Data Sheet

HL40033G
405nm / 1,000mW  Violet Laser Diode

Features
- Optical output power: 1,000mW (CW)
- Violet Lasing: 405nm Typ.
- Low operating current: 1,000mA Typ.
- Low operating voltage: 5.0V Max.
- Package: $\phi9.0$mm
- Multiple transverse mode
- TE mode oscillation

Application
- Direct imaging for PCB
- Industry
- Display
- Bio & Medical

Outline

Internal Circuit

HL40033G

(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>1,100</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>V&lt;sub&gt;R(LD)&lt;/sub&gt;</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>0 ~ +30</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&lt;sub&gt;th&lt;/sub&gt;</td>
<td>250</td>
<td>320</td>
<td>400</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>I&lt;sub&gt;op&lt;/sub&gt;</td>
<td>-</td>
<td>1,000</td>
<td>1,300</td>
<td>mA</td>
<td>Po=1,000mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>V&lt;sub&gt;op&lt;/sub&gt;</td>
<td>-</td>
<td>-</td>
<td>5.0</td>
<td>V</td>
<td>Po=1,000mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ&lt;sub&gt;//&lt;/sub&gt;</td>
<td>5</td>
<td>13</td>
<td>25</td>
<td>°</td>
<td>Po=1,000mW, Full angle 1/e&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ&lt;sub&gt;⊥&lt;/sub&gt;</td>
<td>30</td>
<td>42</td>
<td>50</td>
<td>°</td>
<td>Po=1,000mW, Full angle 1/e&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λ&lt;sub&gt;p&lt;/sub&gt;</td>
<td>400</td>
<td>405</td>
<td>410</td>
<td>nm</td>
<td>Po=1,000mW</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

Optical output power vs. Forward current

Forward voltage vs. Forward current

Threshold current vs. Case temperature

Slope efficiency vs. Case temperature

Lasing wavelength vs. Case temperature

Far field pattern

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