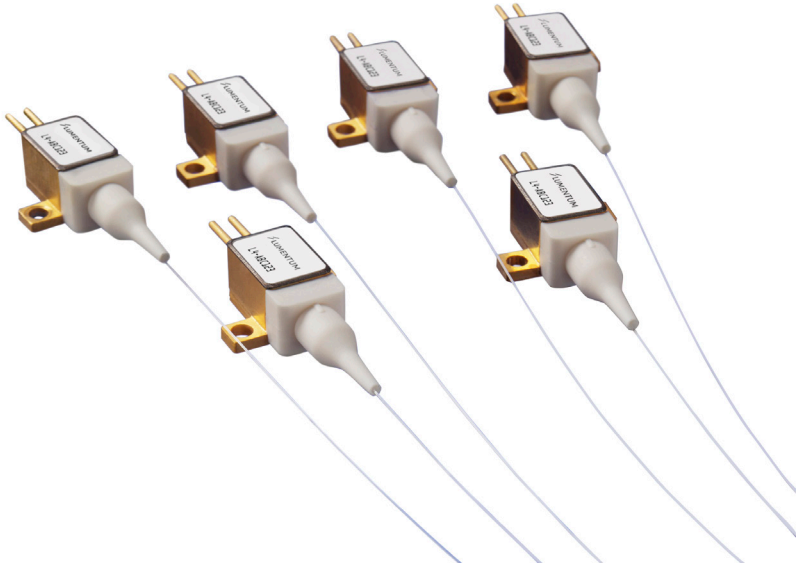
LUMENTUM

High-Power 2 W 830 nm Fiber-Coupled Diode Laser

2486-L4 Series



The new high-brightness 2486-L4 series laser diodes offer up to 2 W from a 60-µm fiber into 0.22 numerical aperture (NA)—ideal for thermal printing and other applications that require high brightness and a long life. The dramatic increase in output power, from the 60-micron fiber, also enables new technologies, such as flexography, illumination, and several material processing applications.

The 2486-L4 series is available with customer-selectable fiber length and fiber termination, including bare fiber, SMA, and ST connectors.

Key Features

- 2 W output power
- High reliability
- 60 µm aperture
- 0.22 NA
- Isolated electrical contacts

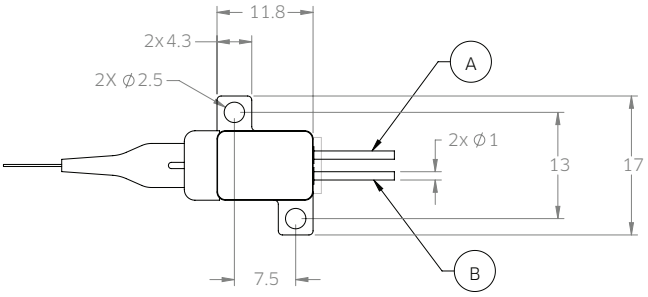
Applications

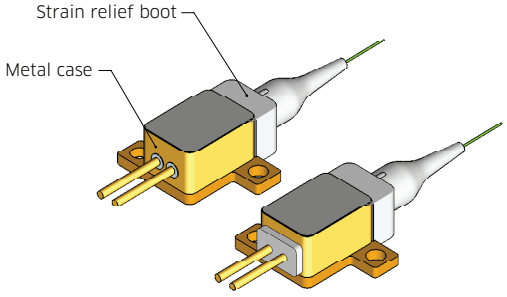
- Computer-to-plate printing
- Flexographic printing
- Illumination

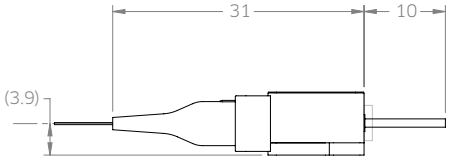
Dimensions Diagram

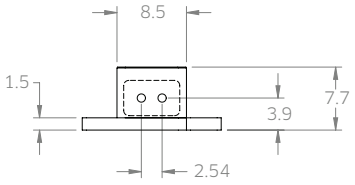
(Specifications in mm unless otherwise noted.)
Standard Tolerances

mm: x.x = ±0.5
x.xx = ±0.25









Pinout

Pin	Description
A	Laser cathode (-)
B	Laser anode (+)

Specifications for L4-2486-003 and L4-2486-005[1]

Parameter	Symbol	Minimum	Typical	Maximum
Laser Characteristics				
CW output power, 0.14 NA	P_o	1.0 W	—	—
Mean wavelength[2]	λ_p	815 nm	830 nm	845 nm
Spectral width (90% integrated power)	$\Delta\lambda$	—	2 nm	7 nm
Slope efficiency	η_D	—	0.95 W/A	—
Conversion efficiency	η	—	44%	—
Threshold current	I_{th}	—	280 mA	350 mA
Operating current (BOL)	I_{op}	—	1.4 A	2.0 A
Forward voltage	V_f	—	1.6 V	2.0V
Series resistance	R_s	—	0.07 Ω	—
Recommended case temperature	T_c	20°C	25°C	45°C
Wavelength tuning vs. temperature[3]	$\Delta\lambda/\Delta T$	—	0.3 nm/°C	—
Wavelength tuning vs. output power	$\Delta\lambda/\Delta P$	—	1.6 nm/W	—
Fiber Characteristics				
Fiber core diameter	d_c	—	60 µm	—
Fiber numerical aperture	NA	0.20	0.22	0.24
Fiber cladding	d_{cl}	—	125 µm	—
Fiber buffer	d_b	—	250 µm	—
Fiber length	l_f	0.3 m	1 m	2.5 m

1. All performance data is measured at 25°C, beginning of life (BOL).
2. Weighted average "center of mass" spectral point at 25°C at P_o
3. Change in $\Delta\lambda$ mean with case temperature over T_{op}

Specifications for L4-2486-004 and L4-2486-006[1]

Parameter	Symbol	Minimum	Typical	Maximum
Laser Characteristics				
CW output power, 0.22 NA	P_o	2.0 W	—	—
CW output power, 0.12 NA	P_o	1.3 W	—	—
Mean wavelength[2]	λ_p	815 nm	830 nm	845 nm
Spectral width (90% integrated power)	$\Delta\lambda$	—	2 nm	7 nm
Slope efficiency	η_D	—	1.0 W/A	—
Conversion efficiency	η	—	50%	—
Threshold current	I_{th}	—	280 mA	350 mA
Operating current (BOL)	I_{op}	—	2.3 A	2.7 A
Forward voltage	V_f	—	1.7 V	2.0 V
Series resistance	R_s	—	0.07 Ω	—
Recommended case temperature	T_c	20°C	25°C	45°C
Wavelength tuning vs. temperature[3]	$\Delta\lambda/\Delta T$	—	0.3 nm/°C	—
Wavelength tuning vs. output power	$\Delta\lambda/\Delta P$	—	1.6 nm/W	—
Fiber Characteristics				
Fiber core diameter	d_c	—	60 µm	—
Fiber numerical aperture	NA	0.20	0.22	0.24
Fiber cladding	d_{cl}	—	125 µm	—
Fiber buffer	d_b	—	250 µm	—
Fiber length	l_f	0.3 m	1 m	2.5 m

1. All performance data is measured at 25°C, beginning of life (BOL).
2. Weighted average "center of mass" spectral point at 25°C at P_o
3. Change in $\Delta\lambda$ mean with case temperature over T_{op}

Absolute Maximum Ratings

Parameter	Symbol	Minimum	Typical	Maximum
Operating current	I_{op}	—	—	3.0 A
Reverse voltage	V_{rvs}	—	—	2 V
Case operating temperature[1]	T_{op}	15°C	—	50°C
Storage temperature[2]	T_{stg}	-30°C	—	70°C
Lead soldering temperature, 10 s max	T_{ls}	—	—	300°C
Relative humidity, non-condensing, ambient < 45°C	RH	—	—	85%
Electrostatic discharge (ESD)[3]	V_{esd}	—	—	500 V
Fiber bend radius (long term deployment)[4]		30 mm	—	—
Fiber axial pull force, 15 s		—	—	5 N
Fiber side pull force, 15 s		—	—	2.5 N

1. Non-condensing, maximum
2. Non-condensing, 2000 hours
3. C = 100 pF, R = 1.5 kΩ, human body model, shown to be not damaging to its LI characteristics or its reliability, I-V curves may change in this ESD environment
4. Minimum bend radius of 30 mm is for long term mechanical fiber reliability

Configurations

Product Code	Wavelength Range	Connector[1]	Sheathing	Fiber NA
L4-2486-003	815 – 845 nm	SMA905	Loose-tube PVDF	0.22
L4-2486-004	815 – 845 nm	ST953	Loose-tube PVDF	0.22
L4-2486-005	815 – 845 nm	ST953	Loose-tube PVDF	0.22
L4-2486-006	815 – 845 nm	SMA905	Loose-tube PVDF	0.22

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: L4-2486-003

User Safety

Note: This component requires provisions of drive and control electronics before emitting laser radiation.

Laser classification depends on the system control circuit and laser safety features provided.

This diode-pumped laser module is not 21CFR 1040.10 or IEC 60825-1:2014 certified. It is a component intended for system integration. Compliance with 21CFR 1040.10 and/or IEC 60825-1:2014 will need to be determined at the system level.

Lumentum has registered this laser with the FDA/CDRH as an OEM component. Please contact Lumentum for an FDA/CDRH accession number for this laser component.

Serial Number Identification Label

LUMENTUM

North America
Toll Free: 844 810 LITE (5483)

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

China
Toll Free: 400 120 LITE (5483)