

Product Bulletin



The JDS Uniphase 1500 Series are low cost pump modules for use in erbium doped fiber amplifiers (EDFAs) used in dense wavelength division multiplexed (DWDM) fiber optic networks, utility preamplifiers or medium power EDFAs for metropolitan area fiber networks.

The 1500 Series is designed to meet the performance and cost requirements for low to medium power multi-purpose EDFAs known as utility amps. Major applications for these utility amps include pre-amps for high data rate receivers used in long haul DWDM networks and broadband CATV networks.

The 1500 Series utilizes our fiber Bragg grating technology and advanced high volume manufacturing techniques. The use of fiber Bragg gratings with pump lasers creates wavelength stabilized pumps that result in more stable EDFA performance independent of input signal wavelength.

1500 Series Pumps

Up to 150 mW fiber Bragg grating stabilized 980 nm pump modules

Key Features

- Medium kink-free powers to 150 mW
- Fiber Bragg grating stabilized
- Integrated TEC and thermistor

Applications

- WDM for medium power EDFAs
- Single channel preamplifiers
- Utility amplifiers for WDM and CATV
- Booster amplifiers for metropolitan area networks

Compliance

- Telcordia™ GR-468-CORE

Absolute Maximum Ratings

Parameter	Condition	Min	Max	Units
Laser Diode				
Forward Current			500	mA
Forward Current Transient	1μs max		1	A
Reverse Voltage			4.5	V
Reverse Current			20	μA
Monitor Photodiode				
Reverse Current			5E-9	A
Reverse Voltage			20	V
MPD Forward Current			5	mA
Thermistor				
Voltage			5	V
Current			2	mA
Thermoelectric Cooler				
Voltage			4	V
Current			2.5	A
Package				
Storage Temperature		-40	+75	°C
Operating Temperature		-20	+70	°C
Fiber Pigtail				
Fiber Temperature		-40	+85	°C
Tensile Stress			5	N
Bend Radius		12.5		mm

Operating Powers

Product Number	Operating Power	Maximum Operating Current	Maximum Kink-Free Power
	P _{op} (mW)	I _{op} (mA)	P _{max} (mW)
SDLO-1564-80	70	230	80
SDLO-1564-90	80	230	90
SDLO-1564-100	90	230	100
SDLO-1564-110	100	250	110
SDLO-1564-120	100	260	120
SDLO-1564-130	120	270	130
SDLO-1564-140	125	280	140
SDLO-1564-150	135	300	150

Electro-Optical Performance

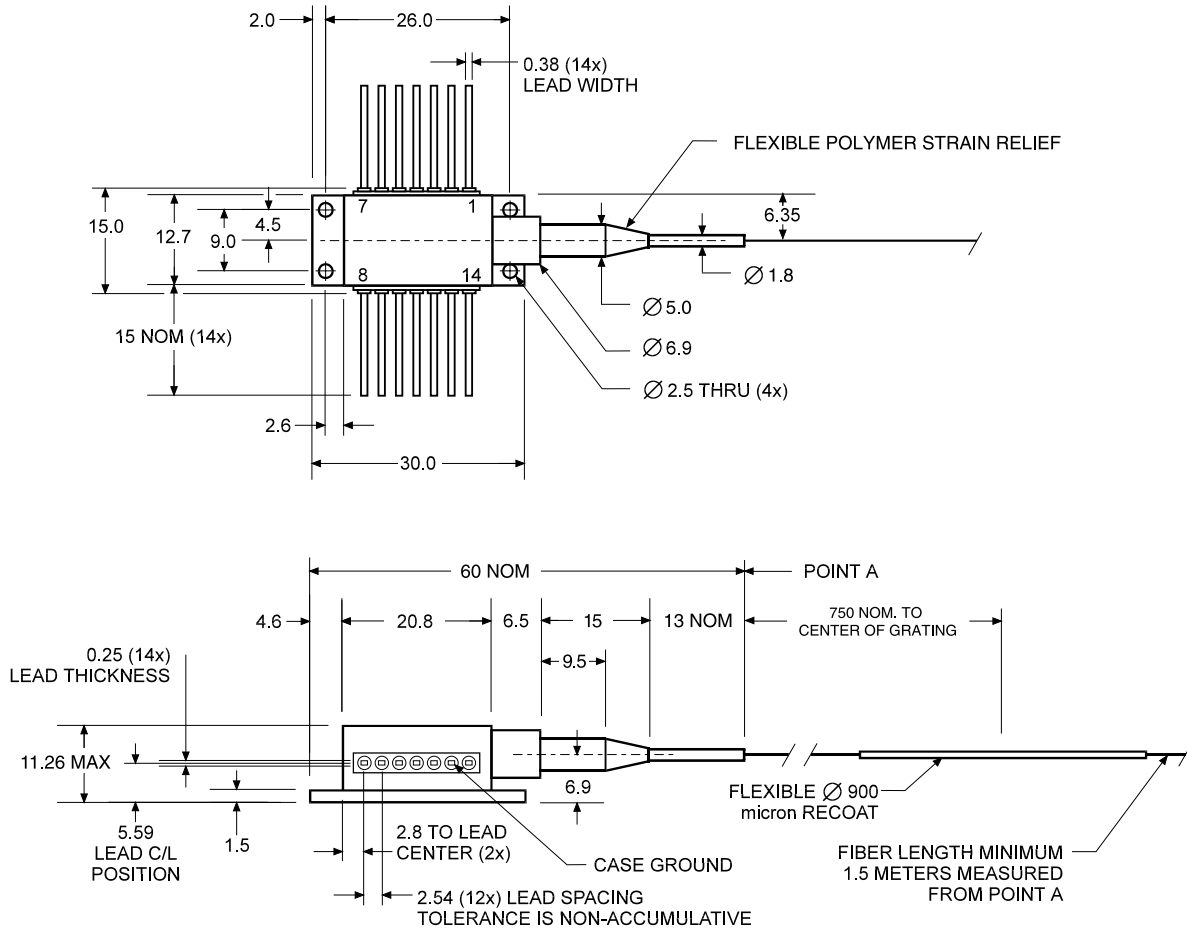
Parameter	Symbol	Test Condition	Min.	Max.	Units
Spectrum					
Peak Wavelength	λ_c		974	985	nm
Power in Band	P _{band}	P _{op} < P _f < P _{max}	90		%
Spectral Shift w/temperature	$\Delta\lambda/\Delta T$		-	0.02	nm/°C
Spectrum Stability	$\Delta\lambda/\Delta t$	25°C, I _{max} , t = 60 seconds		0.1	nm
Optical Power Stability	$\Delta P_{opt}/\Delta t$	25°C, I _{max} , t = 60 seconds	-	0.5	%
Laser Diode					
Threshold Current	I _{th}	-	-	25	mA
Slope Deviation	$\Delta L/\Delta I$	50 mA < I < I _{max}	no negative slope		
Laser diode forward voltage	V _{fwdLD}	I _{max}	-	2.5	volts
Monitor Photodiode					
Current	I _{mpd}		50	-	μA
Thermoelectric Cooler Operation					
TEC voltage	V _{TEC}	$\Delta T=45^\circ\text{C}$, I _{max}	-	2.5	volts
TEC current	I _{TEC}	$\Delta T=45^\circ\text{C}$, I _{max}	-	1.5	amps
Thermistor resistance	R _{therm}		9.5	10.5	KΩ

Parameter	Specification	Units
Fiber Pigtail Specifications		
Type	SM	-
Mode-field Diameter	6.5 ±1	μm
Cladding Diameter	125 ±2	μm
Jacket Diameter	250	μm

1. All specifications are at BOL for an operating temperature range for T_{case} = -20 to 70 °C and back reflection < -50 dB.

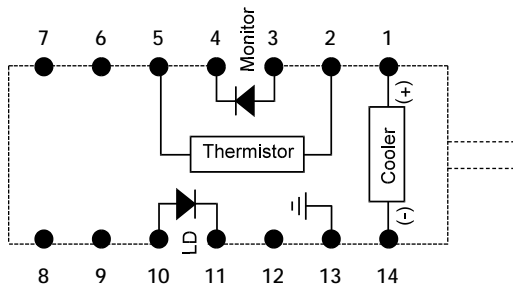
Package Dimensions

Dimensions in millimeters except where indicated



Lead Connection

Electrical Schematic
(Package Viewed From Top)



Lead Connections

- 1 Cooler (+)
- 2 Thermistor
- 3 Monitor PD Anode
- 4 Monitor PD Cathode
- 5 Thermistor
- 6 N/C
- 7 N/C
- 8 N/C
- 9 N/C
- 10 Laser Anode
- 11 Laser Cathode
- 12 N/C
- 13 Case Ground
- 14 Cooler (-)

User Safety

Safety and Operating Considerations

The laser light emitted from this laser diode is invisible and may be harmful to the human eye. Avoid looking 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 laser diode 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 laser diodes may be damaged by excessive drive current or switching transients. When using power supplies, the laser diode should be connected with the main power on and the output voltage at zero. The current should be increased slowly while monitoring the laser diode output power and the drive current.

Careful attention to heatsinking and proper mounting of this device is required to insure specified performance over its operating life. To maximize thermal transfer to the heatsink, the heatsink mounting surface must be flat to within .001" and the mounting screws must be torqued down to 1.5 in.-lb.

ESD PROTECTION — Electro-static discharge is the primary cause of unexpected laser diode failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces, and rigorous anti-static techniques when handling laser diodes.

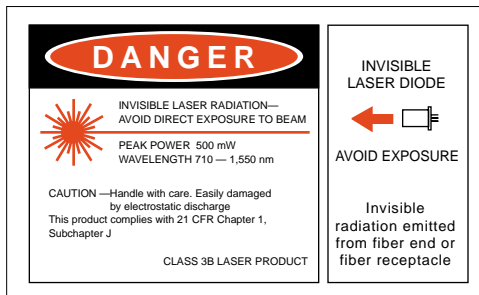
21 CFR 1040.10 Compliance

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 radiations control for health and safety act of 1968.

SERIAL NUMBER IDENTIFICATION LABEL



OUTPUT POWER AND LASER EMISSION INDICATOR LABEL



Ordering information

For more information on this or other products and their availability, please contact your local JDS Uniphase sales representative or JDS Uniphase directly at 408 943-4200, or by fax 408 943-4252, or via email at sales.ca@us.jdsuniphase.com. Visit our Web site at www.jdsuniphase.com.



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