Features

- Up to 500mW CW output power.
- High Quality, Reliability, & Performance

Applications

- Telecommunication
- Cable TV
- Graphics

Product Specifications

980nm Single-Mode Laser Diodes

Description:

High brightness, high quality, and high reliability are the foundation of our single mode product line. Axcel’s 980nm single mode laser diodes are available with up to 500mW of continuous output power from a single emitter chip. Axcel’s trademark laser chip design offers unmeasurable degradation and long lifetimes that make our chips among the most reliable in the industry today. Our 980nm single mode line serves a broad range of applications including telecommunication, Cable TV, and graphics.

Packaging options include a 9mm TO-can or chip on sub-mount package. More options are available upon request. Please view our website for mechanical drawings of all of our submounts.

Standard Product Specifications for 980nm Single-mode Diodes

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>500mW Series</th>
<th></th>
<th>350mW Series</th>
<th></th>
<th>300mW Series</th>
<th></th>
<th>250mW Series</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Min</td>
<td>Typ</td>
<td>Max</td>
<td>Min</td>
<td>Typ</td>
<td>Max</td>
<td>Min</td>
<td>Typ</td>
</tr>
<tr>
<td>Wavelength</td>
<td>nm</td>
<td>975</td>
<td>980</td>
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<td>975</td>
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<td>985</td>
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<tr>
<td>Spectrum FWHM</td>
<td>nm</td>
<td>-</td>
<td>0.5</td>
<td>2.0</td>
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<td>0.5</td>
<td>2.0</td>
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<tr>
<td>Operating Power (P_0)</td>
<td>mW</td>
<td>-</td>
<td>500</td>
<td>-</td>
<td>-</td>
<td>350</td>
<td>-</td>
<td>-</td>
<td>300</td>
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<tr>
<td>Operating Current (I_0)</td>
<td>mA</td>
<td>-</td>
<td>700</td>
<td>850</td>
<td>-</td>
<td>400</td>
<td>450</td>
<td>-</td>
<td>370</td>
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<tr>
<td>Operating Voltage (V_0)</td>
<td>V</td>
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<td>1.7</td>
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<td>1.7</td>
<td>2.0</td>
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<td>1.8</td>
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<td>Kink-Free Power</td>
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<td>345</td>
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<tr>
<td>Lifetime</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>Vertical Far Field</td>
<td>deg, FWHM</td>
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<td>28</td>
<td>30</td>
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<td>28</td>
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<td>-</td>
<td>28</td>
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<td>Parallel Far Field</td>
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<td>8</td>
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<tr>
<td>Threshold (Ith)</td>
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<td>50</td>
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<td>30</td>
<td>50</td>
<td>-</td>
<td>30</td>
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<tr>
<td>Slope Efficiency (dP/dI)</td>
<td>W/A</td>
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<td>0.80</td>
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<td>Storage Temperature</td>
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<td>80</td>
<td>-40</td>
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<tr>
<td>Operating Temperature (T_{op})</td>
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<td>25</td>
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<td>-20</td>
<td>25</td>
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<tr>
<td>Lead Soldering Temperature (5 sec)</td>
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<td>-</td>
<td>250</td>
<td>-</td>
<td>-</td>
<td>250</td>
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</tr>
</tbody>
</table>

Note:
1) Specifications are subject to change without notice.
2) All Axcel Photonics products are TE polarized.

Axcel Photonics, Inc. 45 Bartlett Street, Marlborough, MA 01752 USA www.axcelphotonics.com
Determining Your Product number: \text{MM---WWW---PPPP---XYZ---(custom add-ons)}

\textbf{Package:} \begin{tabular}{l|l}
C2 & 2.1mm COS \hline
C3 & 3.0mm COS \hline
M9 & 9mm TO-can \hline
\end{tabular}

\textbf{Wavelength:} \begin{tabular}{l|l}
980 & 980nm \hline
\end{tabular}

\textbf{Power Options:} \begin{tabular}{l|l}
0250 & 250mW \hline
0300 & 300mW \hline
0350 & 350mW \hline
0500 & 500mW \hline
\end{tabular}

\begin{itemize}
  \item \textbf{X Option (aperture size)}: S single-mode (cathode ground)
  \item \textbf{Y Option (wavelength tolerance)}: S \pm 5nm
  \item \textbf{Z Option (additional options)}: none
\end{itemize}

\textbf{Safety:}

\textit{Caution:} Laser light emitted from any diode laser is invisible and may be harmful to the human eye. Avoid looking directly into the diode laser aperture when the device is in operation.

\textit{Note:} The use of optical instruments with this product will increase eye hazard.

\textbf{Operating Considerations:}

Operating the diode laser outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the component must be employed such that the maximum peak optical power cannot be exceeded. CW diode lasers may be damaged by excessive drive current or switching transients. When using power supplies, the diode laser should be connected with the main power on and the output voltage at zero. The current should be increased slowly while monitoring the diode laser output power and the drive current. Device degradation accelerates with increased temperature, and therefore careful attention to minimize the case temperature is advised. A proper heat-sink for the diode laser on a thermal radiator will greatly enhance laser life.

\textbf{ESD Caution:}

Always handle diode lasers with extreme care to prevent electrostatic discharge, the primary cause of unexpected diode failure. You can prevent ESD by always wearing wrist straps, grounding all applicable work surfaces, and following extremely rigorous anti-static measures.

\textbf{Power Output Danger Label:}

\textbf{WARNING! Invisible laser radiation is emitted from devices as shown below}

\textbf{21 CFR 1040.10 Compliance:}

Because of the small size of these devices, each of the labels shown are attached to the individual shipping container. They are illustrated here to comply with 21 CFR 1040.10 as applicable under the Radiation Control for Health and Safety Act of 1968.