



HIGH POWER LASER DIODES HIGH HEAT LOAD (HHL) PACKAGE

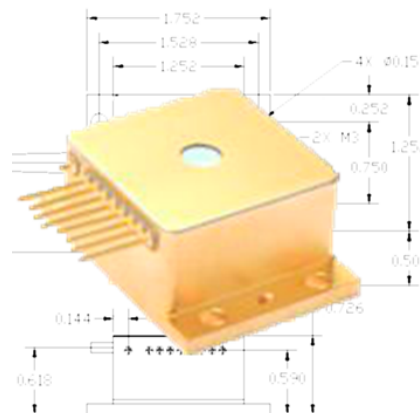
**APPLIED
OPTRONICS**
LASER DIODES

Applied Optronics has almost two decades of experience designing and manufacturing high performance laser diode packages for a wide variety of applications in the medical, telecom, military, and aerospace industries. With broad range of wavelength available in-house Applied Optronics offers a unique opportunity for the fast and cost effective design and manufacturing high power laser application while maintaining the same high standards for quality and reliability.

High Power Multimode Laser Diodes manufactured by Applied Optronics has been designed to provide high power with outstanding reliability. Our lasers deliver the highest CW power at wavelengths from 12XXnm to 19XXnm (including Eye Safe region). Applied Optronics laser design is based on proprietary multi-quantum well laser structure that provides exceptional brightness and power.

FEATURES:

- Output Power up to 5 Watts
- InGaAsP high reliability design
- High conversion efficiency
- Excellent temperature stability
- Various packaging combination
- Wide operation conditions



TYPICAL CHARACTERISTICS AT CASE $T_{RT} = 20\text{ }^{\circ}\text{C}$

| | | 12xx-AO | 14xx-AO | 15xx-AO | 17xx-AO | 19xx-AO |
|-----------------------------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| TYPICAL PARAMETERS | | | | | | |
| Output power (CW) | P_o | 5.0 W | 4W | 4W | 2 W | 1 W |
| Center Wavelength | λ | 1215nm | 1450nm | 1550nm | 1720nm | 1930nm |
| Optical Fiber Core | \varnothing | 105 μm | 105 μm | 105 μm | 105 μm | 105 μm |
| Optical Fiber | NA | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| Spectral Width (FWHM) | | 10-15nm | 10-20nm | 10-20nm | 10-20nm | 20-25nm |
| Slope Efficiency | W/A | 0.4 | 0.45 | 0.45 | 0.28 | 0.1 |
| Power Conversion Efficiency | % | 20% | 20% | 18% | 15% | 6% |
| Threshold Current | I_{th} | 0.75-1.1 A | 0.75-1.1 A | 0.75-1.1 A | 0.75-1.1 A | 0.75-1.1 A |
| Operating Current | I_{op} | 10A | 10A | 10A | 10A | 10A |
| Operating Voltage | V_{op} | 2.2 V | 2 V | 2 V | 1.9 V | 1.8 V |
| Series Resistance | R_s | 0.05 Ohm | 0.05 Ohm | 0.05 Ohm | 0.05 Ohm | 0.05 Ohm |



Proudly made in the USA

MAXIMUM RATING

| | | |
|---|------------|--------------|
| Operating Current | I_{op} | 12A |
| Reverse Voltage | V_{RVS} | 2.5V |
| Case Temperature | T_{HS} | 5°C / 70°C |
| Storage Temperature | T_{STG} | -30°C / 80°C |
| Lead Soldering Temperature, 15 s max | T_{sold} | 300°C |
| Relative Humidity, none-condensing, ambient <45°C | R_H | 85% |
| Fiber Bend Radius | | 30 mm |

APPLICATIONS:

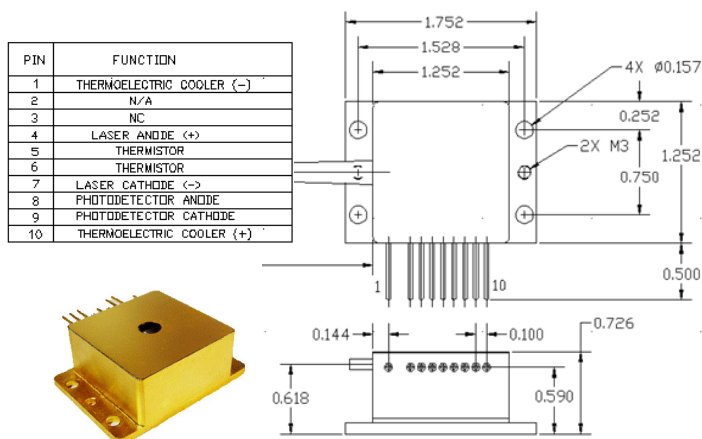
- Eye Safe range finding
- Surveying equipment
- Target designation
- Laser Radar
- Medical applications
- Direct Pumping
- Marking and Printing Applications

PACKAGE & CHIP CUSTOMIZATION:

- FAC and SAC Collimation for selected packages
- Free space or fiber output as per package design
- Back Power monitor available for some packages
- Active cooling with temperature monitoring available
- Custom active laser stripe width and wavelength
- Wavelength stabilization
- Various cooling options are available

Notes on reliability and overdrive

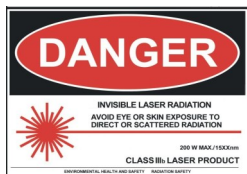
These devices have proven MTF beyond 1000 hours while being operated continuously at designed operating conditions. These devices may be substantially overdriven in short pulse operations. However, it is important to respect maximum drive current and maximum average power output. Average life time overdrive conditions have not been verified, although should be acceptable for applications where the device operation time is limited (range finder, target identifier, etc). The devices must be adequately cooled, specifically in applications where a device operates continuously or in long pulses. High temperature operation and overheating of the devices may significantly reduce performance and MTF.



Note: For other custom solutions, not listed in this data sheet, contact Applied Optronics directly.

Other options available :

- Single laser or Multi-laser custom assemblies
- Laser package design and fabrication with Customer specified package dimensions and footprint



Safety:
Caution: Laser light emitted from any diode lasers may be harmful to the human eye. Avoid looking directly into the diode laser aperture while operating the device.
Class III(b) laser

ESD Caution:
Handle diode lasers with extreme care in order to prevent electrostatic discharge. Please follow all ESD precautions while handling devices.



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