Data Sheet

HL63253MG
637nm / 450mW AlGaInP Laser Diode

Features
- Shorter wavelength: 637nm Typ.
- High optical output power: 450mW
- Low operating current: 600mA Typ.
- Small package: Ø5.6mm
- Multi transverse mode
- TM mode oscillation

Application
- Laser module
- 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>450</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 ~ +40</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tstg</td>
<td>-40 ~ +85</td>
<td>°C</td>
</tr>
</tbody>
</table>

Note1) 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>200</td>
<td>250</td>
<td>mA</td>
<td>Po=450mW</td>
</tr>
<tr>
<td>Operating current</td>
<td>Iop</td>
<td>-</td>
<td>600</td>
<td>700</td>
<td>mA</td>
<td>Po=450mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Vop</td>
<td>-</td>
<td>2.2</td>
<td>2.6</td>
<td>V</td>
<td>Po=450mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ∥</td>
<td>1</td>
<td>8.5</td>
<td>20</td>
<td>°</td>
<td>Po=450mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ⊥</td>
<td>25</td>
<td>33</td>
<td>40</td>
<td>°</td>
<td>Po=450mW, 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=450mW</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- **Slope Efficiency vs. Case Temperature**
  - Plot: Slope efficiency $\eta$ (mW/mA) vs. case temperature $T_c$ (°C)
  - Data points for $T_c = 0°C$, $10°C$, $25°C$, $40°C$

- **Threshold Current vs. Case Temperature**
  - Plot: Threshold current $I_{th}$ (mA) vs. case temperature $T_c$ (°C)

- **Lasing Wavelength vs. Case Temperature**
  - Plot: Lasing wavelength $\lambda_p$ (nm) vs. case temperature $T_c$ (°C)
  - Data points for $T_c = 0°C$, $10°C$, $25°C$, $40°C$

- **Optical Output Power vs. Forward Current**
  - Plot: Optical output power $P_o$ (mW) vs. forward current $I_f$ (mA)
  - Data points for $T_c = 0°C$, $10°C$, $25°C$, $40°C$

- **Far Field Pattern**
  - Graph: Relative intensity vs. angle $\theta$ (°)
  - Labels: Perpendicular, Parallel
  - Data: $T_c = 25°C$, $P_o = 450$mW

Data Sheet HL63253MG Rev1. Mar. 25. 2015
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