**Features**
- Visible light output: 640nm Typ.
- Optical output power: 40mW (CW)
- Single transverse mode
- Low operating current: 90mA Typ.
- Low operating voltage: 2.6V Max.
- Operating temperature: +50°C
- TE mode oscillation

**Application**
- Laser leveler
- Laser scanner
- 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>45</td>
<td>mW</td>
</tr>
<tr>
<td>LD Reverse Voltage</td>
<td>V_{R(LD)}</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>PD Reverse Voltage</td>
<td>V_{R(PD)}</td>
<td>30</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>

# 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>45</td>
<td>60</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>I_{op}</td>
<td>-</td>
<td>90</td>
<td>110</td>
<td>mA</td>
<td>Po=40mW</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>V_{op}</td>
<td>-</td>
<td>2.4</td>
<td>2.6</td>
<td>V</td>
<td>Po=40mW</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ/</td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>°</td>
<td>Po=40mW, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ⊥</td>
<td>16</td>
<td>21</td>
<td>24</td>
<td>°</td>
<td>Po=40mW, FWHM</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λ_p</td>
<td>-</td>
<td>640</td>
<td>643</td>
<td>nm</td>
<td>Po=40mW</td>
</tr>
<tr>
<td>Monitor Current</td>
<td>I_s</td>
<td>0.15</td>
<td>0.30</td>
<td>0.60</td>
<td>mA</td>
<td>Po=40mW, V_{R(PD)}=5V</td>
</tr>
</tbody>
</table>
Typical Characteristic Curves

- Optical Output Power vs. Forward Current
- Threshold Current vs. Case Temperature
- Slope Efficiency vs. Case Temperature
- Monitor Current vs. Case Temperature
- Lasing Wavelength vs. Case Temperature
- Far Field Pattern
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