

PowerMir

1W High Power Pulsed QCL 4 microns HHL



The **PowerMir** product line is high power pulsed Quantum Cascade Lasers based on proprietary technology, emitting in Mid-Infra-Red. These lasers provide maximum average power of at least 1 Watt at 4 microns. The High Heat Load (HHL) package includes the high power laser mounted on 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

Maximum Average Optical Power	Minimum of 1W ^(a) at +20°C of base plate temperature
Mode of operation	Quasi-CW, high duty cycled pulsed
Central wavelength ^(b)	4 μm +/- 0.1 μm
Pulse frequency	> 500 kHz
Divergence	The shape of the beam is slightly elliptical Horizontal: typically 3 to 6 mrad Vertical: typically 2 to 4 mrad
Beam quality	TM00 Gaussian beam, M ² <1.5
Output beam dimension (window output)	Typically 2 mm x 3 mm
Polarization	Linear vertically polarized

^(a) The laser's specified output power is the sum over the full spectral bandwidth.

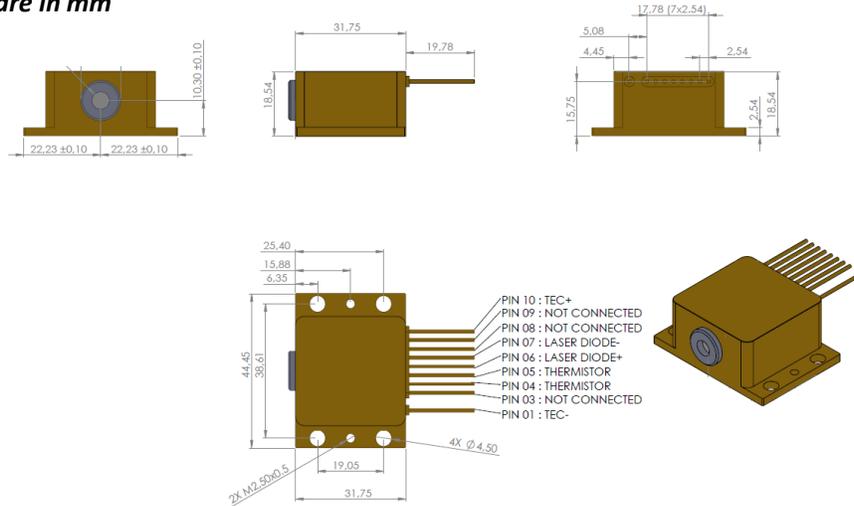
^(b) The central wavelength is defined as the optical power weighted average of the wavelength.

Mechanical and electrical features

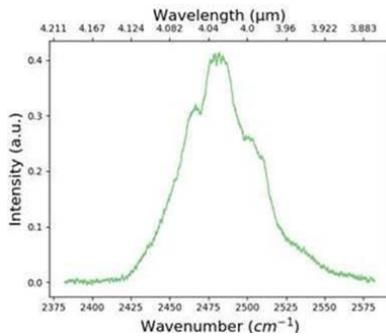
Packaging	Hermitically sealed with nitrogen gas fill inside a High-Heat Load (HHL) package.
Wall-plug efficiency	5 to 10%
Built-in TEC included	I _{max} = 5.2A, V _{max} = 15.7V
Laser current (typ.)	2 A
Laser voltage	10 to 20 V
Operational temperature	-20°C to +30°C @ base plate. This working environmental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

Drawings

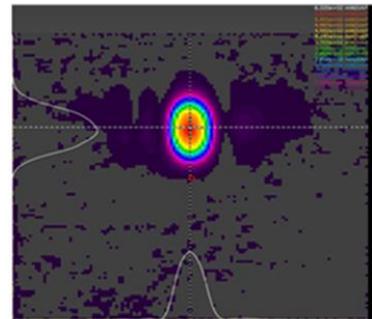
All dimensions are in mm



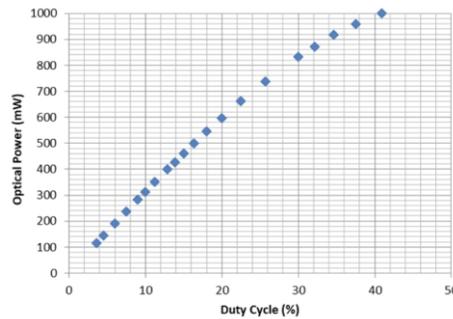
Typical characteristics



Typical spectrum



Typical beam quality



Typical average optical power of the laser as a function of the laser duty cycle with a pulsedwidth of 900ns and a base plate temperature of +20°C

Options

- Driving electronics for laser modulation and temperature control (turnkey system or OEM PCB systems)
- Customized packaging upon request