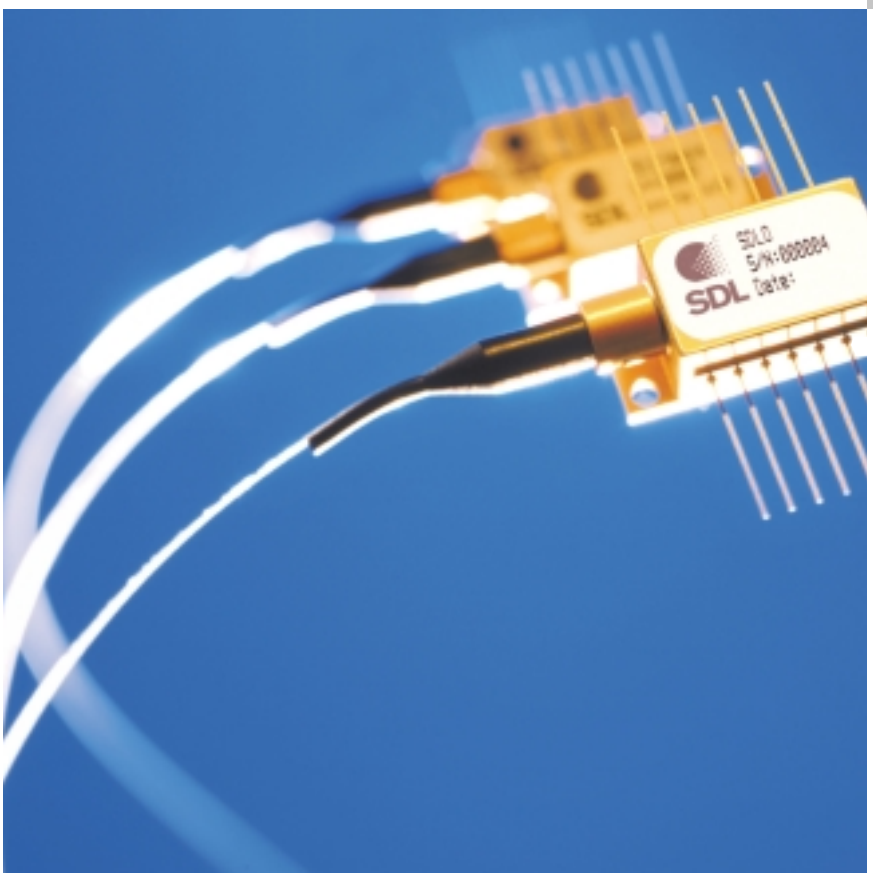
SDLO
1500 SERIES

PUMP SOURCES



FEATURES

- ***Medium kink-free power to 150 mW***
- ***Fiber Bragg Grating stabilized***
- ***Integrated TEC and thermisitor***

APPLICATIONS

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

Medium power fiber Bragg grating stabilized 980 nm pump modules

The SDLO-1500 Series is a new product line of 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 SDLO-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 SDLO-1500 Series utilizes SDL's 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.

SDL®

Absolute Maximum Ratings

Parameter	Condition	Min	Max	Unit
Laser Diode				
Forward Current			500	mA
Forward Current Transient	1µs max		1	A
Reverse Voltage			4.5	V
Reverse Current			20	uA
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 P_{op} (mW)	Maximum Operating Current I_{op} (mA)	Maximum Kink-Free Power P_{max} (mW)	Maximum Kink-Free Current I_{max} (mA)
SDLO-1564-80	70	230	80	250
SDLO-1564-90	80	230	90	250
SDLO-1564-100	90	230	100	250
SDLO-1564-110	100	250	110	260
SDLO-1564-120	100	260	120	270
SDLO-1564-130	120	270	130	290
SDLO-1564-140	125	280	140	310
SDLO-1564-150	135	300	150	330

Electro-Optical Performance

Parameter	Symbol	Test Condition	Value Min.	Value Max.	Units
Spectrum					
Peak Wavelength	λc		974	985	nm
Power in Band	P_{band}	$P_{op}<P_f<P_{max}$	90		%
Spectral Shift w/temperature	Δλ/Δ°T		-	0.02	nm/°C
Spectrum Stability	Δλ/Δt	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	% of P_{opt}
Laser Diode					
Threshold Current	I_{th}	-	-	25	mA
Slope Deviation	DL/DI	$50mA<I<I_{max}$	no negative slope		
Laser diode forward voltage	V_{fwdLD}	Imax	-	2.5	volts
Monitor Photodiode					
Current	I_{mpd}		50	-	µA
Thermoelectric Cooler Operation					
TEC voltage	V_{TEC}	$\Delta T=45°C$, I_{max}	-	2.5	volts
TEC current	I_{TEC}	$\Delta T=45°C$, I_{max}	-	1.5	amps
Thermistor resistance	R_{therm}		9.5	10.5	KΩ

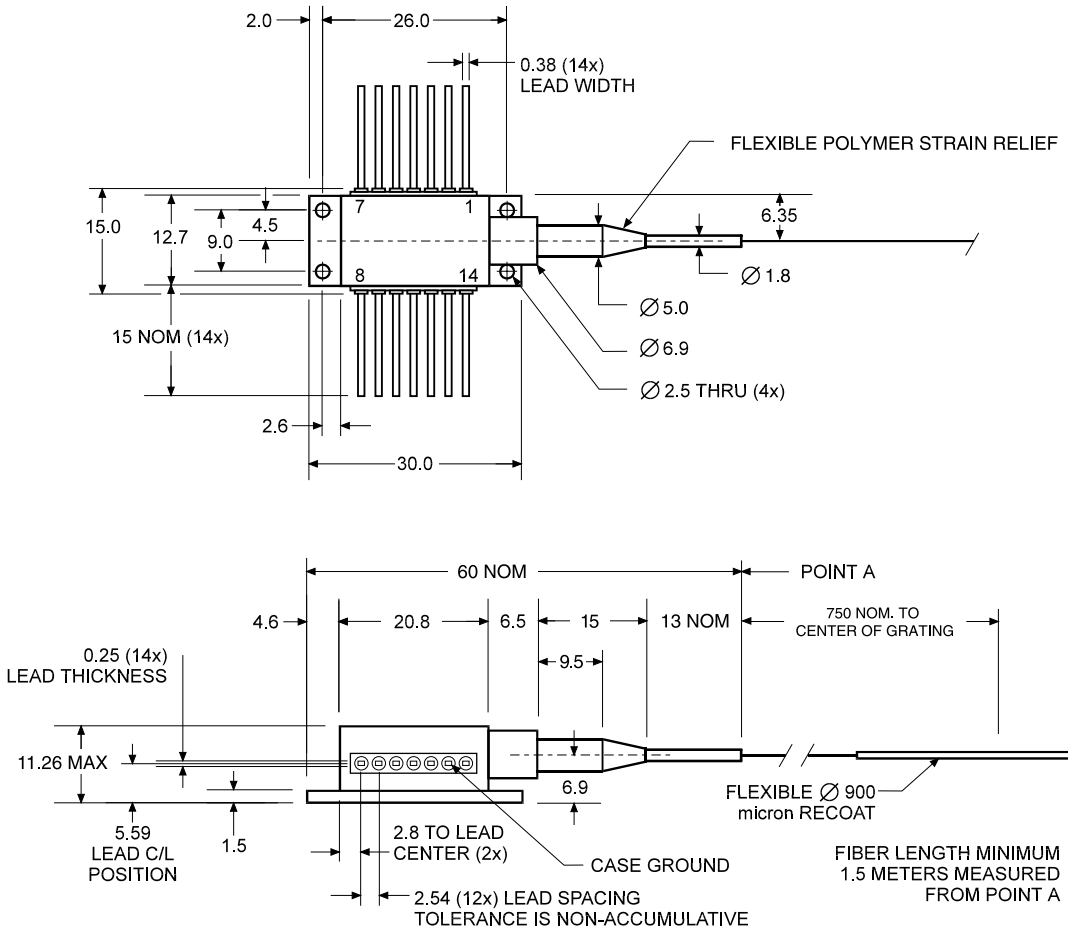
Parameter	Specification	Units
Fiber Pigtail Specifications		
Type	SM	-
Mode-field Diameter	6.5 ±1	µm
Cladding Diameter	125 ±2	µm
Jacket Diameter	250	µm

Notes

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

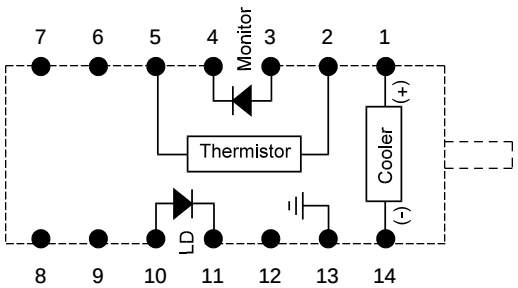
Outline Drawing

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.

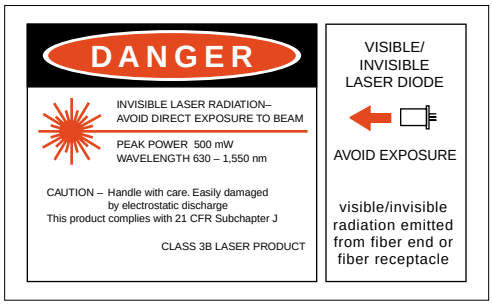
ESD PROTECTION — Electro-static discharge is the primary cause of unexpected laser diode failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces, and rigorous anti-static techniques when handling laser diodes.

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



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And for the latest information on all SDL products please visit our web site:

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