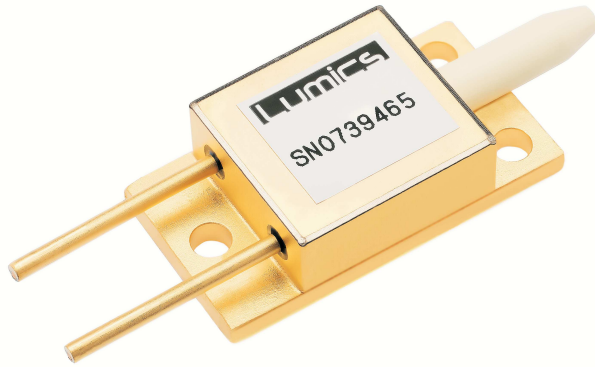




Multi Mode Laser Module

**T0220 Package up to 12W @ 785nm - 1064nm
custom wavelengths on request**



Description:

The Lumics **T0220** multi mode laser modules offer a very small fiber pigtailed and hermetically sealed package for applications in materials processing, illumination, medicine and sensing.

Very high life time is achieved due to the Lumics proprietary laser diode facet passivation technology and due to extensive burn-in testing.

Features & Functions:

- Wavelength 785nm to 1064nm
- 50 - 200 μm core NA 0.15 or 0.22 fiber
- Floating anode / cathode
- Direct modulation up to 20 MHz
- Rise / Fall time <20ns

Options:

- Connector incl.
- 900 μm protective tube
- Flat 0° FC/PC ferrule
- Fiber ferrule fixing nut

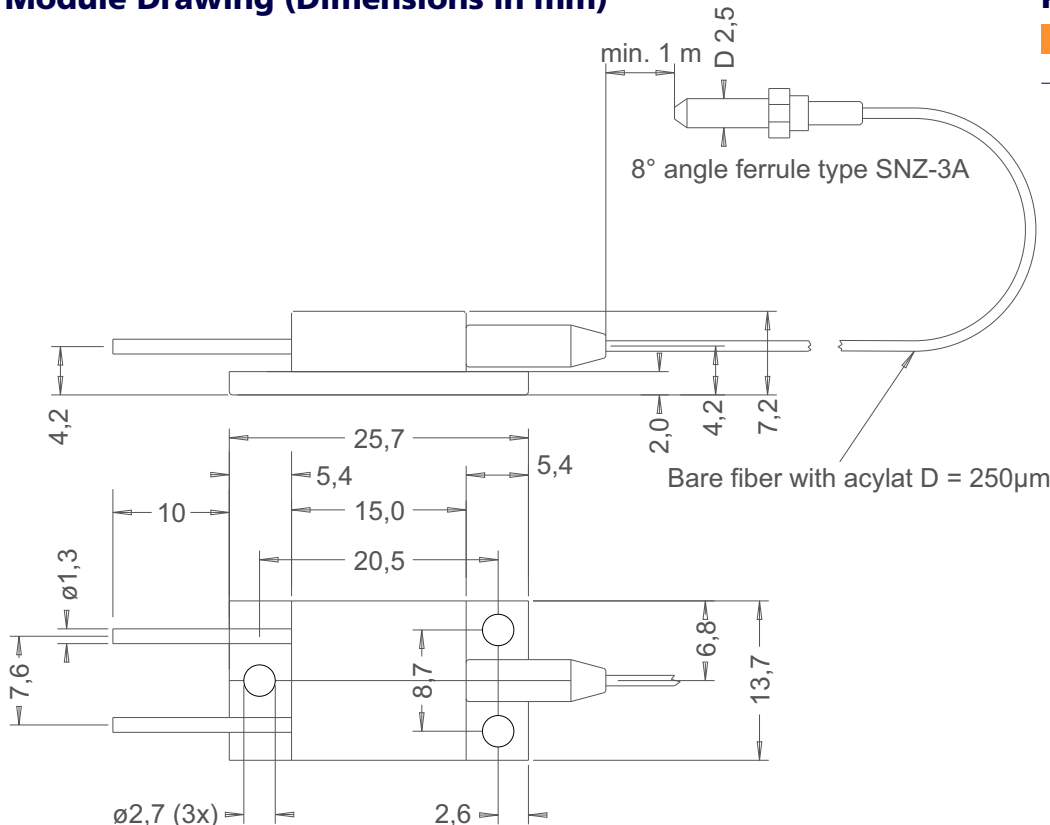
Benefits:

- Ultra long lifetime
- Burn-in tested
- Hermetic sealing
- Cost-effective
- Robust design
- Easy to mount

Applications:

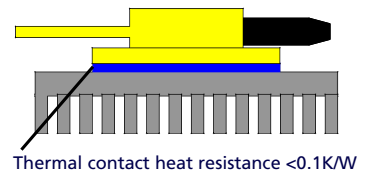
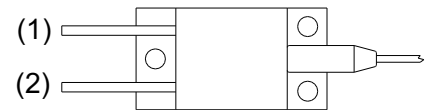
- Pumping
- Materials processing
- Illumination
- Medical laser treatment
- Sensing

Module Drawing (Dimensions in mm)



Pin Connections

Pin	Function	Pin	Function
1	LD Anode (+)	2	LD Cathode (-)



We manufacture diode lasers.

Electrical and Optical Characteristics / Typical Laser Specifications at 25° C *

Wavelength at Pop [nm]	Fiber Core Diameter (mm) / NA	Maximum Power Pop (W)	Operating Current [A] / Voltage [V] at Pop
785 +-5	105 / 0.15 or 0.22	4	4.7 / 1.8
808 +-5	105 / 0.15 or 0.22	4	4.7 / 1.8
808 +-5	200 / 0.22	7	8.5 / 1.8
940 & 975 +-10	105 / 0.15 or 0.22	9	11.5 / 1.6
940 & 975 +-10	200 / 0.22	12	15 / 1.6
990 +-10	50 / 0.22	3.7	5.8 / 1.5
1030 +-10	50 / 0.22	3	4.5 / 1.5
1064 +-10	105 / 0.15 or 0.22	7	9.7 / 1.5
1064 +-10	200 / 0.22	10	13.5 / 1.4

Note (*) at TO220 base plate temperature of 25°C

Parameter	Symbol / Conditions	Min	Typ	Max	Unit
Other General Features					
Conversion Efficiency		depending 50% (7/8xxnm), 60% (9/10xxnm),			%
Spectral Shift with Temperature <1100nm	λ_T Shift		0.3		nm / K
Heat Resistance LD to bottom of base plate	R_H		3.5		k/W
Pin Soldering Temperature max. 10sec.	T_{pin} , soldering			250	°C
LD Reverse Voltage				2	V
Fiber cladding for 105µm core			125/250		µm
Fiber cladding for 200µm core			220/250		µm
Bending Radius Recommendation	Short Term / Long Term		>15 / >50		mm

Note:

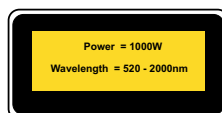
- (1) For pulsed operation max peak power can be 1.2xPop if pulse time is <5µsec and average power is lower than Pop (c.w.)
- (2) Keep the heat sink at <= 35°. The heat sink should have a flatness of better than 0.02mm and a roughness grade not less than N7 (i.e. Ra=1.6µm)
- (3) A conductive material between TO-220 laser diode module and the module base is highly recommended. The thermally conductive material should have a sufficient thickness and elasticity to compensate for the non-planarity between the module base and the heat sink surface
- (4) Electrostatic discharge (ESD) can lead to latent or catastrophic failure of a multimode laser diode module
- (5) The power supply should have a transient suppression and an over-voltage protection. Before connecting the module to the power supply and during Power-off the power supply output should be short circuited
- (6) By no means should the fiber be touched by hot solder because this can lead to lower output performance and reliability. During the soldering process the fiber temperature should always be below 85°C
- (7) The limits for the bending radius prevent mechanical cracks. Mechanical limit to prevent cracks in long term is typically 150x cladding diameter and in short term typically 60x cladding diameter. The bending radius limit for the optical power loss is higher. Please take into account a possible output power reduction of up to 2% below a bending radius of 500(1000) x core diameter for NA 0.22(0.15).
- (8) The intensity profile at the fiber end facet and the far field ex fiber may vary between a gaussian shape and a donut shape.
- (9) 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
- (10) Improper pin bending can crack the glass sealing between pin and the package and hermeticity of the package may be lost and may damage the laser diode by humidity level below the dew point inside the package. If pin bending is necessary pins must be fixed mechanically over a short length in the original flat position such that the bending force is

General Parameters / Accessories

Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	T_S	-30		80	°C
Operating TO220 base plate and ambient temperature, c.w.-operation **	T_{op} c.w.	-10		70	°C
Humidity / Non-condensing Atmosphere				90	%
Compliance			CE, ROHS		
Further Options (Please ask for quotation if needed)					
Fiber connectors (ST or FC/PC or FSMA), OEM laser diode driver and temperature controller					

** we recommend to operate the laser above dew point. Below dew point water condensation on the fiber exit facet may cause damage there when laser is switched on.

User Safety



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. This product is not certified by with IEC 60825-1 or 21CFR1040.10/ 21CFR1040.11 and and must comply with the applicable regulations by the Purchaser if sold as laser product.

We manufacture diode lasers.