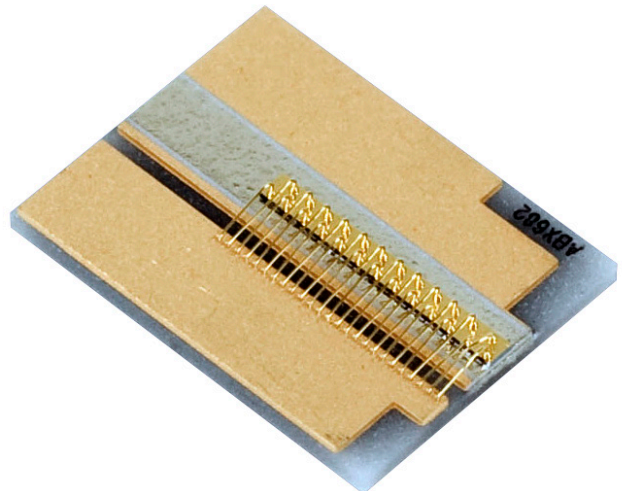


Diode Lasers, High Brightness 10 W, 9xx nm

63xx Series



The 63xx series diode lasers represent an advancement in high continuous-wave (CW) optical power and ultrahigh brightness with unsurpassed reliability. The small emitting aperture, combined with low beam divergence, makes the 63xx series the highest brightness family of CW diode lasers available in the industry.

The 63xx series consists of partially coherent broad-area emitters, with relatively uniform emission over the emitting aperture. Operation is multilongitudinal mode, with a spectral envelope width of approximately 3.5 nm full width, half maximum (FWHM). The far field beam divergence in the plane perpendicular to the P/N junction is nearly Gaussian, while the lateral beam profile exhibits a multiple-transverse mode pattern typical of broad-area emitters. The 63xx series offers up to 10 W of output from a 100 μm aperture.

The high efficiency of the quantum well structure, combined with low thermal resistance epi-down chip mounting, provides minimum junction temperature at high optical power. Low junction temperature and low thermal resistance packages extend the lifetime and increase reliability.

These diodes are mounted on a low thermal-resistance, electrically isolated submount, allowing for easy integration into user systems.

Key Features

- 100 μm emitter width
- High-efficiency, MOCVD quantum well design
- High reliability

Applications

- Fiber laser pumping
- Medical/ophthalmic applications
- Beacons/illumination

Dimensions Diagram

(Specifications in inches [mm] unless otherwise noted.)

Standard Tolerances

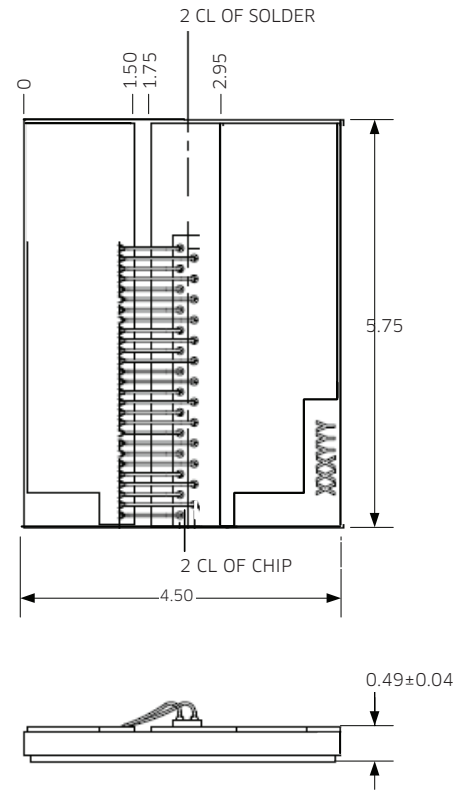
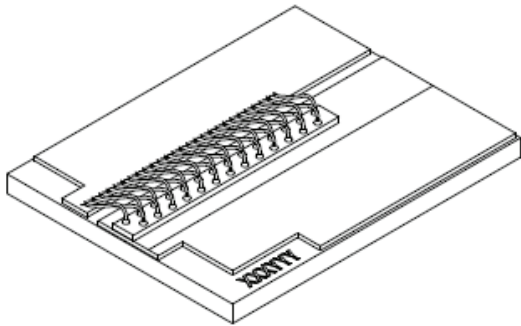
inches: x.xx = ± 0.02

x.xxx = ± 0.010

mm: x.x = ± 0.5

x.xx = ± 0.25

Package Style: LX Submount

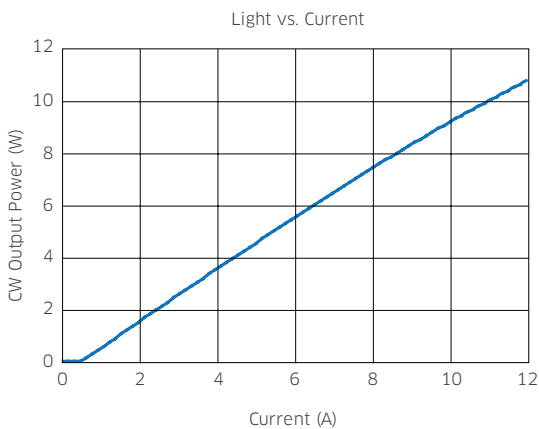


Electro-optical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Laser Characteristics					
CW output power	P_o	—	—	10	W
Center wavelength and tolerance	λ_c	945 (± 10) 981 (± 10)	921 (± 10)		nm
Spectral width	$\Delta\lambda$	—	3.5	—	nm
Slope efficiency	$\eta_d = P_o / (I_{op} - I_{th})$	—	1	—	W/A
Conversion efficiency	$\eta = P_o / (I_{op} V_{op})$	—	55	—	%
Emitting dimensions	W x H	—	100 x 1	—	μm
FWHM beam divergence					
Parallel to junction	$\theta_{ }$	—	8	—	degrees
Perpendicular to junction	θ_{\perp}	—	27	—	degrees
Threshold current	I_{th}	—	0.55	0.8	A
Operating current	I_{op}	—	11	12	A
Operating voltage	V_{op}	—	1.8	2.3	V
Series resistance	R_s	—	0.03	—	Ω
Thermal resistance	R_{th}	—	2.5	—	$^{\circ}\text{C}/\text{W}$
Recommended case temperature	T_c	15	—	30	$^{\circ}\text{C}$
Absolute Maximum and Minimum Ratings					
Reverse voltage	V_r	—	—	2	V
Case operating temperature	T_{op}	-20	—	50	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-40	—	80	$^{\circ}\text{C}$
Lead soldering temperature	T_{is}	—	—	250 (5 sec.)	$^{\circ}\text{C}$

Note: Typical value at 25°C and 0.6 NA collection optics

Typical Optical Characteristics



Ordering Information

For more information on this or other products and their availability, please contact your local Lumentum account manager or Lumentum directly at customer.service@lumentum.com.

Sample: 63-00360

Part Number	Power	Wavelength
63-00360	10W	920 (± 10) nm
63-00361	10W	940 (± 10) nm
63-00366	10W	915 (± 10) nm

User Safety

Safety and Operating Considerations

The laser light emitted from this diode laser is invisible and may be harmful to the human eye. Avoid looking directly into the diode laser, into the collimated beam along its optical axis, or directly into the fiber when the device is in operation.

CAUTION: THE USE OF OPTICAL INSTRUMENTS WITH THIS PRODUCT WILL INCREASE EYE HAZARD.

Operating the diode laser outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the component must be employed such that the maximum peak optical power cannot be exceeded.

CW diode lasers may be damaged by excessive drive current or switching transients. When power supplies are used, the diode laser should be connected with the main power on and the output voltage at zero. The current should be increased slowly while the diode laser output power and the drive current are monitored.

Device degradation accelerates with increased temperature, and therefore careful attention to minimize the case temperature is advised. For example, life expectancy will decrease by a factor of four if the case is operated at 50°C rather than 30°C.

A proper heatsink for the diode laser on a thermal radiator will greatly enhance laser life. Firmly mount the laser on a radiator with a thermal impedance of less than 0.5°C/W for increased reliability.

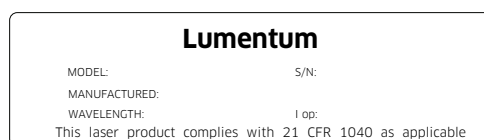
ESD PROTECTION - Electrostatic discharge is the primary cause of unexpected diode laser failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces and rigorous antistatic techniques when handling diode lasers.

Labeling

21 CFR 1040.10 Compliance

Because of the small size of these devices, each of the labels shown is attached to the individual shipping container. They are illustrated here to comply with 21 CFR 1040.10 as applicable under the Radiation Control for Health and Safety Act of 1968.

Serial Number Identification Label



Output Power Danger Labels



63xx Series



North America
Toll Free: 844 810 LITE (5483)

Outside North America
Toll Free: 800 000 LITE (5483)

China
Toll Free: 400 120 LITE (5483)

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