

2W Peak Power 855 nm Multimode TO-56 Packaged Diode Laser **22045498**



Key Features

- 2.4 W peak power with 50% duty cycle
- TO-56 package with double cathode, low-inductance design
- 845-859 nm CWL at 1 W CW, 25°C

Lumentum is the worldwide leader in telecommunications-grade diode lasers used in the most demanding applications such as undersea, space, and high-data-rate systems. These lasers must operate with very low or even zero failure rates. Lumentum has applied their experience making and qualifying high-reliability semiconductor lasers to 8xx nm diode lasers, which have field-demonstrated high reliability.

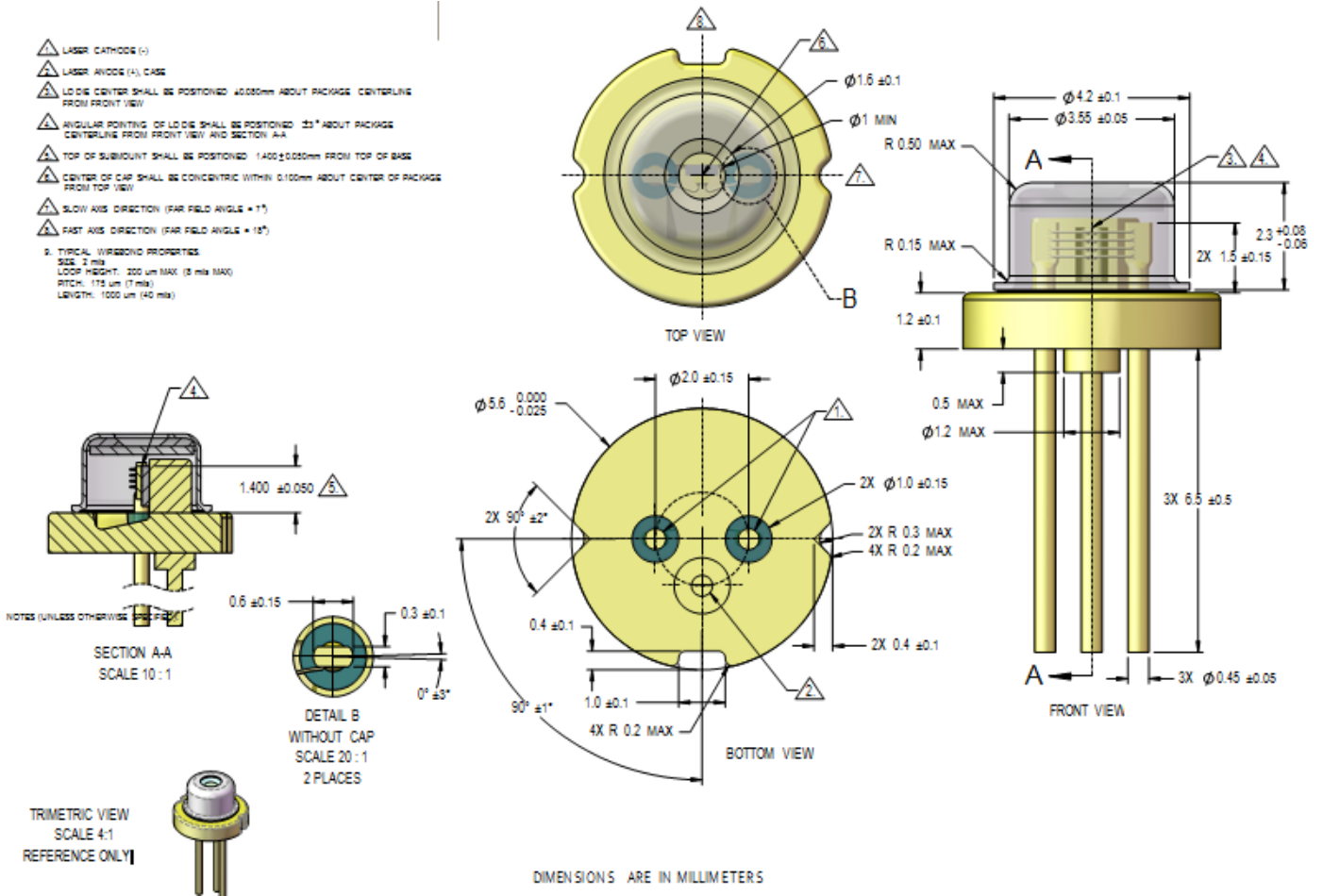


Figure 1. Mechanical Specification

Specifications

Parameter	Minimum	Typical	Maximum
Electrical¹			
Laser Peak Optical Power ²			2.4 W
Operating Voltage		1.8 V	2.0 V
Rise Time			1.0 ns
Fall Time			2.0 ns
Operating Current	1.0 A	1.2 A	1.4 A
Threshold Current		0.2 A	0.5 A
Slope Efficiency		1.1 W/A	
Package Inductance		0.9 nH	
Mechanical/Thermal			
Case Thermal Resistance		14 °C/W	
Operating Temperature Range	5°C		65°C
Operating Altitude	-300 m		2000 m
Operating Relative Humidity (non-condensing)			95% RH
Non-operating Storage Temperature	-40°C		85°C
Optical Performance			
Wavelength Shift Over Temperature		0.3 nm	
Optical Power Temperature Coefficient		-0.4 %/C	-1.0 %/C
Beam Divergence ³ – fast axis	14°	18°	21°
Beam Divergence ³ – slow axis	6°	7°	9°
Polarization Ratio	90%		
5% Wavelength at 25°C ⁴	845 nm		
95% Wavelength at 25°C ⁴			859 nm
Absolute Maximum Ratings (AMR)			
Operating Current ⁵			4.5 A
Laser Peak Optical Power ⁵			3.7 W

1. All values at 1W CW, 25°C unless otherwise noted

2. At 50% maximum duty cycle, ~10MHz

3. 25°C, 1W CW, at Beginning of Life (BOL)

4. 25°C, 1 W CW, FWHM at BOL

5. Absolute maximum ratings (AMR) are the maximum stresses that may be applied to the device for short periods of time without causing damage. Stresses in excess of the AMR may cause permanent damage. Exposure to AMR for extended periods of time or exposure to more than one AMR simultaneously may adversely affect device reliability. AMR apply to pulses longer than 100 ps.

Ordering Information

For more information on this or other products and their availability, please contact your local Lumentum account manager or Lumentum directly at 844-810-LITE (5483) in North America and 800-000-LITE (5483) worldwide or via e-mail at customer.service@lumentum.com.

Part Code	Description
22045498	2 W Peak Power 855 nm Multimode TO-56 Packaged Diode Laser

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 or into the collimated beam along its optical axis 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 using power supplies, the diode laser should be connected with the main power on and the output voltage at zero. The current should be increased slowly while monitoring the diode laser output power and the drive current.

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 heat sink 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 2°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.