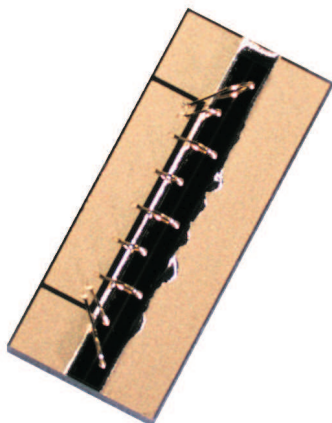


## LU0915S500 Single Mode Laser Chip on Submount Up to 500 mW Operating Power



### 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.

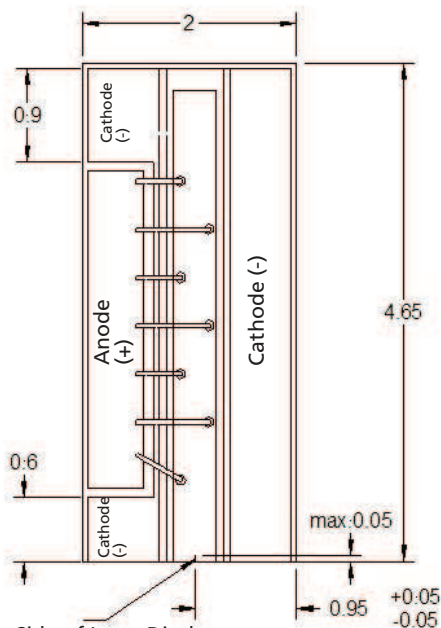
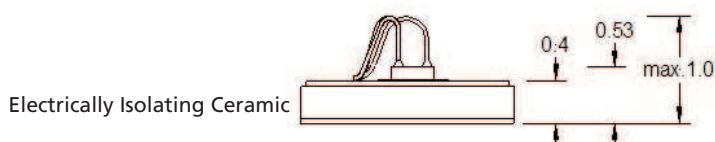
### Features:

- Wavelengths: 915nm
- Kink-free power up to 600mW

### Benefits:

- Proven Reliability for High Power Operation
- Suited for cooled and uncooled Operation

### Module Drawing (Dimensions in mm)



Emission Side of Laser Diode  
Max. Displacement of  
Laser Diode to Submount

- Anode and cathode isolated from bottom metallization
- Top and bottom metallization  $>0.9\mu\text{m}$  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>      |     | 85    |     | mA      |
| Characteristic Temp.                |                                      | T <sub>0</sub>       | 110 |       |     | K       |
| Forward Voltage                     | at I <sub>op</sub> , T <sub>op</sub> | V <sub>op</sub>      |     | 1.6   | 1.7 | V       |
| Slope Efficiency                    | at I <sub>op</sub> , T <sub>op</sub> | η <sub>diff</sub>    |     | 0.94  |     | W / A   |
| Peak Wavelength                     | at I <sub>op</sub> , T <sub>op</sub> | λ <sub>peak</sub>    | 910 | 915   | 920 | nm      |
| Spectral Width                      | at I <sub>op</sub> , T <sub>op</sub> | FWHM                 |     | 0.3   |     | nm      |
| Electrical Field Vector Orientation | in epitaxial plane                   |                      |     | TE    |     |         |
| Polarisation Extinction Ratio       |                                      | PER                  | 20  |       |     | dB      |
| Lateral Farfield (FWHM)             | at I <sub>op</sub> , T <sub>op</sub> | ΔΘ <sub>  </sub>     | 6   | 8     | 10  | deg     |
| Vertical Farfield (FWHM)            | at I <sub>op</sub> , T <sub>op</sub> | ΔΘ <sub>⊥</sub>      |     | 28    | 33  | deg     |
| AR Reflectivity                     |                                      | r <sub>f</sub>       |     | 0.2   |     | %       |
| HR Reflectivity                     |                                      | r <sub>r</sub>       |     | 95    |     | %       |
| Spectral Shift with Current         |                                      | λ <sub>l</sub> Shift |     | 0.007 |     | nm / mA |
| Spectral Shift with Temp.           |                                      | λ <sub>T</sub> Shift |     | 0.3   |     | nm / K  |

## Operating Parameters

| Product Code | Operating Power (1) | Max. Operating Current I <sub>op</sub> [mA] |     | Min. Kink free Power (2) |
|--------------|---------------------|---|-----|--------------------------|
|              | Pop [mW]            | BOL   | EOL | Pk [mW]                  |
| LU0915S500   | 500                 | 630   | 680 | 600                      |

Note:

- 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.
- Kink-free is defined as  $\Delta I / I < 0.2$ , where  $\Delta I / I$  is the average slope efficiency below kink.

## Absolute Maximum Ratings

| Parameter              | Symbol              | Min | Max | Unit |
|------------------------|---------------------|-----|-----|------|
| Forward Current        | I <sub>F, max</sub> |     | 900 | mA   |
| Reverse Voltage        | V <sub>R, max</sub> |     | 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, max</sub> |     | 260 | °C   |
| Submount, max. 10 sec. |                     |     |     |      |

Note:

- 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.
- LD reliability is a function of the operating temperature and current
- Storage and operation in non condensing environment only such that the environmental temperature is below the dew point

## User Safety

