Boston Electronics

ALPES LASERS

Off-The-Shelf Quantum Cascade IR Lasers

Readily available, off-the shelf
Multiple Wavelengths

- Continuous-wave output
- Single-Mode (DFB)
- Guaranteed output power
- Standard tuning range (wavelength dependant)
- HHL housing
- Collimated beam output

91 Boylston Street, Brookline, MA 02445 tel: (617)566-3821
www.boselec.com shop.boselec.com qcl@boselec.com

Boston Electronics and Alpes Lasers offers a series of off-the-shelf QCL lasers. The lasers are standard lasers taken from some of Alpes' most popular products. They are pre-encapsulated and respect standard performance levels:

- Continuous-wave output
- Single-Mode (DFB)
- Guaranteed output power
- Standard tuning range (wavelength dependent)
- HHL housing
- Collimated beam output

These lasers are ready for immediate shipment and can be obtained at a low price with a lead time of 2 weeks in most cases for small quantities (up to 3); for larger quantities please contact us directly!

They can also be purchased directly through our Web Store:
https://shop.boselec.com/collections/quantum-cascade-laser-qcl

Currently available OTS lasers (11/24):

Part #	**Center wave number**	**Min. power at Center Wavelength**	**Tuning Range**
CW-SM-Q-1030-15-0.9-HHL-L	1030 cm-1	> 15 mW	>3 cm-1
CW-SM-Q-1046.3-5-1-HHL-L	1046.3 cm-1	> 5 mW	>2 cm-1
CW-SM-Q-1103.5-20-0.8-HHL-L	1103.5 cm-1	> 20 mW	>3 cm-1
CW-SM-Q-1900-5-0.5-HHL-L	1900 cm-1	> 5 mW	>2 cm-1

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CW Single Mode Laser / CW-SM-Q-1030-15-0.9-HHL-L

CW Single Mode Lasers (or CW-DFB lasers) are able to emit a single wavelength at a time. They can be tuned within a range that can reach up to 10 cm-1; there exists a variety of modulation schemes which can be used for different purposes. Single Mode Lasers are mostly used for spectroscopy. To be operated in continuous-wave (CW).

Specifications for CW-SM-Q-1030-15-0.9-HHL-L	
Laser type	QCL quantum-cascade laser
Laser Far-field	TM00
Operating mode	CW continuous wave
Emission type	SM singlemode
Target frequency [cm^{-1}]	1030.0 ± 0.0
Avg optical power [mW]	15.0
Full Tuning [cm^{-1}]	0.9
Temperature Reachable Range [cm^{-1}]	3.0
Is Centered	No
Package Interface	HHL-L
Heatsink temperature max [°C]	20
Fabrication time [days]	10

Definitions	
Laser far-field	Spatial mode of the laser in the far field.
Operating mode	Operating mode of the driver electronics.
Emission type	Spectral behavior of the laser.
Target frequency [cm^{-1}]	Target single-mode emission frequency.
Avg optical power [mW]	Average optical power at target emission frequency.
Full Tuning [cm^{-1}]	Emission tuning range accessible by changing the current while keeping the temperature fixed.
Temperature Reachable Range [cm^{-1}]	Emission tuning range from threshold at lowest temperature to maximum current at maximum temperature.
Package interface	Laser packaging: either on ceramic submount, or on copper submount, or in specific housing.
Heatsink temperature [°C]	Maximum temperature of the heatsink on which the package will be fixed.

CW Single Mode Laser / CW-SM-Q-1046.3-5-1-HHL-L-V5

CW Single Mode Lasers (or CW-DFB lasers) are able to emit a single wavelength at a time. They can be tuned within a range that can reach up to 10 cm-1; there exists a variety of modulation schemes which can be used for different purposes. Single Mode Lasers are mostly used for spectroscopy. To be operated in continuous-wave (CW).

Specifications for CW-SM-Q-1046.3-5-1-HHL-L-V5	
Laser type	QCL quantum-cascade laser
Laser Far-field	TM00
Operating mode	CW continuous wave
Emission type	SM singlemode
Target frequency [cm^{-1}]	1046.3 ± 0.0
Avg optical power [mW]	5.0
Full Tuning [cm^{-1}]	1.0
Temperature Reachable Range [cm^{-1}]	2.0
Is Centered	No
Package Interface	HHL-L
Heatsink temperature max [°C]	25
Minimum Voltage [V]	7.0
Maximum Voltage [V]	14.0
Minimum Current [mA]	50.0
Maximum Current [A]	1.2
Fabrication time [days]	70

Definitions	
Laser far-field	Spatial mode of the laser in the far field.
Operating mode	Operating mode of the driver electronics.
Emission type	Spectral behavior of the laser.
Target frequency [cm^{-1}]	Target single-mode emission frequency.
Avg optical power [mW]	Average optical power at target emission frequency.
Full Tuning [cm^{-1}]	Emission tuning range accessible by changing the current while keeping the temperature fixed.
Temperature Reachable Range [cm^{-1}]	Emission tuning range from threshold at lowest temperature to maximum current at maximum temperature.
Package interface	Laser packaging: either on ceramic submount, or on copper submount, or in specific housing.
Heatsink temperature [°C]	Maximum temperature of the heatsink on which the package will be fixed.
Minimum Voltage	Low end of the potential range for the operation voltage
Maximum Voltage	High end of the potential range for the operation voltage
Minimum Current	Low end of the potential range for the operation current
Maximum Current	High end of the potential range for the operation current

CW Single Mode Laser / CW-SM-Q-1103.5-20-0.8-HHL-L

CW Single Mode Lasers (or CW-DFB lasers) are able to emit a single wavelength at a time. They can be tuned within a range that can reach up to 10 cm-1; there exists a variety of modulation schemes which can be used for different purposes. Single Mode Lasers are mostly used for spectroscopy. To be operated in continuous-wave (CW).

Specifications for CW-SM-Q-1103.5-20-0.8-HHL-L	
Laser type	QCL quantum-cascade laser
Laser Far-field	TM00
Operating mode	CW continuous wave
Emission type	SM singlemode
Target frequency [cm^{-1}]	1103.5 ± 0.0
Avg optical power [mW]	20.0
Full Tuning [cm^{-1}]	0.8
Temperature Reachable Range [cm^{-1}]	3.0
Is Centered	No
Package Interface	HHL-L
Heatsink temperature max [°C]	25
Minimum Voltage [V]	7.0
Maximum Voltage [V]	14.0
Minimum Current [mA]	50.0
Maximum Current [A]	1.2
Fabrication time [days]	56

Definitions	
Laser far-field	Spatial mode of the laser in the far field.
Operating mode	Operating mode of the driver electronics.
Emission type	Spectral behavior of the laser.
Target frequency [cm^{-1}]	Target single-mode emission frequency.
Avg optical power [mW]	Average optical power at target emission frequency.
Full Tuning [cm^{-1}]	Emission tuning range accessible by changing the current while keeping the temperature fixed.
Temperature Reachable Range [cm^{-1}]	Emission tuning range from threshold at lowest temperature to maximum current at maximum temperature.
Package interface	Laser packaging: either on ceramic submount, or on copper submount, or in specific housing.
Heatsink temperature [°C]	Maximum temperature of the heatsink on which the package will be fixed.
Minimum Voltage	Low end of the potential range for the operation voltage
Maximum Voltage	High end of the potential range for the operation voltage
Minimum Current	Low end of the potential range for the operation current
Maximum Current	High end of the potential range for the operation current

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CW Single Mode Laser / CW-SM-Q-1900-5-0.5-HHL-L-V4

CW Single Mode Lasers (or CW-DFB lasers) are able to emit a single wavelength at a time. They can be tuned within a range that can reach up to 10 cm-1; there exists a variety of modulation schemes which can be used for different purposes. Single Mode Lasers are mostly used for spectroscopy. To be operated in continuous-wave (CW).

Specifications for CW-SM-Q-1900-5-0.5-HHL-L-V4	
Laser type	QCL quantum-cascade laser
Laser Far-field	TM00
Operating mode	CW continuous wave
Emission type	SM singlemode
Target frequency [cm^{-1}]	1900.0 ± 0.0
Avg optical power [mW]	5.0
Full Tuning [cm^{-1}]	0.5
Temperature Reachable Range [cm^{-1}]	2.0
Is Centered	No
Package Interface	HHL-L
Heatsink temperature max [°C]	20
Minimum Voltage [V]	7.0
Maximum Voltage [V]	14.0
Minimum Current [mA]	50.0
Maximum Current [A]	1.2
Fabrication time [days]	56

Definitions	
Laser far-field	Spatial mode of the laser in the far field.
Operating mode	Operating mode of the driver electronics.
Emission type	Spectral behavior of the laser.
Target frequency [cm^{-1}]	Target single-mode emission frequency.
Avg optical power [mW]	Average optical power at target emission frequency.
Full Tuning [cm^{-1}]	Emission tuning range accessible by changing the current while keeping the temperature fixed.
Temperature Reachable Range [cm^{-1}]	Emission tuning range from threshold at lowest temperature to maximum current at maximum temperature.
Package interface	Laser packaging: either on ceramic submount, or on copper submount, or in specific housing.
Heatsink temperature [°C]	Maximum temperature of the heatsink on which the package will be fixed.
Minimum Voltage	Low end of the potential range for the operation voltage
Maximum Voltage	High end of the potential range for the operation voltage
Minimum Current	Low end of the potential range for the operation current
Maximum Current	High end of the potential range for the operation current

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Boston Electronics are exclusive North American Technical Sales Agents for Tunable Infrared Quantum Cascade Lasers from Alpes Lasers SA of Switzerland. Alpes Lasers was the first QCL company in the world and offers a variety of QCLs which differ in semiconductor architecture and intended use. This sheet is intended to help you understand the available options and make your choice quicker and easier.

Spectroscopy Grade, Tunable	DFBs	Extremely narrow linewidths tune over a narrow spectral range with high resolution (usually < 1 cm^{-1}) with milliwatts of power for Beer's Law measurements.
	Extended tuning range DFBs	-XT and -ET series devices with embedded chip features to allow rapid tuning over > 5 cm^{-1} or wider - tuning (to >2% of center wavelength)
	External Cavities	Extended tuning up to 300 cm^{-1} with linewidths and of 1 cm^{-1} and pulsed operation at mW average power levels
	Frequency Combs	Simultaneous measurement of high-resolution spectra over > 50 cm^{-1} enabled by this concept
Compact IR Sources at arbitrary wavelengths	Fabry Perots	Emission bands (gain profiles) from 50 to > 300 cm^{-1}. Power levels from 10s of mW to >1.5W average or >20W peak. Applications include chips for external cavities, IR communications and IRCM.

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