

## LU0980S400

### Single Mode Laser Chip on Submount Up to 400 mW Operating Power



#### Description:

The Lumics single mode laser chip on submount contains an optimized GaAs/AlGaAs/InGaAs quantum well high power laser. 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 chip is individually serialized for traceability and is shipped with a specified set of test data.

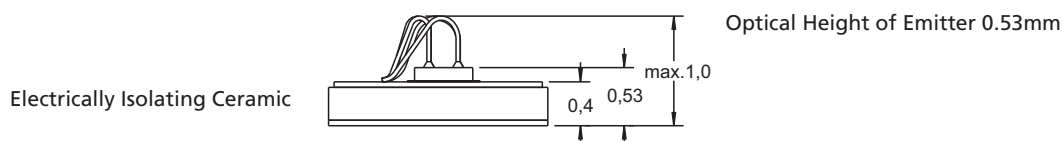
#### Features:

- Wavelengths: 975 - 985nm
- Kink-free power up to 500mW

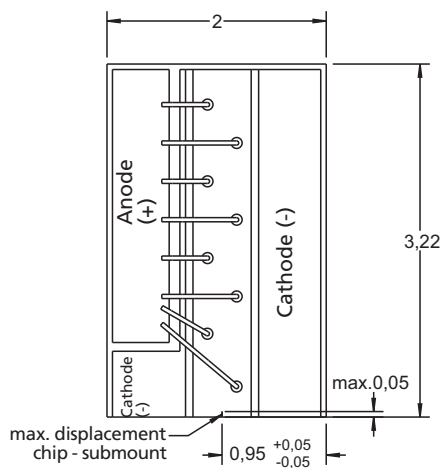
#### Benefits:

- Proven Reliability for High Power Operation
- Designed for uncooled operation with FBG at 977nm from 0°C to 70°C
- Telcordia GR-468-CORE

### Module Drawing (Dimensions in mm)



metallisation Au (5-6)  $\mu$ m  
metal layout on top side (see drawing)



- Anode and cathode isolated from bottom metallization
- Top and bottom metallization >0.9 $\mu$ m Au plating for wire bonding and soldering

**We manufacture diode lasers.**

## Characteristics (Top = 25°C)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Threshold Current		I <sub>th</sub>		65	80	mA
Characteristic Temp.		T <sub>0</sub>		110		K
Forward Voltage	at I <sub>op</sub> , Top	V <sub>op</sub>		1.5	1.7	V
Slope Efficiency	at I <sub>op</sub> , Top	η <sub>diff</sub>		0.93		W / A
Peak Wavelength	at I <sub>op</sub> , Top	λ <sub>peak</sub>	975		985	nm
Spectral Width	at I <sub>op</sub> , Top	FWHM		0.3		nm
Electrical Field Vector Orientation	in expitaxial plane			TE		
Polarisation Extinction Ratio		PER		20		dB
Lateral Farfield (FWHM)	at I <sub>op</sub> , Top	Δ⊙ <sub>  </sub>	6	8	10	deg
Vertical Farfield (FWHM)	at I <sub>op</sub> , Top	Δ⊙ <sub>⊥</sub>		25	33	deg
AR Reflectivity		r <sub>f</sub>		0.2		%
HR Reflectivity		r <sub>r</sub>		95		%
Spectral Shift with Current		λ <sub>I</sub> Shift		0.01		nm / mA
Spectral Shift with Temp.		λ <sub>T</sub> Shift		0.3		nm / K

## Operating Parameters

Product Code	Operating Power (1) P <sub>op</sub> [mW]	Max. Operating Current I <sub>op</sub> [mA] BOL EOL	Min. Kink free Power (2) P <sub>k</sub> [mW]
LU0980S400	400	510 560	500

Note:

- (1) Operating current (power) is the maximum current (power) where the slope efficiency does not decrease by more than 20% from average between 1.8x - 4.5x threshold to 110% of the maximum rated output power.
- (2) Kink-free is defined as absolute value of  $I \cdot dI/dI - \langle dI/dI \rangle \cdot I < 0.2$ , where  $\langle dI/dI \rangle$  is the average slope efficiency below kink.
- (3) Life time (FIT value) data are available on request. They are identical to the data given for the Lu980S330 chip in the qualification report

## Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Forward Current	I <sub>F</sub> , max		700	mA
Reverse Voltage	V <sub>R</sub> , max		2	V
Operating Temp.	T <sub>op</sub>	-10	70	°C
Storage Temp.	T <sub>max</sub>	-10	85	°C
Processing Temp.	T <sub>S</sub> , max		260	°C
Submount, max. 10 sec.				

Note:

- (1) Absolute maximum ratings may be applied to the laser module for short period of time only.  
Exposure to maximum ratings for extended period of time or exposure above one or more max ratings may cause damage or affect the reliability of the device.
- (2) LD reliability is a function of the operating temperature and current
- (3) Storage and operation in non condensing environment only  
such that the environmental temperature is below the dew point

## User Safety



**We manufacture diode lasers.**