Data Sheet

HL40041MG
404nm / 150mW Violet Laser Diode

**Features**
- Operation temperature: -10°C to +50°C
- Optical output power: 150mW (CW)
- Violet Lasing: 404nm Typ.
- Low operating voltage: 5.0V Max.
- Package: Ø5.6mm
- Multiple transverse mode
- TE mode oscillation

**Application**
- Bio & Medical
- Measurement

**Outline**

(Unit: mm)

**Internal Circuit**

- HL40041MG
- PD
- LD

*(Monitor PD for initial checking purpose only)*
### 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>150</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>VR(LD)</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>PD Reverse Voltage *</td>
<td>VR(PD)</td>
<td>20</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>

* Monitor PD for initial checking purpose only

### 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>60</td>
<td>120</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>Iop</td>
<td>-</td>
<td>150</td>
<td>250</td>
<td>mA</td>
<td>Po=150mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Vop</td>
<td>-</td>
<td>-</td>
<td>5.0</td>
<td>V</td>
<td>Po=150mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ//</td>
<td>5</td>
<td>13</td>
<td>25</td>
<td>°</td>
<td>Po=150mW, Full angle 1/e²</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ⊥</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>°</td>
<td>Po=150mW, Full angle 1/e²</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λp</td>
<td>398</td>
<td>404</td>
<td>410</td>
<td>nm</td>
<td>Po=150mW</td>
</tr>
<tr>
<td>Monitor Current *</td>
<td>Is</td>
<td>0.05</td>
<td>0.20</td>
<td>0.50</td>
<td>mA</td>
<td>Po=150mW, VR(PD)=5V</td>
</tr>
</tbody>
</table>

* Monitor PD for initial checking purpose only
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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