HL63163DG
633nm/100mW  AlGaInP Laser Diode

Features
- Shorter wavelength: 633nm Typ.
- High optical output power: 100mW
- Low operating current: 170mA Typ.
- Small package: \( \phi 5.6 \)mm
- Single transverse mode
- TE mode oscillation

Application
- Medical
- Industry
- Light source of optical equipment
## 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>V_{R(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>I_{th}</td>
<td>-</td>
<td>70</td>
<td>100</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>I_{op}</td>
<td>-</td>
<td>170</td>
<td>230</td>
<td>mA</td>
<td>Po=100mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>V_{op}</td>
<td>-</td>
<td>2.6</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>8.5</td>
<td>13</td>
<td>°</td>
<td>Po=100mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>\theta_\perp</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>630</td>
<td>633</td>
<td>636</td>
<td>nm</td>
<td>Po=100mW</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

Optical output power vs. Forward current

Forward current, $I_F$ (mA)

Optical output power, $P_o$ (mW)

Threshold current vs. Case temperature

Case temperature, $T_c$ (°C)

Threshold current, $I_{th}$ (mA)

Slope efficiency vs. Case temperature

Case temperature, $T_c$ (°C)

Slope efficiency, $\eta_s$ (mW/mA)

Lasing wavelength vs. Case temperature

Case temperature, $T_c$ (°C)

Lasing wavelength, $\lambda_p$ (nm)

Far field pattern

Relative intensity

Angle, $\theta$ (°)

$P_o=100$ mW
$T_c=25$ °C

parallel

perpendicular

$T_c=0$ °C

$T_c=10$ °C

$T_c=25$ °C

$T_c=40$ °C
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