



Currently available at 3.95 μm , 4.55 μm , 4.65 μm , 4.9 μm and 9.7 μm
Power up to 1.5W at selected wavelengths

High Power Source

Alpes Lasers introduces its new high power sources. These Quantum Cascade Lasers have a minimum average power of 1W and more than 9W of peak power. 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.

Pulse sequence can be programmed internally or externally controlled through TTL signals. Overcurrent and overheating protection included. Temperature controller not included.

KEY FEATURES

- › High power
- › Collimated source
- › High beam quality
- › Multi-mode spectrum
- › Swiss made

KEY APPLICATIONS

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

SPECIFICATIONS

QUANTITY	ACRONYM	MIN	TYP	MAX	UNIT	NOTE
Spectral Width	SW	50	100	150	cm ⁻¹	–
Min. average power	MAP	1	1.2	1.5	W	1
Peak power	PP	1	3	9	W	2
Output Spectrum	–	–	MM	–	–	3
Duty cycle	DC	–	30	100	%	4
Central Wavelength	CWL	2300	1030 2040 2150 2200 2530	1500	cm ⁻¹	5
Wall-plug efficiency	WPE	10	–	–	%	6
Beam quality	M2	1.5	2	3	–	7
Divergence	MD	–	–	6	mrad	8
Pointing error	MPE	–	–	6	mrad	9
Beam diameter	BD	–	4	–	mm	10
Pulse width	PW	20	200	CW	ns	11
Rise/Fall time requirements	RFT	–	10	–	ns	12
Packaging	–	–	HHL	–	–	13
Dimensions	LxWxH	–	33x45x19	–	mm ³	14
TEC current	TECI	1.5	2	3	A	15
TEC Voltage	TECV	9	12	18	V	16
Heatsink cooling capacity	–	25	35	65	W	17
Driver	S-2	–	–	–	–	18
Rise/fall time	RFT	5	6	8	ns	19
Pulse Width	PW	30	200	0	ns	20
Dimensions, laser and driver	LxWxH	–	135x45x22	–	mm ³	21
Lead Time	–	–	6	8	weeks	22

The typical data are taken with 2040 cm⁻¹ laser with typical Peltier current (TECI) cooling with 20 °C water cooled heatsink. These specifications may be changed without further notice.

- This power is attained in pulse mode with about 30% DC. Lower and higher DC operation of the device may exhibit slightly less average power.
- The typical PP is obtained in the max power conditions i.e. 30% DC. The PP reaches its lowest value for CW operation and is maximum at lower DC but does not reach higher than max value even for extremely low DC. It is to be noted that this is also the case for very short pulses, the absolute max ratings for the laser current given in the device datasheet may not be exceeded even for short period of time.
- The output spectrum is Multi Mode (MM). This comes from the existence of several modes in the longitudinal direction, however there is only one mode in the lateral direction.
- The device may operate up to Continuous Wave condition (CW) but its maximum average power output is attained around the typical DC conditions.
- The presently available devices are centered around 3.95 μm, 4.55 μm, 4.65 μm, 4.9 μm and 9.7 μm, devices ranging from min to max indicated value may be ordered with up to 26 weeks lead-time, please enquire.
- This value is obtained at max power conditions.
- Standard value, this specification may be tightened on request.
- Is defined as the FWHM along the fast axis.
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- Measured at the window of the HHL.
- 200 ns is optimum as it provides a good compromise between the time taken to start and stop laser operation where heat is dissipated mostly uselessly and the heating occurring during laser operation. Deviations from this pulse width will thus reduce overall emission performance.
- Using longer rise or fall time may impair the laser performance by overheating the device in conditions where it cannot emit light thus losing efficiency and output power.
- Overall dimensions, excluding 20 mm pins. Other configurations may be adapted, please enquire.
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- The typical values are obtained in nominal conditions, deviations from these conditions towards cooler environment will reduce the cooling requirement and increase them for higher temperature conditions. A heat dissipation capacity of 10 W/K is recommended to ensure the heatsink temperature does not degrade significantly the cooling capacity.
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- The device is not yet on the shelf but will be introduced Q2 2015
- Values for 20% to 80% of the amplitude. The RFT cannot be set but the shorter being the better, it suits well the laser needs.
- Values at 80% of the amplitude. The driver is capable of generating arbitrary pulse sequences required by your applications. Pulse sequence may be programmed in the driver or controlled externally by means of TTL signals.
- 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.
- Leadtime for other Central Wavelength than 2040 cm⁻¹ up to 26 weeks, please enquire.