**Data Sheet**

**HL63142DG**  
637nm / 120mW  
AlGaInP Laser Diode

### Features
- Visible light output: 637nm Typ.
- Optical output power: 120mW (CW)
- Single transverse mode
- Low operating current: 140mA Typ.
- Low operating voltage: 3.0V Max.
- Operating temperature: +50°C
- TE mode oscillation

### Application
- Laser module
- Light source of optical equipments

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**Outline**

**Internal Circuit**
### 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>120</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>VR(LD)</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>PD Reverse Voltage</td>
<td>VR(PD)</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 (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>50</td>
<td>65</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>Iop</td>
<td>-</td>
<td>140</td>
<td>180</td>
<td>mA</td>
<td>Po=100mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Vop</td>
<td>-</td>
<td>2.7</td>
<td>3.0</td>
<td>V</td>
<td>Po=100mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>( \theta/ )</td>
<td>5</td>
<td>8</td>
<td>13</td>
<td>°</td>
<td>Po=100mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>( \theta/ )</td>
<td>13</td>
<td>18</td>
<td>23</td>
<td>°</td>
<td>Po=100mW, FWHM</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>( \lambda_p )</td>
<td>632</td>
<td>637</td>
<td>642</td>
<td>nm</td>
<td>Po=100mW</td>
</tr>
<tr>
<td>Monitor Current</td>
<td>Is</td>
<td>0.1</td>
<td>0.3</td>
<td>0.6</td>
<td>mA</td>
<td>Po=100mW, ( V_{R(PD)}=5V )</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- **Optical Output Power vs. Forward Current**
  - Graph showing the relation between optical output power and forward current for different case temperatures.
  - Key points: Tc=0°C, Tc=25°C, Tc=50°C.

- **Threshold Current vs. Case Temperature**
  - Graph showing the relation between threshold current and case temperature.
  - Axes: Case Temperature (°C) on the x-axis and Threshold Current (mA) on the y-axis.

- **Slope Efficiency vs. Case Temperature**
  - Graph showing the relation between slope efficiency and case temperature.
  - Axes: Case Temperature (°C) on the x-axis and Slope Efficiency (mW/mA) on the y-axis.

- **Monitor Current vs. Case Temperature**
  - Graph showing the relation between monitor current and case temperature.
  - Axes: Case Temperature (°C) on the x-axis and Monitor Current (mA) on the y-axis.

- **Wavelength vs. Case Temperature**
  - Graph showing the relation between wavelength and case temperature.
  - Axes: Case Temperature (°C) on the x-axis and Lasing Wavelength (nm) on the y-axis.

- **Far Field Pattern**
  - Graph showing the far field pattern at different angles for perpendicular and parallel orientations.
  - Key points: Po=100mW, Tc=25°C.
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