S808200SMD

- IR Laser Diode
- 808 nm, 200 mW
- Multi mode
- SMD 5630 package

Description
S808200SMD is an IR laser diode, typically emitting at 808 nm, with a wide operating temperature range of up to 50°C. S808200SMD comes in SMD 5630 package.

Maximum Rating* (T_{CASE} = 25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Values</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical Output Power*†</td>
<td>$P_{\text{MAX}}$</td>
<td>200</td>
<td>mW</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>-10</td>
<td>+50</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{\text{STG}}$</td>
<td>-10</td>
<td>+85</td>
</tr>
<tr>
<td>Soldering Temperature (max. 3s)</td>
<td>$T_{\text{SOL}}$</td>
<td>+260</td>
<td>°C</td>
</tr>
</tbody>
</table>

*† operating at maximum ratings may influence the life time

Electro-Optical Characteristics (T_{CASE} = 25°C)

<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>805</td>
<td>808</td>
</tr>
<tr>
<td>Optical Output Power</td>
<td>$P_O$</td>
<td>200</td>
<td>mW</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>$V_F$</td>
<td>1.8</td>
<td>1.95</td>
</tr>
<tr>
<td>Threshold Current</td>
<td>$I_n$</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Operating Current</td>
<td>$I_F$</td>
<td>235</td>
<td>265</td>
</tr>
<tr>
<td>Slope Efficiency</td>
<td>$\eta$</td>
<td>0.8</td>
<td>1.09</td>
</tr>
</tbody>
</table>
| Beam Divergence (FWHM)             | θ_{||} | 7.5    | 12   | deg.
|                                    | θ_{⊥}  | 30     | 40   | deg.

Laser Radiation
Performance Characteristics

### Optical Output Power vs. Forward Current

![Graph of Optical Output Power vs. Forward Current](image)

- **25°C**
- **30°C**
- **40°C**
- **50°C**

### Forward Voltage vs. Forward Current

![Graph of Forward Voltage vs. Forward Current](image)

- **25°C**
- **30°C**
- **40°C**
- **50°C**

### Peak Wavelength vs. Case Temperature

![Graph of Peak Wavelength vs. Case Temperature](image)

- **800 nm**
- **805 nm**
- **810 nm**
- **815 nm**
- **820 nm**

**Case Temperature (°C)**
Performance Characteristics

Far-Field Pattern

Slope Efficiency vs. Case Temperature

Threshold Current vs. Case Temperature
Performance Characteristics

Power vs. Case Temperature

Radiation Pattern, short axis

Radiation Pattern, long axis
Outline Dimensions

All dimensions in mm

Emission Direction

Soldering Conditions (Reference Outline)

Soldering pad pattern  Metal solder stencil aperture

All dimensions in mm
Recommend Reflow Conditions

![Graph of reflow soldering profile](image)

**Recommend Reflow Soldering Profile, for lead free soldering**

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**Precautions**

**Safety**

**Caution:** Laser light emitted from any laser diode may be **harmful to the human eye.** Avoid looking directly into the laser diode’s aperture when the diode is in operation.

**Note:** The use of optical lenses with this laser diode will increase eye hazard

**ESD caution**

Always do handle laser diodes with extreme care to prevent **electrostatic discharge**, the primary cause of unexpected diode failure. To prevent ESD related failures, it is strongly advised to always **wearing wrist straps**, and grounding all applicable work surfaces, when handling laser diodes

**Operating Considerations**

It is strongly advised to only operate this laser diode with a current source. The current of a laser diode is an exponential function of the voltage across it. **Usage of current regulated drive circuits is mandatory.** Laser diodes may be damaged by excessive drive currents or switching transients.

It is advised, to operate the laser diode at the lowest temperature possible, and to never exceed maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature. **Proper heat sinking will greatly enhance stability and life time of the laser diode**

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