

## Single Mode Laser Module 14-pin Butterfly

The Lumics single mode laser module contains an optimized GaAs substrate-based quantum well high-power laser diode. It has been designed for customer specific applications and is available with special FBG's and fibers. The extremely stringent reliability requirements are achieved through our patent pending innovative technology. This includes careful design, exactly defined manufacturing and extensive testing. The qualification contains a set of optoelectronic, thermal and mechanical tests. Each laser diode module is individually serialized for traceability and is shipped with a specified set of test data.

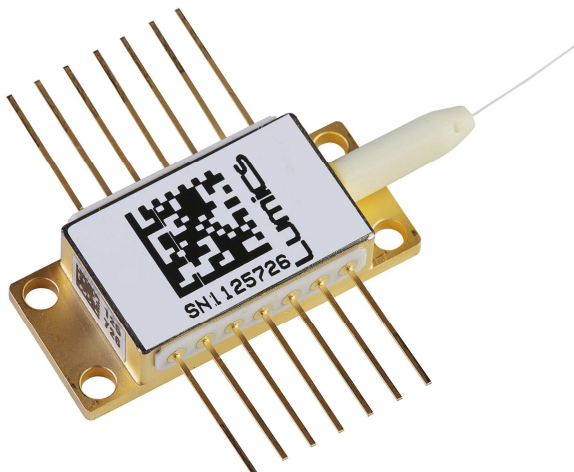
Applications include sensor applications, analytical instruments, pumping and seeding, and printing.

### FEATURES & FUNCTIONS

- Single mode pigtail
- Cooled 14pin package with monitor PD and thermistor
- Telcordia compliant package
- RoHS compliant
- All laser welded
- Field proven reliability
- Hermetic sealing (except of PM fiber)

### OPTIONS

- FBG-options
- Low rise <1 ns
- Narrow and ultranarrow linewidth
- Low induction package
- Connector incl. 900µm protection tube



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# Lumics

**We manufacture diode lasers.**

## Optical and Electrical Characteristics

		Output power $P_{op}$ – Operating Current $I_{op}$ [A] / Operating Voltage $V_{op}$ [V]	
Peak Wavelength [nm]	Spectral width FWHM [nm]	CW operation	Pulse operation ( $< 500\text{ns}$ / duty cycle $< 5\%$ )
760 $\pm$ 5	$< 2$ (0.08 with FBG)	200 mW – 350 mA / 1.95 V	400 mW – 550 mA
786 $\pm$ 5	$< 2$ (0.08 with FBG)	250 mW – 400 mA / 1.95V	550 mW – 750 mA
808 $\pm$ 5	$< 2$ (0.08 with FBG)	250 mW – 400 mA / 2.05V	550 mW – 750 mA
830 $\pm$ 5	$< 2$ (0.08 with FBG)	130 mW – 220 mA / 2.2V	250 mW – 500 mA
850 $\pm$ 7	$< 2$ (0.08 with FBG)	200 mW – 350 mA / 1.9V	550 mW – 750 mA
910 $\pm$ 5	$< 2$ (0.08 with FBG)	300 mW – 650 mA / 1.7V	1000 mW – 1700 mA
975 $\pm$ 5	$< 2$ (0.08 with FBG)	500 mW – 770 mA / 1.75V	1200 mW – 2000 mA
1030 $\pm$ 5	$< 2$ (0.08 with FBG)	300 mW – 600 mA / 1.65V	1000 mW – 1700 mA
1064 $\pm$ 5	$< 2$ (0.08 with FBG)	450 mW – 760 mA / 1.65V	1200 mW – 2000 mA
1080 $\pm$ 5	$< 2$ (0.2 with FBG)	300 mW – 600 mA / 1.65V	1000 mW – 1700 mA
1100 $\pm$ 5	$< 2$ (0.08 with FBG)	300 mW – 550 mA / 1.5V	600 mW – 1400 mA
1550 $\pm$ 12	$< 6$ (0.8 with FBG)	150 mW – 600 mA / 1.6V	200 mW – 1000 mA

## Fiber Specifications

Fiber Type: Single mode non-PM fiber or PM fiber

Connector Type (optional): APC ferrule (PC ferrule, SMA, FC / APC, FC / PC connector)

## Operating Conditions and Maximum Ratings

Parameter	Symbol	Min	Typical	Max	Unit
Maximum operating current	$I_{op, max}$			$I_{op} + 200$	mA
Maximum Reverse Voltage	$V_{R, max}$			2	V
Minimum Fiber Bend Radius (Short /Long Term)		15 / 30			mm
Storage Temperature	$T_s$	-40		85	$^{\circ}\text{C}$
Operating Case Temperature	$T_{op, case\ temperature}$	-20		70	$^{\circ}\text{C}$
Recommended Case Temperature	$T_{case}$	20	25	30	$^{\circ}\text{C}$
Pin Soldering Temperature for maximum 10 s	$T_{pin, soldering}$			250	$^{\circ}\text{C}$
Humidity / Non-condensing Atmosphere				85	RH%

## Notes:

- Electrical and optical characteristics are determined at 25°C. The wavelength is measured in air. The spectral profile is measured at the operating power with the fiber pigtail fully coiled with a radius of approximately 50mm.
- Absolute Maximum Ratings may be applied to the laser module for short period of time only. Exposure to maximum ratings for extended period or exposure above one or more maximum ratings may cause damage or affect the reliability of the device.
- Rise and fall times depend on driver properties. Time lower than 1 ns can be achieved with a low inductive driver version.
- Without wavelength stabilization via fiber Bragg grating (FBG) multiple peaks (side modes) around the average wavelength in a range of 1-3 nm are observed at the specified current. The full width half maximum (FWHM) of those peaks can suddenly narrow or broaden. Side mode suppression accounts the first side peaks next to the main central peak. Side peaks have a significantly lower spectral intensity than the main peak.
- With wavelength stabilization via fiber Bragg grating (FBG) a single peak is observed at the specified current. The spectral stability depends on the mechanical stress to the fiber which may change the polarization state and peak reflection value of the FBG matching the polarization state of the diode laser. Therefore, it may be necessary to fix the fiber mechanically to achieve good spectral stability.
- Lumics GmbH is fully compliant with RoHS.
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