

PowerMir

High Power Pulsed QCL 4,8 microns HHL



PowerMir product line is high power pulsed Quantum Cascade Laser based on proprietary technology, emitting in Mid-Infrared. It provides maximum average power of minimum of 1.5 Watt at 4,8 microns (spec code: PW4801500HNA). The High Heat Load (HHL) package includes the high power laser mounted in a thermoelectric cooler and suitable optics to collimate the output of the laser.

ITAR free MirSense technology exhibits outstanding performances in term of power and wall plug efficiency. This high-performance QCL assembly takes full advantage of MirSense's state of the art technologies.



Optical features

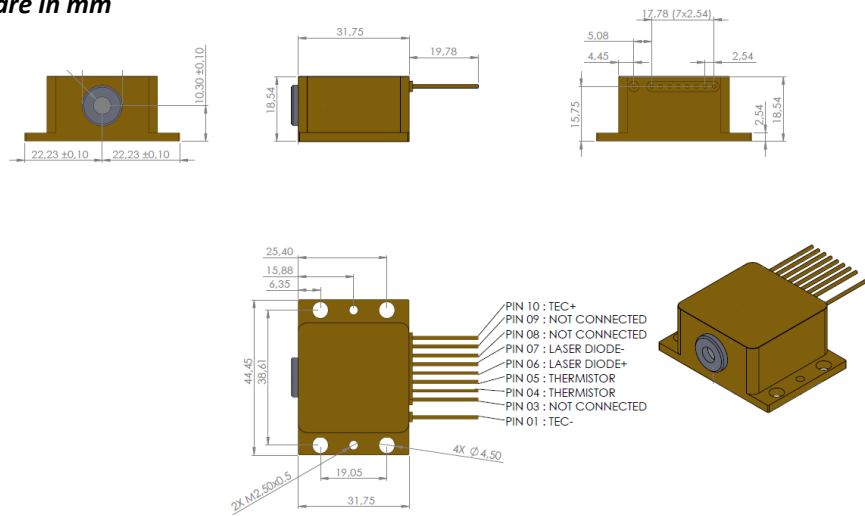
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|-------------------------------|--|
| Maximum Average Optical Power | Minimum of 1.5 W at +20°C of base plate temperature |
| Mode of operation | Quasi-CW, high duty cycled pulsed |
| Central wavelength | 4,8 μm +/- 0.1 μm |
| Pulse frequency | > 500 kHz |
| Divergence | Horizontal < 8 mrad (typically 6mrad) Vertical < 6 mrad (typically 4mrad) |
| Beam quality | TM00 Gaussian beam, $M^2 < 1.5$ |
| Output beam dimension (typ.) | 2 mm x 3 mm |
| Polarization | Linear vertically polarized |

Mechanical and electrical features

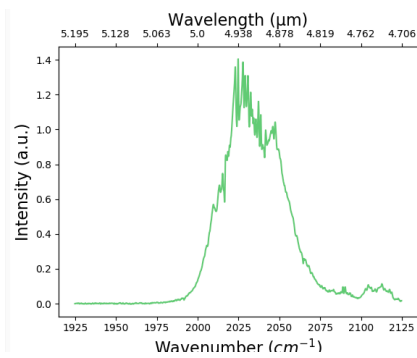
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|-------------------------|---|
| Packaging | Hermitically sealed with nitrogen gas fill inside a High-Heat Load (HHL) package. |
| Wall-plug efficiency | 5 to 10% |
| Built-in TEC included | $I_{\text{max}} = 5.2\text{A}$, $V_{\text{max}} = 15.7\text{V}$ |
| Laser current (typ.) | 2 A (1 A average at 50% dutycycle) |
| Laser voltage | 10 to 20 V |
| Operational temperature | -20°C to +30°C @ base plate. This working environmental temperature must in any case be above dew point to avoid water condensation |
| Reliability | > 3500 hrs |
| Weight | 70 grams |

Drawings

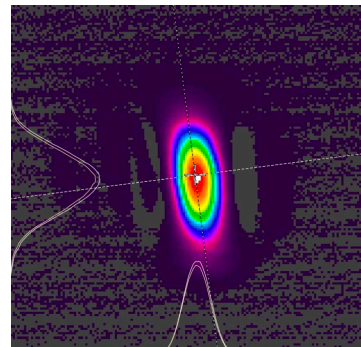
All dimensions are in mm



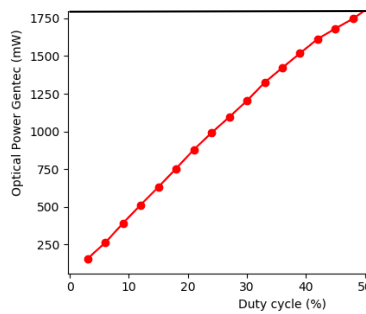
Characteristics



Typical spectrum



Typical beam quality



Average optical power of the laser as a function of the laser duty cycle with a pulswidth of 900ns and a laser temperature of +20°C

Options

- Driver for laser modulation
- Customized packaging upon request