Product Specifications
940nm Single-Mode Laser Diodes

Description:
High brightness, high quality, and high reliability are the foundation of our single mode product line. Axcel’s 940nm single mode laser diodes are available with up to 300mW 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 940nm single mode line serves a broad range of applications including fiber lasers, optical data storage, 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 sub-mounts.

Standard Product Specifications for 940nm Single-mode Diodes

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>100mW Series</th>
<th>200mW Series</th>
<th>300mW Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>nm</td>
<td>Min</td>
<td>Typ</td>
<td>Max</td>
</tr>
<tr>
<td>Spectrum FWHM</td>
<td>nm</td>
<td>935</td>
<td>940</td>
<td>945</td>
</tr>
<tr>
<td>Operating Power (P_o)</td>
<td>mW</td>
<td>-</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>Operating Current (I_o)</td>
<td>mA</td>
<td>-</td>
<td>140</td>
<td>180</td>
</tr>
<tr>
<td>Operating Voltage (V_o)</td>
<td>V</td>
<td>-</td>
<td>1.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Kink-Free Power</td>
<td>mW</td>
<td>110</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lifetime</td>
<td>hour</td>
<td>100,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vertical Far Field</td>
<td>deg, FWHM</td>
<td>-</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>Parallel Far Field</td>
<td>deg, FWHM</td>
<td>-</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Threshold (I_th)</td>
<td>mA</td>
<td>-</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Slope Efficiency (dP/dI)</td>
<td>W/A</td>
<td>0.80</td>
<td>0.90</td>
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</tr>
<tr>
<td>Storage Temperature</td>
<td>°C</td>
<td>-40</td>
<td>-80</td>
<td>-</td>
</tr>
<tr>
<td>Operating Temperature (T_op)</td>
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<td>-20</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Lead Soldering Temperature</td>
<td>°C</td>
<td>-</td>
<td>-</td>
<td>250</td>
</tr>
</tbody>
</table>

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

To request any additional information please contact us at:
Email: sales@axcelphotonics.com
Phone: (508) 481-9200

Axcel Photonics, Inc. 45 Bartlett Street, Marlborough, MA 01752 USA www.axcelphotonics.com
Determining Your Product number:

**Package:**
- C2 2.1 mm COS
- M9 9 mm TO-can

**Wavelength:**
- 940 940 nm

**Power Options:**
- 0100 100 mW
- 0200 200 mW
- 0300 300 mW

**X Option (aperture size)**
- S single-mode (cathode ground)
- D Single-mode (anode ground)

**Y Option (wavelength tolerance)**
- 5 ±5 nm

**Z Option (additional options)**
- 0 none
- P w/ photodiode (cathode ground)
- D w/ photodiode (anode ground)

Please note: These are our standard product configurations. Other options may be available, please inquire about any additional options that you may require when contacting our Sales Team.

### Standard Product Configurations

- **100mW Series**
  - C2-940-0100-S50
  - M9-940-0100-S50
  - M9-940-0100-D5P
  - M9-940-0100-S5D

- **200mW Series**
  - C2-940-0200-S50
  - M9-940-0200-S50
  - M9-940-0200-D5P
  - M9-940-0200-S5D

- **300mW Series**
  - C2-940-0300-S50
  - M9-940-0300-S50
  - M9-940-0300-D5P

### Safety

*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.

*Note:* The use of optical instruments with this product will increase eye hazard.

### 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.

### 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.