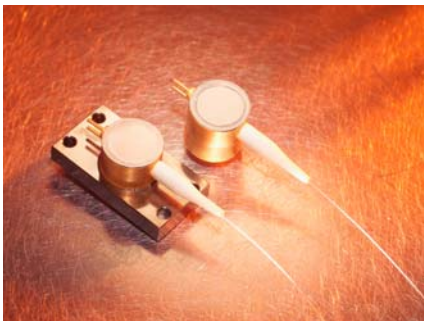
High-Power 8.0 W 9xx nm Fiber-Coupled Diode Laser

6397-L3 Series



Key Features

- **8.0 W output power**
- **105 µm aperture**
- **0.2 NA**
- **Highly reliable**

Applications

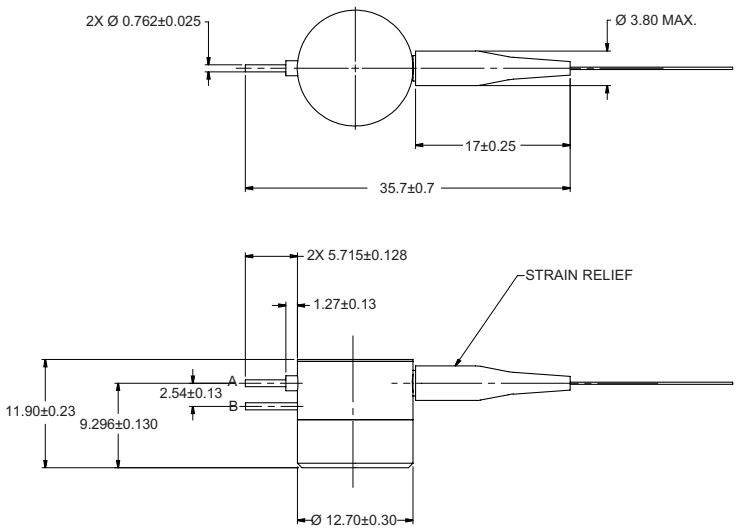
- Fiber laser pumping
- Material processing
- Graphic arts
- Medical/Dental
- Remote power generation
- Pyrotechnic ignition

JDSU's highly reliable series diode laser offers 8.0 W of laser power from a 100 µm fiber into a 0.2 numerical aperture (NA). The L3 package is a redesign of the existing fiber-coupled L2 package, incorporating a telecommunications design in a commercial product.

The L3 multimode pump module is based on single-emitter diode lasers and allows for a radical departure from standard bar-based pumping architectures. Hundreds of Watts of highly reliable pump power can be easily achieved with a distributed architecture using multiple L3 and a multimode fiber coupler or fiber bundle. In a distributed architecture, "cascading" failure modes are avoided, and ensemble statistics can be used to predict pump assembly lifetimes. The L3 multimode pump module eases thermal management by distributing the diode lasers (heat sources), allowing for a simple air- or water-cooled architecture in laser pumps and direct-diode applications.

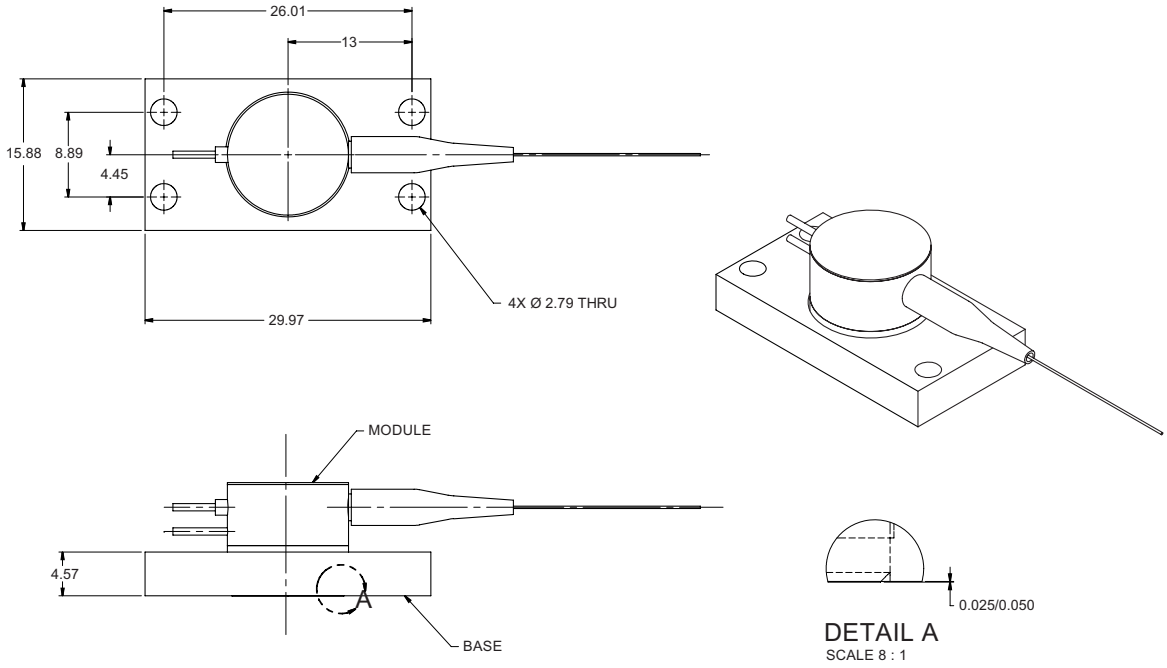
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Dimensions Diagram | (Specifications in mm unless otherwise noted.)



Pinout

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



1. BASE OF MODULE PROTRUDES .025 TO .050 MM BELOW BASE. SEE DETAIL 'A'.
2. BASE IS ALUMINUM, NICKEL-PLATED.

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Specifications[1]

Parameter	Symbol	Minimum	Typical	Maximum
Laser Characteristics				
CW output power	Po	-	8.0 W	-
Numerical aperture	NA	-	0.2	-
Mean wavelength[2]	λ_P	905 nm	915 nm	925 nm
		930 nm	940 nm	950 nm
		965 nm	975 nm	985 nm
Spectral width (FWHM)	$\Delta\lambda$	-	4 nm	6 nm
Slope efficiency	$\eta_{D\ 915\ nm}$	-	0.86 W/A	-
	$\eta_{D\ 940\ nm}$	-	0.85 W/A	-
	$\eta_{D\ 975\ nm}$	-	0.80 W/A	-
Conversion efficiency	η	-	44%	-
Threshold current	I_{th}	-	480 mA	700 mA
Operating current	$I_{op\ 916\ nm}$	-	10.1 A	11.3 A
	$I_{op\ 940\ nm}$	-	10.2 A	11.3 A
	$I_{op\ 965\ nm}$	-	11.8 A	13 A
Forward voltage	V_f	-	1.8 V	2.3V
Series resistance	R_{th}	-	0.04 Ω	-
Recommended case temperature	T_c	20°C	25°C	30°C
Wavelength tuning vs. temperature[3]	$\Delta\lambda/T$	-	0.3 nm/°C	-
Wavelength tuning vs. output power	$\Delta\lambda/P$	-	2.4 nm/W	-
Fiber Characteristics				
Fiber core diameter	d_c	-	105 µm	-
Fiber numerical aperture	NA	0.20	0.22	0.24
Fiber cladding	d_{cl}	123 µm	125 µm	127 µm
Fiber buffer	d_b	225 µm	250 µm	275 µm
Fiber length	l_f	0.9 m	1 m	-
Absolute Maximum Ratings				
Reverse voltage	V_{rl}	-	2 V	-
Case operating temperature[4]	T_{op}	15°C	-	45°C
Storage temperature[5]	T_{stg}	-30°C	-	70°C
Lead soldering temperature, 10 s max	T_{ls}	-	-	260°C
Fiber output power, maximum exposed time = 24 hrs[4]		-	-	8 W
LD forward current, 25°C		-	-	13 A
Relative humidity, non-condensing, ambient	RH	0%	-	85%
Electrostatic discharge (ESD)[6]	V_{ESD}	-	-	500 V
Fiber bend radius (long-term deployment)		30 mm	-	-
Fiber axial pull force, 3x, 10 sec		-	-	5 N
Fiber side pull force, 3x, 10 sec		-	-	2.5 N

1. All performance data is measured at 8.0 W, 25°C, 0.2 NA, beginning of life
2. Weighted average "center of mass" spectral point at 25°C at P_O
3. The change in mean wavelength with the change in case temperature (T_c) at P_O
4. Non-condensing, ambient
5. Non-condensing, ambient, 2000 hrs
6. C = 100 pF, R = 1.5 kΩ, human body model, shown to be not damaging to its L-I characteristics or its reliability, I-V curves may change in this ESD environment

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Configurations

Product Code	Center Wavelength	Connector[1]	Baseplate
63-00331	915 ± 10 nm	No	No
63-00332	915 ± 10 nm	No	Yes
63-00333	915 ± 10 nm	SMA	No
63-00334	915 ± 10 nm	SMA	Yes
63-00335	940 ± 10 nm	No	No
63-00336	940 ± 10 nm	No	Yes
63-00337	940 ± 10 nm	SMA	No
63-00338	940 ± 10 nm	SMA	Yes
63-00339	975 ± 10 nm	No	No
63-00340	975 ± 10 nm	No	Yes
63-00341	975 ± 10 nm	SMA	No
63-00342	975 ± 10 nm	SMA	Yes

1. If a connector option is selected, it is always connectorized with a 900 µm diameter hytrel tube outside the bare fiber.

Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Sample: 63-00331

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 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 minimizing 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 25°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.

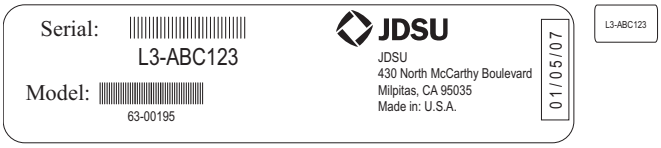
ESD PROTECTION - Electrostatic discharge is the primary cause of unexpected diode laser failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces, and rigorous antistatic techniques when handling diode lasers.

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.

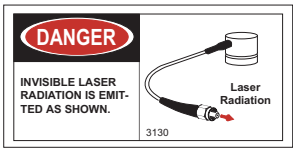
Serial Number Identification Label



Output Power Danger Label



Package Aperture Labels



All statements, technical information and recommendations related to the products herein are based upon information believed to be reliable or accurate. However, the accuracy or completeness thereof is not guaranteed, and no responsibility is assumed for any inaccuracies. The user assumes all risks and liability whatsoever in connection with the use of a product or its application. JDSU reserves the right to change at any time without notice the design, specifications, function, fit or form of its products described herein, including withdrawal at any time of a product offered for sale herein. JDSU makes no representations that the products herein are free from any intellectual property claims of others. Please contact JDSU for more information. JDSU and the JDSU logo are trademarks of JDS Uniphase Corporation. Other trademarks are the property of their respective holders. ©2007 JDS Uniphase Corporation. All rights reserved. 30149056 Rev. 001 01/07 6397L3.DS.CL.AE