The BW Series products consist of a high power semiconductor laser bar, efficiently coupled into a low numerical aperture, small diameter fiber bundle using proprietary lensing technology. (Each laser bar is a linear array of many individual laser emitters, fabricated on a single, monolithic substrate.) This efficient coupling results in a high intensity, high brightness light source, with very flexible delivery capabilities, that is ideal for a number of industrial processing and medical tasks.

In addition to superior performance, our fiber coupled diode bar products are designed and manufactured for maximum reliability, including “watertight” packaging to minimize leakage of humidity into the products. We are able to achieve high quality on a volume basis because of our total vertical integration within a single manufacturing facility. This gives us complete control over every aspect of our production process – from wafer processing through final packaging.

The standard products listed here are representative of our capabilities, however, the majority of our products are designed and built to meet specific customer requirements. We utilize a variety of materials, including phosphorous-based materials (more recently referred to as "Aluminum Free"), to provide the optimum combination of performance and price for each customer.

Benefits

- High Brightness: Up to 30 Watts out of an 800 μm diameter aperture
- Wide Wavelength Range: Multiple wavelength ranges available from 800 nm to 980 nm
- High Reliability: Expected lifetimes of standard products is tens of thousands of hours
- Volume Availability: Factory output is thousands of laser diodes of multiple configurations every month

Applications

- Solid state laser pumping
- Graphic arts/printing
- Material processing
- Medical
- Illumination

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## Output Characteristics

<table>
<thead>
<tr>
<th>Part number</th>
<th>Wavelength $\lambda^{(1)}$</th>
<th>Spectral Width (FWHM)</th>
<th>Output Power $P_o^{(2)}$</th>
<th>Operating Current $I_{op}^{(3)}$</th>
<th>Max. Threshold Current $I_{th}$</th>
<th>Fiber Aperture Diameter</th>
<th>Number of Fibers in Bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td>BWA1100-808-30-01</td>
<td>$808 \pm 3$ nm</td>
<td>$\leq 4$ nm</td>
<td>30 Watts</td>
<td>$\leq 55$ Amps</td>
<td>$\leq 15$ Amps</td>
<td>1100 $\mu$m</td>
<td>19</td>
</tr>
<tr>
<td>BWA1100-810-30-01</td>
<td>$810 \pm 10$ nm</td>
<td>$\leq 7$ nm</td>
<td>30 Watts</td>
<td>$\leq 55$ Amps</td>
<td>$\leq 15$ Amps</td>
<td>1100 $\mu$m</td>
<td>19</td>
</tr>
<tr>
<td>BWA0800-808-30-01</td>
<td>$808 \pm 3$ nm</td>
<td>$\leq 4$ nm</td>
<td>30 Watts</td>
<td>$\leq 55$ Amps</td>
<td>$\leq 15$ Amps</td>
<td>800 $\mu$m</td>
<td>19</td>
</tr>
<tr>
<td>BWA0800-810-30-01</td>
<td>$810 \pm 10$ nm</td>
<td>$\leq 7$ nm</td>
<td>30 Watts</td>
<td>$\leq 55$ Amps</td>
<td>$\leq 15$ Amps</td>
<td>800 $\mu$m</td>
<td>19</td>
</tr>
<tr>
<td>BWA0800-808-15-01</td>
<td>$808 \pm 3$ nm</td>
<td>$\leq 4$ nm</td>
<td>15 Watts</td>
<td>$\leq 30$ Amps</td>
<td>$\leq 9$ Amps</td>
<td>800 $\mu$m</td>
<td>19</td>
</tr>
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<td>BWA0800-810-15-01</td>
<td>$810 \pm 10$ nm</td>
<td>$\leq 7$ nm</td>
<td>15 Watts</td>
<td>$\leq 30$ Amps</td>
<td>$\leq 9$ Amps</td>
<td>800 $\mu$m</td>
<td>19</td>
</tr>
<tr>
<td>BWA0500-808-10-01</td>
<td>$808 \pm 3$ nm</td>
<td>$\leq 4$ nm</td>
<td>10 Watts</td>
<td>$\leq 20$ Amps</td>
<td>$\leq 6$ Amps</td>
<td>500 $\mu$m</td>
<td>7</td>
</tr>
<tr>
<td>BWA0500-810-10-01</td>
<td>$810 \pm 10$ nm</td>
<td>$\leq 7$ nm</td>
<td>10 Watts</td>
<td>$\leq 20$ Amps</td>
<td>$\leq 6$ Amps</td>
<td>500 $\mu$m</td>
<td>7</td>
</tr>
</tbody>
</table>

1. Wavelength
2. Spectral Width (FWHM)
3. Operating Current
4. Max. Threshold Current
5. Fiber Aperture Diameter
6. Number of Fibers in Bundle

---

**Diagram:**

- **ANODE (+)**
- **CATHODE (-)**
- **BEAM DIVERGENCE**
- **4-40 X 1/4 SHCS**
- **4-40 X 1/4 SHCS**
- **SMA 905 FIBER-OPTIC CONNECTOR**
- **PVC FLEXIBLE JACKETING MIN BEND R 4.5°**
General Specifications

Optical

Typical Conversion Efficiency 25% @ \( I_{\text{op}} \)
Typical Beam Divergence > 80% of rated power within 14° cone angle (0.12 NA)

Electrical

Maximum Operating Voltage 2 V
Maximum Reverse Voltage 3 V
Maximum Negative Current Transient 25 \( \mu \text{A} \)

Mechanical

Housing Dimensions See drawing
Fiber Bundle Length 1 m
Fiber Connector Type (4) SMA905

Environmental

Operating Temp Range 20°C to 35°C
Operating Humidity Non-condensing
Storage Temp Range -30°C to 80°C

NOTES

(1) Centroid wavelength @ 25°C case temperature
(2) Guaranteed minimum optical output power at \( I_{\text{op}} \)
(3) Guaranteed maximum current required to achieve \( P_0 \)
(4) Other fiber connector types available for OEM applications

Typical wavelength temperature coefficient: 0.20 - 0.30 nm/°C

NOTE: Measurements in inches [mm]
Laser energy emitted from these products is invisible and harmful to the human eye. Avoid eye or skin exposure to direct or scattered radiation. Proper laser safety eyewear must be worn during operation. Use of controls, or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure. Use of collimating optics may increase the radiation hazard of these products. Pursuant to the Health and Safety Act of 1968, Radiation Control sections 21 CFR 1040.10 & 1040.11, laser safety warning labels, compliant as of date of manufacture, are provided on shipping containers.

Information and specifications contained herein are deemed to be reliable and accurate. Spectra-Physics reserves the right to change, alter or modify the design and specifications of these products at any time without notice.