HL6388MG
637nm / 250mW AlGaInP Laser Diode

Features
- Visible light output: 637nm Typ.
- Optical output power: 250mW (CW)
- Multi transverse mode
- High operating temperature: +50°C
- Small package: Ø5.6mm
- TM mode oscillation

Application
- Pico projector
- 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>250</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>VR(LD)</td>
<td>2</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>

Note: Operating temperature is defined by Case temperature “Tc”. High increase in temperature of LD chip itself is expected during operation due to high current density. Thus, without proper heat dissipation, it is observed that no specific output power is achieved or it results to LD degradation. It is advised that sufficient measure of heat dissipation should be taken so that LD’s maximum operating temperature is not exceeded during actual operation.

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>100</td>
<td>140</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Slope efficiency</td>
<td>ηs</td>
<td>0.7</td>
<td>1.05</td>
<td>-</td>
<td>mW/mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>Iop</td>
<td>-</td>
<td>340</td>
<td>430</td>
<td>mA</td>
<td>Po=250mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Vop</td>
<td>-</td>
<td>2.3</td>
<td>2.8</td>
<td>V</td>
<td>Po=250mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ//</td>
<td>-</td>
<td>11</td>
<td>20</td>
<td>°</td>
<td>Po=250mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ⊥</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>°</td>
<td>Po=250mW, FWHM</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λp</td>
<td>632</td>
<td>637</td>
<td>642</td>
<td>nm</td>
<td>Po=250mW</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- **Optical Output Power vs. Forward Current**
  - Typical curves for different case temperatures: 25°C, 40°C, 50°C
  - Forward current, $I_F$ (mA) vs. Optical output power, $P_O$ (mW)

- **Threshold Current vs. Case Temperature**
  - Case temperature, $T_C$ (°C) vs. Threshold current, $I_{th}$ (mA)

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

- **Lasing Wavelength vs. Case Temperature**
  - Case temperature, $T_C$ (°C) vs. Lasing wavelength, $\lambda_p$ (nm)
  - $P_O = 250$mW

- **Far Field Pattern (Parallel)**
  - Power levels: 50mW, 100mW, 150mW, 200mW, 250mW
  - Case temperature, $T_C = 25°C$

- **Far Field Pattern (Perpendicular)**
  - Power levels: 50mW, 100mW, 150mW, 200mW, 250mW
  - Case temperature, $T_C = 25°C$

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<table>
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<tr>
<td>1. The laser light is harmful to human body especially to eye no matter what directly or indirectly. The laser beam shall be observed or adjusted through infrared camera or equivalent.</td>
</tr>
<tr>
<td>2. This product (without violet laser diode) contains gallium arsenide (GaAs), which may seriously endanger your health even at very low doses. Please avoid treatment which may create GaAs powder or gas, such as disassembly or performing chemical experiments, when you handle the product. When disposing of the product, please follow the laws of your country and separate it from other waste such as industrial waste and household garbage.</td>
</tr>
</tbody>
</table>

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