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
### 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\bot)</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, VR(PD)=5V</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- **Optical Output Power vs. Forward Current**
- **Threshold Current vs. Case Temperature**
- **Slope Efficiency vs. Case Temperature**
- **Monitor Current vs. Case Temperature**
- **Wavelength vs. Case Temperature**
- **Far Field Pattern**

### Key Data Points

- **Tc** = 0°C: Threshold Current at different case temperatures.
- **Lasing Wavelength** at different case temperatures.
- **Far Field Pattern** showing intensity at different angles.
- **Optical Output Power** vs. forward current at different case temperatures.
- **Slope Efficiency** vs. case temperature.
- **Monitor Current** vs. case temperature.

- **Po = 100mW**
- **VR(PD) = 5V**
- **Tc = 25°C**
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