**Features**

- Short wavelength: 405 nm (Typ.)
- Light Output: 60mW CW
- Low threshold current: $I_{th} = 40$ mA (Typ.)
- Package: $\phi 5.6$ mm

**Applications**

Industrial Use

**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 CW</td>
<td>Po</td>
<td>65</td>
<td>mW</td>
</tr>
<tr>
<td>Reverse Voltage Laser</td>
<td>VR</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>0 to +50</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>$I_{th}$</td>
<td>CW</td>
<td>-</td>
<td>40</td>
<td>60</td>
<td>mA</td>
</tr>
<tr>
<td>Operating Current</td>
<td>$I_{op}$</td>
<td>Po=60mW</td>
<td>-</td>
<td>90</td>
<td>120</td>
<td>mA</td>
</tr>
<tr>
<td>Threshold Voltage</td>
<td>$V_{th}$</td>
<td>CW</td>
<td>-</td>
<td>4.6</td>
<td>5.6</td>
<td>V</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>$V_{op}$</td>
<td>Po=60mW</td>
<td>-</td>
<td>5.2</td>
<td>6.2</td>
<td>V</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>$L_p$</td>
<td>Po=60mW</td>
<td>395</td>
<td>405</td>
<td>415</td>
<td>nm</td>
</tr>
<tr>
<td>Beam Perpendicular Divergence</td>
<td>$Q_v$</td>
<td>Po=60mW</td>
<td>16</td>
<td>20</td>
<td>24</td>
<td>°</td>
</tr>
<tr>
<td>Beam Parallel Divergence</td>
<td>$Q_h$</td>
<td>Po=60mW</td>
<td>6</td>
<td>8</td>
<td>14</td>
<td>°</td>
</tr>
<tr>
<td>Off Axis Angle Perpendicular</td>
<td>$dQ_v$</td>
<td>-</td>
<td>-3</td>
<td>-</td>
<td>3</td>
<td>°</td>
</tr>
<tr>
<td>Off Axis Angle Parallel</td>
<td>$dQ_h$</td>
<td>-</td>
<td>-2</td>
<td>-</td>
<td>2</td>
<td>°</td>
</tr>
<tr>
<td>Differential Efficiency</td>
<td>SE</td>
<td>-</td>
<td>0.8</td>
<td>1.2</td>
<td>-</td>
<td>mW/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 (5.5V)

Note: The above product specification are subject to change without notice.

Tottori SANYO Electric Co., Ltd.  
Photonics Business Unit  
5-318, Tachikawa, Tottori 680-8634 Japan  
TEL: +81-857-21-2137  
FAX: +81-857-21-2161
Characteristics Data for DL-LS5017

Reference Data

**Optical Output Power vs. Operating Current**

- For different case temperatures (Tc): 25, 40, 50 degrees.
- The output power (Po) increases with the operating current (Iop).

**Operating Voltage vs. Operating Current**

- For different case temperatures (Tc): 25, 40, 50 degrees.
- The operating voltage (Vop) increases with the operating current (Iop).

**Threshold current vs. Case Temperature**

- The threshold current (Ith) increases with the case temperature (Tc).

**Far Field Pattern**

- The pattern shows intensity distribution as a function of angle (deg).
- Two peaks are visible: Qv and Qh.

**Spectrum**

- The spectrum shows the relative intensity as a function of lasing wavelength (nm).
- The peak wavelength is at around 404 nm for a case temperature of 25 degrees and an output power of 60 mW.

**Peak Wavelength vs. Output Power**

- The peak wavelength increases with the output power (Po).

*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-LS5017

*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.