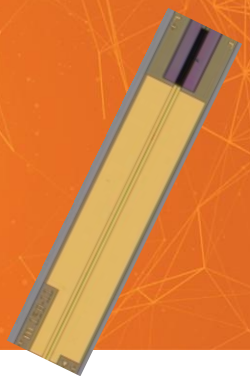
ML3302

760 nm DBR laser

ML3302 is a 760 nm Distributed Bragg Reflector single-frequency laser diode. It has a monolithic structure with separate gain and grating sections. The epitaxial structure is grown on Gallium Arsenide (GaAs) substrate, and the vertical and horizontal waveguide designs have been optimized for fundamental mode emission over a wide operating range. The Bragg grating locks the emission to a single frequency. Laser design has been optimized for narrow emission linewidth.



This specification is valid for chip-on-submount. For other packaging options, such as TO-can, C-mount and butterfly, please send your inquiry to sales@modulight.com.

Recommended Operating Conditions

Conditions under which the parameters listed in "Opto-electrical characteristics" will be met.

Parameter	Symbol	Min	Max	Unit
Submount temperature	T_c	15	30	°C
Operating Current	I_{OP}	-	250	mA

Electro-Optical Characteristics (BOL)

Unless otherwise indicated, the parameters given in the table below are valid for the whole operating temperature range.

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Peak Wavelength	λ_P	759.6	760.1	760.6	nm	T_c = 25°C
Laser Linewidth (FWHM)	$\Delta\lambda$	-	400	800	kHz	Range 100-250 mA, T_c = 25°C
Side Mode Suppression Ratio	SMSR	40	45	-	dB	
Wavelength temperature coefficient	$d\lambda/dT$	-	0.05	-	nm/°C	
Wavelength current coefficient	$d\lambda/dI$	-	0.002	-	nm/mA	
Threshold Current	I_{TH}	-	45	70	mA	
Optical output power@max Iop	P_{OP}	130	150	-	mW	I_{OP}= 250 mA
Operating voltage@max Iop	V_{OP}	-	2.0	2.2	V	I_{OP}= 250 mA
Slope efficiency	η	-	0.8	-	mW/mA	
Series resistance	R_S	-	1.9	-	Ohm	
Horizontal/parallel beam divergence	θ_H	-	6	-	°	FWHM
Vertical/perpendicular beam divergence	θ_V	-	27	-	°	FWHM
Mode structure	TEM(00)					
Laser polarization	TM					

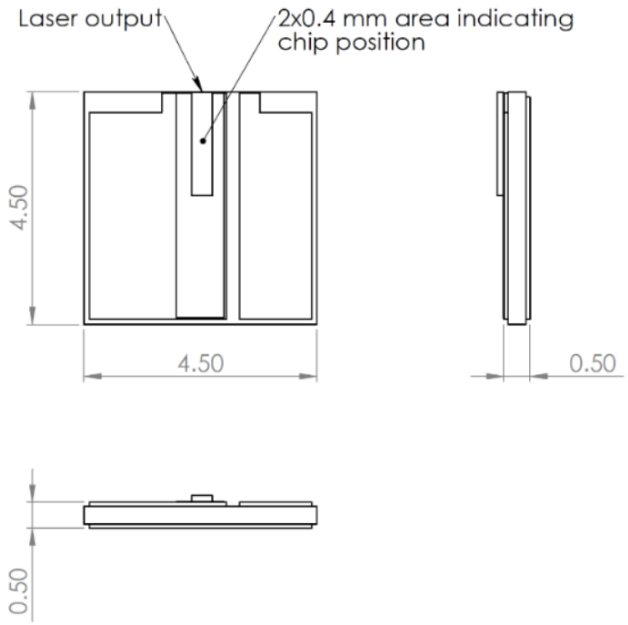
2024-02-15

Absolute Maximum Ratings

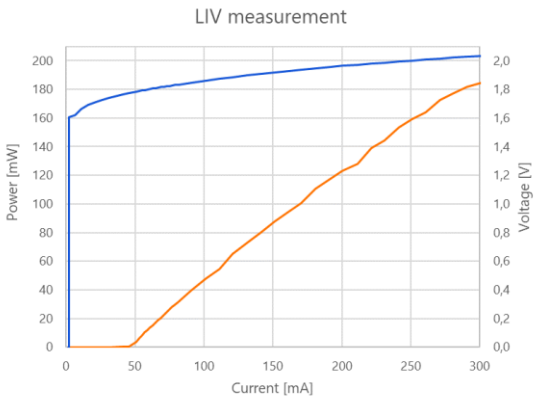
Values should not be exceeded in any conditions to avoid permanent device damage.

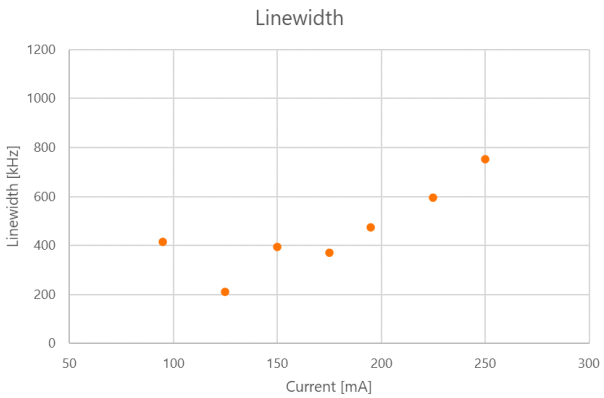
Parameter	Symbol	Min	Max	Unit
Submount temperature	T_C	5	45	°C
Storage temperature	T_S	5	60	°C
LD forward current	I_{LD}	-	400	mA
LD reverse voltage	V_{RLD}	-	0	V

Mechanical Specification



Typical Performance





2024-02-15

Safety Information

- ❑ Laser light may permanently damage the human eye. These lasers should be operated only by personnel familiar with laser safety requirements.
- ❑ These Modulight products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.



Peak power and wavelength are for safety analysis only, not to present device performance.

Handling



- ❑ DBR lasers are sensitive to optical feedback, thus optical isolator may be required in order to reach the specified performance.
- ❑ Laser chips are sensitive both mechanically and electrically. Extreme care should be taken when handling the bare dies, in order to avoid any damage to laser facets and waveguide area.
- ❑ Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please ensure ESD protection prior to handling the products.
- ❑ Electrostatic discharge may cause direct or latent damage to laser diodes. During laser handling, precautions for handling electrostatically sensitive devices must be observed. Please store the product in its original package until used.
- ❑ The laser light emitted from this laser diode is invisible and potentially harmful to the human eye. Avoid eye and skin exposure to the beam, both direct and reflected.

Liability note

This document is sole property of Modulight, Inc. No part of this document may be copied without written acceptance of Modulight, Inc. All statements related to the products herein are believed to be reliable and accurate. However, the accuracy is not guaranteed, and no responsibility is assumed for any inaccuracies or omissions. Modulight, Inc. reserves the right to make changes in the specifications at any time without prior notice.

RoHS compliance

The product complies with EU RoHS 2 (Directive 2011/65/EU) and China RoHS II (Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products)

2024-02-15