Data Sheet

HL7001MG/02MG
705nm / 50mW  InGaAsP Laser Diode

**Features**
- Operation temperature: -10~+60°C
- Optical output power: 40mW(CW)
- Infrared lasing: 705nm Typ. (Po=40mW)
- Low operating voltage: 2.5V Typ. (Po=40mW)
- Package: φ5.6mm
- Single transverse mode
- TE mode oscillation

**Application**
- Medical
- Measurement
- Laser module
- Sensing

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>50</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>PD Reverse Voltage</td>
<td>V_{R(PD)}</td>
<td>30</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>T_{opr}</td>
<td>-10 ~ +60</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>T_{stg}</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>30</td>
<td>60</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>Operating current</td>
<td>I_{op}</td>
<td>-</td>
<td>75</td>
<td>100</td>
<td>mA</td>
<td>Po=40mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>V_{op}</td>
<td>-</td>
<td>2.5</td>
<td>-</td>
<td>V</td>
<td>Po=40mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>\theta/</td>
<td>7</td>
<td>9</td>
<td>14</td>
<td>°</td>
<td>Po=40mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>\theta_\perp</td>
<td>14</td>
<td>18</td>
<td>25</td>
<td>°</td>
<td>Po=40mW, FWHM</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>\lambda_p</td>
<td>695</td>
<td>705</td>
<td>715</td>
<td>nm</td>
<td>Po=40mW</td>
</tr>
<tr>
<td>Monitor Current</td>
<td>I_s</td>
<td>0.15</td>
<td>0.30</td>
<td>0.60</td>
<td>mA</td>
<td>Po=40mW, V_{R(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
- Lasing Wavelength vs. Case Temperature
- Far Field Pattern
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