



LU01010_1028S500 Seed Laser Chip on Submount Up to 500 mW Operating Power



Description:

The Lumics LU1010S500 and 1028S500 laser chip on submount contains an optimized GaAs/AlGaAs/InGaAs quantum well high power laser. It has been specifically designed for applications in seeding, analytics and sensing. The extremely stringent reliability requirements are achieved through our patent pending innovative technology. This includes careful design, exactly defined manufacturing which includes Lumics proprietary facet passivation 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.

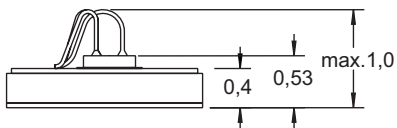
Features:

- Wavelengths: 1010,1028nm
- Kink-free power up to 900mW
- rise time <1ns
- single mode optimised for fiber coupling (taper free)
- 1.5W peak power at <500ns puls d.c. <5%

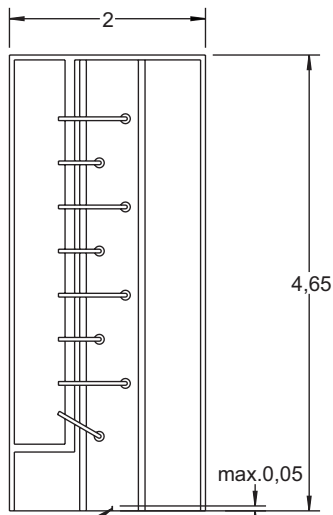
Benefits:

- Proven Reliability for High Power Operation
- Suited for cooled and uncooled Operation
- MTTF>100.000h

Module Drawing (Dimensions in mm)



metalisation Au (5-6) μm
metal layout on top side (see drawing)



max. displacement
chip - submount $\rightarrow 0,95^{+0,05}_{-0,05}$

Customized versions with other submount sizes, operation power levels and wavelengths are available on request. **Your ideas are welcome.**

Characteristics (Top = 25°C)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Threshold Current		I _{th}		60	70	mA
Characteristic Temp.		T ₀	150			K
Forward Voltage	at I _{op} , Top	V _{op}		1.45	1.5	V
Slope Efficiency	at I _{op} , Top	η _{diff}	0.9	0.95		W / A
Peak Wavelength	at I _{op} , Top	λ _{peak}	1005	1010	1015	nm
Peak Wavelength	at I _{op} , Top	λ _{peak}	1023	1028	1033	nm
Spectral Width (3)	at I _{op} , Top	λ _{rms}		2.5	3.5	nm
Lateral Farfield	at I _{op} , Top	ΔΘ	6	8	10	deg
Vertical Farfield	at I _{op} , Top	ΔΘ _⊥	26	28	33	deg
AR Reflectivity		r _f		0.5		%
HR Reflectivity		r _r		95		%
Spectral Shift with Current		λ _l Shift		0.006		nm / mA

Note:

- (1) Kink-free is defined as $|dI/dI - \langle dI/dI \rangle| < 0.2$, where $\langle dI/dI \rangle$ is the average slope efficiency below kink.
- (2) Operating current (power) is the maximum current (power) where the slope efficiency does not decrease by more than 20% from average between 1.8x - 3.0x threshold to 120% of the maximum rated output power.
- (3) λ_{rms} is defined as 95% power is in the central peak defined as ± rms

Operating Parameters (2)

Product Code	Operating Power	Max. Operating Current I _{op} [mA]		Min. Kink free Power
	P _{op} [mW]	BOL	EOL	P _k [mW]
LU1010_10285500	500	600	650	900

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Forward Current	I _{F, max}		900	mA
Reverse Voltage	V _{R, max}		2	V
Operating Temp.*	T _{op}	-10	50	°C
Storage Temp.	T _{max}	-40	85	°C
Processing Temp.	T _{S, max}		260	°C
Submount, max. 10 sec.				

*) LD reliability is a function of the operating temperature and the current
Extended wavelength range from 900nm to 1100nm on request.

Note:

Absolute maximum ratings may be applied to the laser module for short periods of time only. Exposure to maximum ratings for extended periods of time or exposure above one or more max ratings may cause damage or affect the reliability of the device.

User Safety

