

LU0793D and LU0808D

LuOcean™ Mini Diode Laser

Up to 9W output power @ 793nm or 808nm in 105μm fiber



Description:

The Lumics Medical Diode Laser series offers OEM integrators an excellent product to manufacture state-of-the-art end user laser systems. The easy integration and safe use of these medical laser components give the chance to be cost-efficient in development and manufacturing. Equipped with several accessories and features the Lumics diode lasers comply with CE & ROHS requirements. Lumics warrants highest reliability single emitter technology through careful design, extensive burn-in, long life-time & thermal testing.

Features & Functions:

- 6W or 9W optical power
- 793nm or 808nm wavelength
- 105μm NA 0.22 fiber
- Temperature sensor

Options:

- Exchangeable window
- Red or green pilot laser
- Fiber sensor
- Monitor diode
- VBG

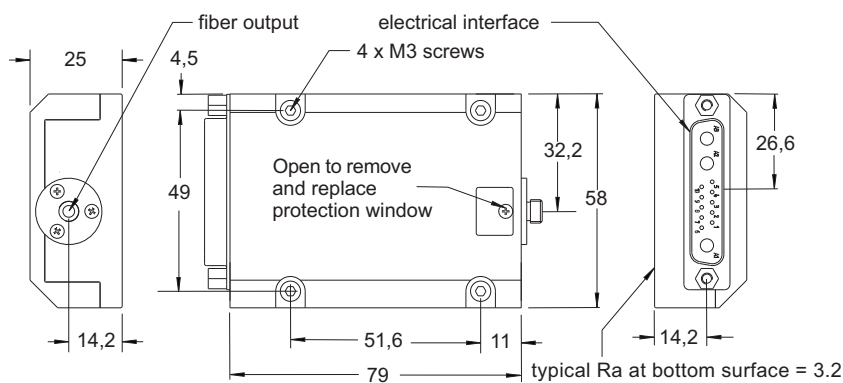
Benefits:

- Ultra long lifetime
- Passive cooling
- Sealed housing
- Small foot print
- SMA connector

Applications:

- Dental
- Dermatology
- Therapeutic
- Veterinary

Module Drawing (Dimensions in mm)



Pin Connections

Pin	Configuration
1	Fiber sensor signal 1 *
2	Fiber sensor signal 2 *
3	Fiber sensor / monitor diode cathode 12V
4	Fiber sensor (GND1) LM35 (GND1) Monitor diode (GND1)
5	LM35 signal or NTC or PT100/1000
6	Monitor diode signal 2 *
7	Monitor diode signal 1 *
8	Pilot laser (GND2)
9	LM35 5V or NTC or PT100/1000
10	Pilot laser 3.3V (red) * or <200mA (green) *

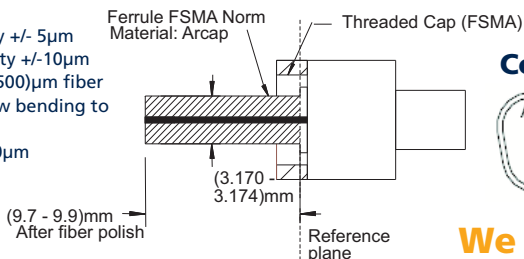
A1	Laser diode (+)
A2	Laser diode common cathode (-)
A3	N.C.

* = optional

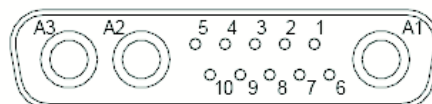
Fiber Connector

Lumics laser diode fiber coupling technology ensures loss into the fiber cladding of <1.5% upon compliance with the following strict recommendations:

- (1) Use a fiber microscope to check for dust free fiber end facet and fiber centricity. or with a quick check by turning the SMA fiber ferrule between 0°-180° at minimal possible output.
- (2) Fiber connector to the Lumics laser module without mode stripper can sink a maximum of 4W (1.4% loss from 280W).
- (3) Use transparent and high temperature fiber epoxy (e.g. Epotek ND353) to ensure that fiber is firmly fixed to the connector at 70°C
- (4) 105μm fiber core max. fiber to connector excentricity +/- 5μm
>105μm fiber core max. fiber to connector excentricity +/- 10μm
- (5) Use large cladding diameter as (105/600)μm or (200/500)μm fiber for a free standing fiber to enhance stability and low bending to maintain centricity
- (6) For <105μm fiber core: a large cladding 105μm/600μm not free standing fiber can be used



Connector



We manufacture diode lasers.

Electrical and Optical Characteristics

Typical laser specifications at 25°C

Parameter	Type / Conditions	793 nm 6 W in 105 µm	793 nm 9 W in 105 µm	808 nm 6 W in 105 µm	808 nm 9 W in 105 µm	Unit
Optical Characteristics						
Output power	P _{op} (c.w.)	6	9	6	9	W
Peak wavelength (at P _{op})	λ _{peak}	793 ±5	793 ±5	808 ±5	808 ±5	nm
Spectral width (FWHM)	λ _{FWHM}	6	6	6	6	nm
Conversion efficiency		38	38	38	38	%
Spectral shift with temp.	λ _{T Shift}	0.3	0.3	0.3	0.3	nm / K
Fiber core diameter		105	105	105	105	µm
Fiber centricity		<10	<10	<10	<10	µm
Numerical aperture	NA	0.22	0.22	0.22	0.22	
Fiber connector type		SMA905	SMA905	SMA905	SMA905	
Electrical Characteristics						
Forward current at P _{op}	I _{op}	3.8	3.8	3.8	3.8	A
Absolute max. forward current	I _{max}	4.0	4.0	4.0	4.0	A
Forward voltage	V _{op}	3.7	5.5	3.7	5.5	V
Threshold current	I _{th}	0.95	0.95	0.95	0.95	A
Red Pilot Beam (Option)						
Pilot beam output power		1	1	1	1	mW
Pilot beam wavelength		635 ±10	635 ±10	635 ±10	635 ±10	nm
Pilot beam operating voltage		3 ±0.3	3 ±0.3	3 ±0.3	3 ±0.3	V
Pilot beam operating current		45 ±10	45 ±10	45 ±10	45 ±10	mA
Green Pilot Beam (Option)						
Pilot beam output power		>5	>5	>5	>5	mW
Pilot beam wavelength		520 ±10	520 ±10	520 ±10	520 ±10	nm
Pilot beam operating voltage		7.0	7.0	7.0	7.0	V
Pilot beam operating current		200	200	200	200	mA
Sensors						
Power monitor operating voltage (Option)		12	12	12	12	V
Power monitor signal voltage		0 - 4	0 - 4	0 - 4	0 - 4	V
Fiber detection sensor operating voltage (Option)		12	12	12	12	V
Fiber detection sensor signal voltage		12 / 0	12 / 0	12 / 0	12 / 0	V
Temperature sensor		LM35 or NTC or PT100/1000				

Remarks:

- (1) Proper function of fiber sensor requires FSMA ferrules made of steel oder ARCAP. Do not use copper made ferrules.
- (2) Required flatness of customer heat sink 0.05mm over 200mm.
- (3) VBG (Volume Bragg Grating) ensures that 95% of optical output power is within +/-0.5 nm of specified wavelength.

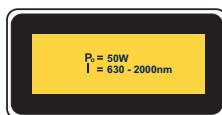
Important Note

Read and carefully follow operating manual instructions. Especially - whenever power supply is switched on or off, always disconnect from laser module. See manual for details. Uncontrolled on / off switching may cause spikes and result in fatal device damage.

General Parameters / Accessories

Parameter	Symbol	Min	Typ	Max	Unit
Storage temperature	T_s	0		50	°C
Operation temperature	T_{op}	15		35	°C
Humidity / non-condensing atmosphere				90	%
Recommended thermal heatsink resistance				0.1	K / W
Weight			ca. 200		g
Compliance			CE, ROHS		
Standard Accessories					
Interface connector			13W3 Female		
Mounting screws / metric			4 x M3 x 10		
Further Options					
2nd monitor diode / 2nd fiber detection sensor (Please ask for quotation if needed)					
Optical fiber patchcord with SMA connectors					
Laser diode drivers on request					

User Safety



We manufacture diode lasers.