LD-520-50MG is a direct emitting, GaN based, 520 nm green laser diode in 5.6 mm TO-Can with integrated photodiode. It offers single transverse mode emission and >100 MHz modulation bandwidth. It is an efficient radiation source for many applications like laser projection, holography, metrology, or biomedical application.

**Description**

- Green Laser Diode
- 520 nm, 50 mW
- Single transverse mode
- TO56 package, Flat Window

**Maximum Rating** *(T\text{CASE} = 25°C)*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Values</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Current*</td>
<td>$I_{\text{MAX}}$</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature*</td>
<td>$T_{\text{OPR}}$</td>
<td>-20</td>
<td>+60  \degree C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{\text{STG}}$</td>
<td>-40</td>
<td>+85  \degree C</td>
</tr>
<tr>
<td>Soldering Temperature (max. 3s)</td>
<td>$T_{\text{SOL}}$</td>
<td>+260</td>
<td>°C</td>
</tr>
<tr>
<td>Junction Temperature*</td>
<td>$T_J$</td>
<td>+150</td>
<td>°C</td>
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</tbody>
</table>

* operating outside these conditions may damage the device
*1 operating at maximum ratings may influence the life time

**Electro-Optical Characteristics** *(T\text{CASE} = 25°C, $P_O = 50$mW)*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Values</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_p$</td>
<td>510</td>
<td>520</td>
</tr>
<tr>
<td>Spectral Width (FWHM)</td>
<td>$\Delta \lambda$</td>
<td>2</td>
<td>nm</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>$V_F$</td>
<td>6.9</td>
<td>8.0</td>
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<tr>
<td>Threshold Current</td>
<td>$I_{\text{th}}$</td>
<td>45</td>
<td>75    m\text{A}</td>
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<tr>
<td>Operating Current</td>
<td>$I_F$</td>
<td>125</td>
<td>160  m\text{A}</td>
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<tr>
<td>Modulation Frequency</td>
<td>$f$</td>
<td>&gt;100</td>
<td>MHz</td>
</tr>
<tr>
<td>Polarization</td>
<td>$P_{\text{GR}}$</td>
<td>100:1</td>
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</tr>
<tr>
<td>Beam Divergence (FWHM)</td>
<td>$\Theta_{|}$</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>$\Theta_{\perp}$</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>Thermal Resistance (junction to case)</td>
<td>$R_{\text{th}}$</td>
<td>34</td>
<td>K/W</td>
</tr>
<tr>
<td>Monitor Current</td>
<td>$I_M$</td>
<td>90</td>
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</tr>
</tbody>
</table>
Performance Characteristics

Optical Output Power vs. Operating Current

Operating Voltage vs. Operating Current

Threshold Current vs. Temperature

Relative Output Power vs. Wavelength
Beam Divergence

Max. operating Current vs. Temperature

Electrical Connection

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>LD Cathode</td>
</tr>
<tr>
<td>Pin 2</td>
<td>LD Anode, PD Cathode</td>
</tr>
<tr>
<td>Pin 3</td>
<td>PD Anode</td>
</tr>
</tbody>
</table>

Outline Dimensions

All dimensions in mm

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