

915/940/965/980 nm Broad Area Laser Diode Product Family

Specification Sheet



The M9xx series of Broad Area Laser Diodes from Axcel Photonics offer high CW optical power from a 100 micron multi-mode aperture and high brightness with industry leading reliability. This series of devices is produced with Axcel's advanced wafer growth and facet passivation technology, which enables increased performance in all areas including lower threshold current, increased efficiency, and lower operating voltage.

The M9XX series consists of multi-mode operating lasers with standard apertures of 50, 100 and 200 microns. Custom devices with non-standard apertures and wavelengths, including multiple active areas are available.

915 nm, 940 nm, 965 nm and 980 nm high power Broad Area Laser Diodes are suited to a number applications including DPSSL pumping, fiber lasers, and materials processing. Our proprietary epitaxial wafer design and facet passivation processes significantly increase output power in these broad area devices. Higher brightness for a given active region, up to 3 Watts for a 100 micron aperture, is achieved with this revolutionary technology.

Facet Technology

The Axcel facet design, based on Axcel's highly reliable telecom design, increases the COD threshold to 20 MW/cm² (several times the industry standard). This allows the device to operate at higher output powers and maintain the reliability of the facet structure. The uniformity of the passivation also contributes to increased reliability at these elevated powers. Controlling the thickness of the passivation material creates uniform power density across the facet and prevents hotspots in the facet structure.

Chip and Sub-mount Options

Axcel's products are available as discrete single chips or in Chip On Sub-mount configurations. Axcel offers B and C-Mount options, all of which include an isolated fly lead connection for the laser cathode. All multi mode lasers regardless of sub-mount options are mounted P side down.

Fiber pigtailed lasers are offered on a custom basis only. Please contact your local distributor or sales office for details.

Benefits:

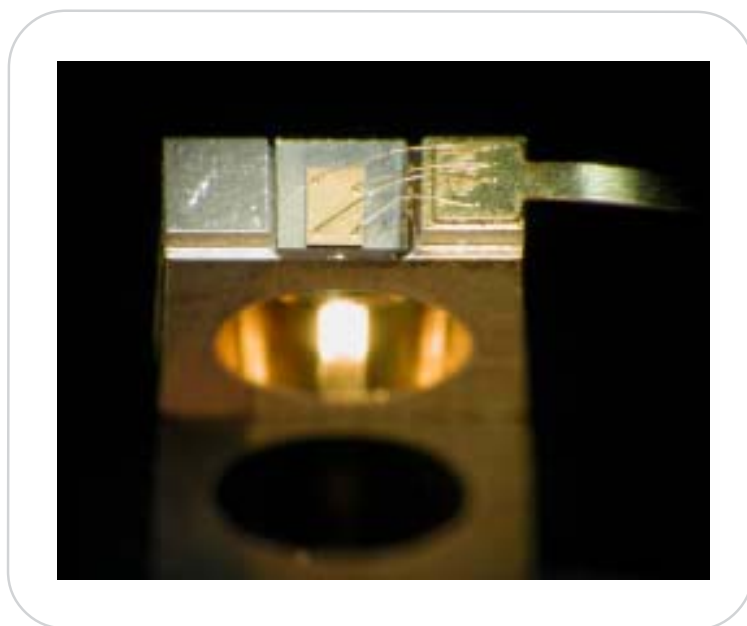
- High Output Power
- Improved Efficiency
- High Reliability

Features:

- Operating Power to 3W with 100 um aperture
- Operating Temperature Range 0 °C to 70 °C
- Available on B or C-Mount With Isolated Fly Lead Connection
- Custom Specifications
- Custom Package and Fiber Options Available

Applications:

- Materials Processing
- DPSSL Pumps
- Fiber Lasers



光技術をサポートする

株式会社オプトサイエンス

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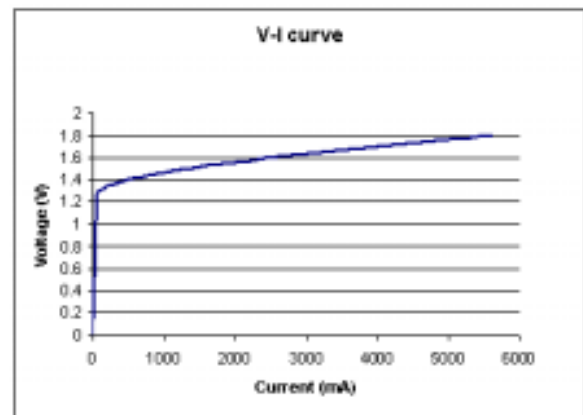
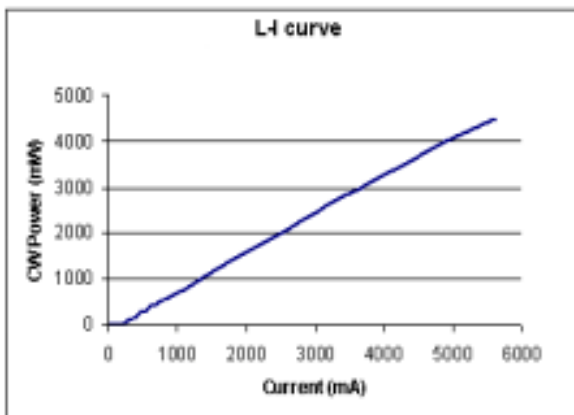
Specification Sheet

| Parameter | Sym. | Condition | Min | Typ | Max | Units |
|---|------|-----------|------|-----|-----|-------|
| Output Power | Po | 25C & Iop | 4 | | | W |
| Forward Voltage | Vf | @ Po | | 1.9 | 2.1 | V |
| Operating Current | Io | @ Po | | 4.7 | 5 | A |
| Threshold Current | Ith | | | 300 | 350 | mA |
| Slope Efficiency | SE | 25C | 0.85 | 0.9 | | W/A |
| Horizontal Divergence Angle (//) | HFF | FWHM, Po | | | 10 | deg |
| Vertical Divergence Angle (^) | VFF | FWHM, Po | | | 40 | deg |
| Center Wavelength Variation (915/940/965/980 typ.) | dLc | | -5 | | 5 | nm |
| Laser Emitter Width | We | | | 100 | | um |

Notes:

1. 50µm, 200µm and dual ridge designs are available, please contact your local representative for more information and specifications.
2. Output power, vertical divergence angle, and center wavelength are typical specifications and can be customized for specific applications. Please contact your sales representative for further information
3. All specifications are at a sub-mount temperature 25C.

L-I-V Performance Curves



Ordering Information

Part Number : M-LLL-TT-WWWW-UUU

M = Multi Mode

LLL: Wavelength in nm
910 to 986, 915=915 nm; 980=980 nm

TT: Submount Type
CH=Chip; BM=B Mount; CM=C Mount; SM=Special Mount

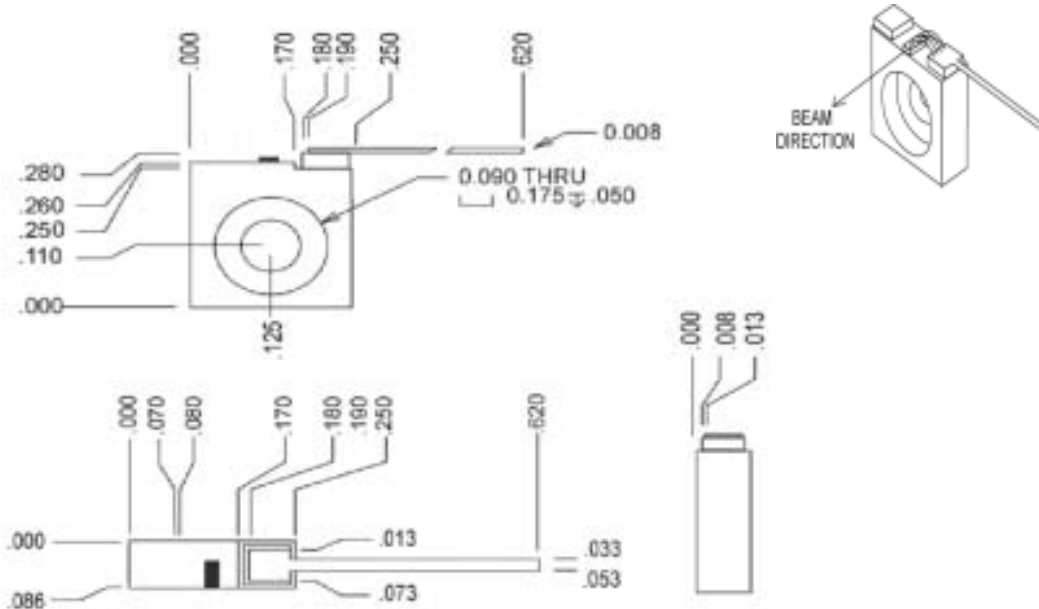
WWW: Output Power in mW
0300 = 300 mW; 5000 = 5000 mW

UUU: Emission aperture size
050 = 50 µm; 100 = 100 µm

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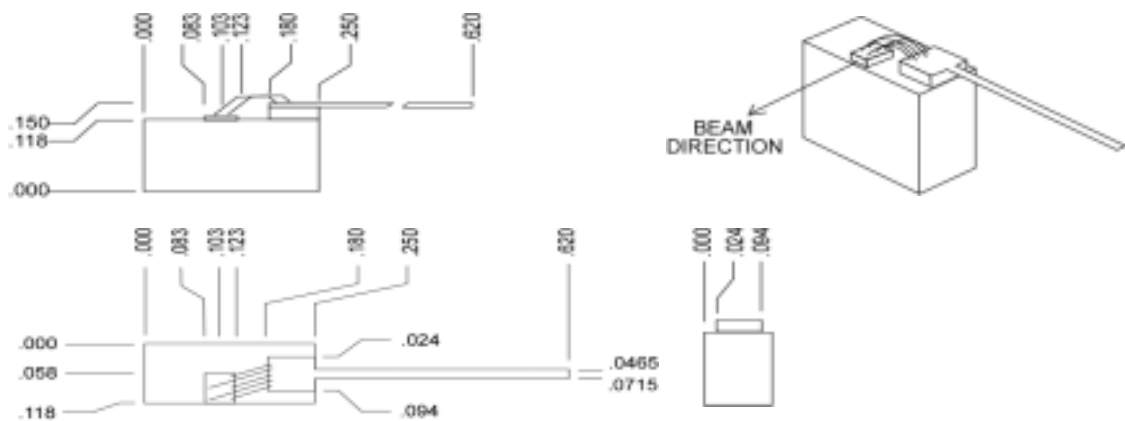
Sub-mount Options

C Mount Mechanical Drawing



Sub-mount Options

B Mount Mechanical Drawing



Mounting Block Notes:

1. B, C, and D mounts are manufactured of oxygen-free high conductivity (OFHC) Cu with diamond machined laser mounting surfaces.
2. Cu mounts have been plated with one micron of Au over a Ni flash.
3. All lasers are attached with a flux-less Indium solder process.
4. All wire bonds are 2 mil Au wires with current carrying capability of 3A per wire.
5. All units in inches.