HL6738MG
690nm / 35mW AlGaInP Laser Diode

Features
- Operation temperature: -10~+70°C
- Optical output power: 30mW (CW)
- Visible lasing: 690nm Typ. (Po=30mW)
- Low operating voltage: 2.8V Max.
- Package: ø5.6mm
- Single transverse mode
- TE mode oscillation

Application
- Measurement
- Laser Module
- Sensing

(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>35</td>
<td>mW</td>
</tr>
<tr>
<td>Pulse optical output power</td>
<td>Po(pulse)</td>
<td>50*</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>V(LD)</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>PD Reverse Voltage</td>
<td>V(PD)</td>
<td>30</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>-10 ~ +70</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>30</td>
<td>45</td>
<td>70</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Vop</td>
<td>2.1</td>
<td>2.5</td>
<td>2.8</td>
<td>V</td>
<td>Po=30mW</td>
</tr>
<tr>
<td>Slope efficiency</td>
<td>ηs</td>
<td>0.5</td>
<td>0.7</td>
<td>0.9</td>
<td>mW/mA</td>
<td>18(mW)/(I/(24mW/I)·I(3mW))</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ∥</td>
<td>7</td>
<td>8.5</td>
<td>10.5</td>
<td>°</td>
<td>Po=30mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ⊥</td>
<td>17</td>
<td>19</td>
<td>23</td>
<td>°</td>
<td>Po=30mW, FWHM</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λp</td>
<td>680</td>
<td>690</td>
<td>695</td>
<td>nm</td>
<td>Po=30mW</td>
</tr>
<tr>
<td>Monitor Current</td>
<td>Is</td>
<td>0.02</td>
<td>0.10</td>
<td>0.45</td>
<td>mA</td>
<td>Po=30mW, V(RPD)=5V</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- **Optical Output Power vs. Forward Current**
  - Optical output power, $P_O$ (mW)
  - Forward current, $I_F$ (mA)
  - Temperature: $T_C = 25^\circ C$, $T_C = 0^\circ C$, $T_C = 60^\circ C$, $T_C = 70^\circ C$

- **Threshold Current vs. Case Temperature**
  - Threshold current, $I_T$ (mA)
  - Case temperature, $T_C$ (°C)

- **Slope Efficiency vs. Case Temperature**
  - Slope efficiency, $\eta_s$ (mW/mA)
  - Case temperature, $T_C$ (°C)

- **Monitor Current vs. Case Temperature**
  - Monitor current, $I_M$ (mA)
  - Case temperature, $T_C$ (°C)

- **Lasing Wavelength vs. Case Temperature**
  - Lasing wavelength, $\lambda_L$ (nm)
  - Case temperature, $T_C$ (°C)

- **Far Field Pattern**
  - Relative intensity
  - Angle, $\theta$ (°)
  - $P_O = 30$ mW
  - $T_C = 25^\circ C$
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