 633nm Typ.
- High optical output power: 100mW
- Low operating current: 170mA Typ.
- Small package: φ5.6mm
- Single transverse mode
- TE mode oscillation

Application
- Medical
- Industry
- Light source of optical equipment

Outline

Internal Circuit

(Unit: mm)
### Absolute Maximum Ratings (Tc=25°C)

<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>100</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>VR(LD)</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>-10 ~ +40</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 (Tc=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>Ith</td>
<td>-</td>
<td>60</td>
<td>75</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>Iop</td>
<td>-</td>
<td>175</td>
<td>210</td>
<td>mA</td>
<td>Po=120mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Vop</td>
<td>-</td>
<td>2.5</td>
<td>3.3</td>
<td>V</td>
<td>Po=120mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ//</td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>°</td>
<td>Po=120mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ⊥</td>
<td>15</td>
<td>17</td>
<td>21</td>
<td>°</td>
<td>Po=120mW, FWHM</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λp</td>
<td>630</td>
<td>633</td>
<td>636</td>
<td>nm</td>
<td>Po=120mW</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- **Optical output power vs. Forward current**
  - Optical output power, $P_o$ (mW)
  - Forward current, $I_f$ (mA)

- **Threshold current vs. Case temperature**
  - Threshold current, $I_{th}$ (mA)
  - Case temperature, $T_c$ ($^\circ$C)

- **Slope efficiency vs. Case temperature**
  - Slope efficiency, $\eta_s$ (mW/mA)
  - Case temperature, $T_c$ ($^\circ$C)

- **Lasing wavelength vs. Case temperature**
  - Lasing wavelength, $\lambda_p$ (nm)
  - Case temperature, $T_c$ ($^\circ$C)

- **Far field pattern**
  - Relative intensity
  - Angle, $\theta$ ($^\circ$)

Data Sheet HL63163DG Rev0. Oct. 28. 2014
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