BLUE-VIOLET LASER DIODE
DL-5146-152

Ver.5 Jun 2006

Features

• Short wavelength : 405 nm (Typ.)
• Light Output: 35mW CW at 50mW (pulse)
• Low threshold current : Ith = 38 mA (Typ.)
• Package : ø5.6 mm

Applications

Next generation DVD
Laser module

Absolute Maximum Ratings

(Tc=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Output</td>
<td>CW Po (CW)</td>
<td>35</td>
<td>mW</td>
</tr>
<tr>
<td></td>
<td>Pulse Po(pulse)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>Laser VR</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>0 to +60</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tstg</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
</tbody>
</table>

Electrical and Optical Characteristics

(Tc=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold Current</td>
<td>Ith</td>
<td>CW</td>
<td>-</td>
<td>38</td>
<td>60</td>
<td>mA</td>
</tr>
<tr>
<td>Operating Current</td>
<td>Iop</td>
<td>Po=35mW</td>
<td>-</td>
<td>75</td>
<td>100</td>
<td>mA</td>
</tr>
<tr>
<td>Threshold Voltage</td>
<td>Vth</td>
<td>CW</td>
<td>-</td>
<td>4.6</td>
<td>5.6</td>
<td>V</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>Vop</td>
<td>Po=35mW</td>
<td>-</td>
<td>5.1</td>
<td>6.1</td>
<td>V</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>Lp</td>
<td>Po=35mW</td>
<td>-</td>
<td>395</td>
<td>405</td>
<td>415</td>
</tr>
<tr>
<td>Beam Divergence</td>
<td>Perpendicular Qv</td>
<td>Po=35mW</td>
<td>16</td>
<td>20</td>
<td>24</td>
<td>°</td>
</tr>
<tr>
<td></td>
<td>Parallel Qh</td>
<td>Po=35mW</td>
<td>6</td>
<td>8</td>
<td>14</td>
<td>°</td>
</tr>
<tr>
<td>Off Axis Angle</td>
<td>Perpendicular dQv</td>
<td>-</td>
<td>-3</td>
<td>-3</td>
<td>3</td>
<td>°</td>
</tr>
<tr>
<td></td>
<td>Parallel dQh</td>
<td>-</td>
<td>-2</td>
<td>-2</td>
<td>2</td>
<td>°</td>
</tr>
<tr>
<td>Differential Efficiency</td>
<td>SE</td>
<td>-</td>
<td>0.7</td>
<td>1.0</td>
<td>-</td>
<td>mW/mA</td>
</tr>
<tr>
<td>Monitoring Output Current</td>
<td>Im</td>
<td>Po=35mW</td>
<td>0.1</td>
<td>0.2</td>
<td>0.5</td>
<td>mA</td>
</tr>
</tbody>
</table>

1) Initial values
2) All the above values are evaluated with Tottori Sanyo’s measuring apparatus
3) Full angle at half maximum
4) Operating Voltage of this laser is higher than conventional laser (5.1V)
5) We don’t guarantee precision of light output power of this laser diode with an internal monitor diode in an APC circuit for a long period of time.

Note: The above product specification are subject to change without notice.
Characteristics Data for DL-5146-15

Optical Output Power vs. Operating Current

Operating Voltage vs. Operating Current

Threshold current vs. Case Temperature

Monitoring Current vs. Output Power

Spectrum

Far Field Pattern

*Those are typical data for customers reference and may not represent all products.

Tottori SANYO Electric Co., Ltd. Photonics Business Unit
Characteristics Data for DL-5146-15

**Reference Data**

**Peak Wavelength vs. Output Power**

T<sub>c</sub>=25deg

**Peak Wavelength vs. Case Temperature**

P<sub>o</sub>=35mW

*Those are typical data for customers reference and may not represent all products.*

Tottori SANYO Electric Co., Ltd. Photonics Business Unit
Precautions for Use

1. Voltage of our blue-violet laser diode is 4-6V, which is higher than 1.8-3V of the other laser diodes. Take care of operating voltage when you design an APC circuit.

2. An assembly line has to be protected from static electricity or surge current. Use an earth-band or the like when handling blue-violet laser diodes.

3. Output light from our blue-violet laser diode is very reactive and harmful to a human eye. Avoid looking at the output light directly or even indirectly through a lens while oscillating. Parts exposed to the output light such as a lens or body should be made from material strong for ultraviolet damage.

4. Don't use our blue-violet laser diode with a built-in monitor photodiode for an application which requires power control with high accuracy.

5. Reselling, disassembling, or reverse engineering of a blue-violet laser diode is prohibited.

6. Our laser diode is not intended for use in applications where extremely high reliability is required, or human life is directly involved, e.g. life-support systems or cars.

7. We are not liable to any undesirable result caused by a misuse or inappropriate use.

Export Control

1. Our laser diode is subject to the export control regulations (of foreign exchanges and foreign trading). When exporting laser diodes (including service), care should be taken to insure that any necessary procedures are complied with.

2. Laser diodes should be destroyed in cases when they are not be used to avoid infringing on export.

3. Use in military applications is prohibited.

Please ask our sales staff for more details if necessary.