ALPES LASERS

Pioneering Photonics

High Power Source

High Power Sources are encapsulated Quantum Cascade Lasers with a minimum average power of 1 W. Available in a collimated HHL package with a dedicated driver, these lasers can be used for free-space optical communications, energy deposition, illumination and IR countermeasures.

Key Features

- High Power
- Collimated Source
- High Beam Quality
- Multi-mode Spectrum
- Swiss Made

LASER RADIATION

Key Applications

- Free-space optical communication
- Energy deposition
- Illumination
- IR countermeasures

SWISS MADE

Pulse sequence can be programmed internally or externally controlled through TTL signals. Temperature controller not included. Sources currently available at 3.95 µm, 4.55 µm, 4.65 µm, 4.9 µm and 9.7 µm. Power up to 1.5 W at selected wavelengths.

Specifications

PARAMETER NAME	MINIMUM VALUE	TYPICAL VALUE	MAXIMUM VALUE	UNIT	NOTE
Spectral Width	50	100	150	cm^{-1}	
Average Power	1	-	1.5	W	This power is attained in pulse mode with about 30 % duty cycle. Lower and higher duty operation of the device may exhibit slightly less average power. 1.5 W power only available at selected wavelengths.
Peak power	1	3	9	W	The peak power reaches its maximum at lower duty cycle and decreases at duty cycles typically used for higher average power.
Output Spectrum		MM			The output is spectrally multimode but spatially a single lobe is seen.
Duty cycle	0	30	50	%	The laser may be operated at duty cycles higher than the recommended one with lower average power.
Central Frequency		1030 2040 2150 2200 2530		cm^{-1}	The presently available devices are centered around 3.95 µm, 4.55 µm, 4.65 µm, 4.9 µm and 9.7 µm. Please enquire if different wavelengths are required.
Wall-plug efficiency	5	-	10	%	This value is obtained at max power conditions.
Beam quality (M2)	1.5	2	3		Standard value, this specification may be tightened on request.
Divergence	-	-	8	mrad	Is defined as the FWHM along the fast axis.
Pointing error	-	-	8	mrad	Is defined as the FWHM along the fast axis.
Beam diameter	-	4	-	mm	Measured at the exit window of the HHL.
Packaging		HHL			
Dimensions		33 × 45 × 19		mm^3	Overall dimensions, excluding 20 mm pins. Other configurations may be adapted, please enquire.
TEC current	1.5	2	3	A	
TEC Voltage	9	12	18	V	
Heatsink cooling capacity	25	35	65	W	A heat dissipation capacity of 10 W/K is required to ensure the heatsink temperature does not degrade significantly the cooling capacity.
Driver		S-2			
Rise/fall time	5	6	8	ns	Values for 20 % to 80 % of the amplitude.
Pulse Width	30	200	-	ns	Values at 80 % of the amplitude. The driver is capable of generating arbitrary pulse sequences required by your aplications but pulse widths above 200 ns may reduce performance.
Dimensions, laser and driver		135 × 45 × 22		mm^3	The driver must be screwed directly to the HHL pins to reduce the pulse transmission length. The performances are not guaranteed if the driver is not attached directly to the HHL.
Lead Time	-	8	10	weeks	Leadtime for other Central Wavelength in stock, for custom devices please enquire.

The typical data are measured with 2040 cm^{-1} laser with typical Peltier current and 20 °C water cooled heatsink. These specifications may be changed without further notice.

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