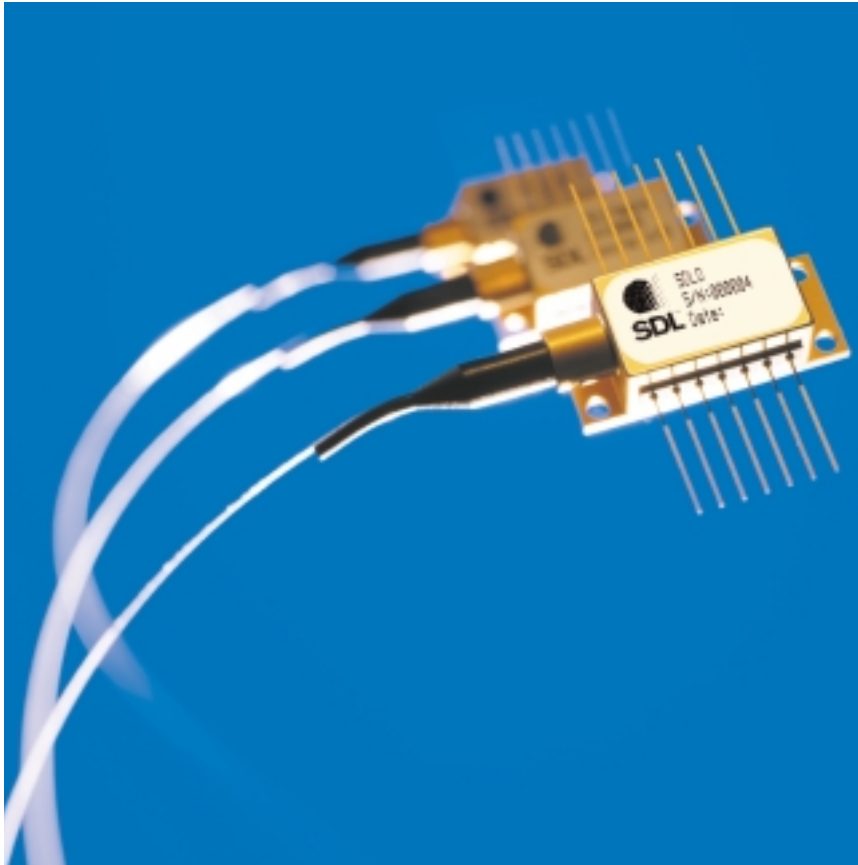


SDLO

2500 SERIES



## FEATURES

- Fiber Bragg grating stabilized
- High kink-free powers to 170 mW
- Wavelength selection available
- Superior tracking error and tracking ratio
- Integrated TEC and thermistor

## APPLICATIONS

- DWDM EDFAs
- High bit rate, high channel count EDFAs
- CATV distribution

## High power fiber Bragg grating stabilized 980 nm pump modules

The SDLO-2500 Series 980nm pump module is currently deployed in many of today's DWDM systems and CATV distribution systems. This module has proven reliability with more than 100 million field deployed hours of operation.

The SDLO-2500 Series pump module uses fiber Bragg grating stabilization to "lock" the emission wavelength and provides a noise-free narrow band spectrum even under changes in temperature, drive current and optical feedback.



## Absolute Maximum Ratings

Parameter	Condition	Min	Max	Unit
<b>Laser Diode</b>				
Forward Current			500	mA
Forward Current Transient	1 $\mu$ s max		1	A
Reverse Voltage			4.5	V
Reverse Current			20	$\mu$ A
<b>Monitor Photodiode</b>				
Reverse Current			5E-9	A
Reverse Voltage			20	V
MPD Forward Current			5	mA
<b>Thermistor</b>				
Voltage			5	V
Current			2	mA
<b>Thermoelectric Cooler</b>				
Voltage			4	V
Current			2.5	A
<b>Package</b>				
Storage Temperature		-40	+75	$^{\circ}$ C
Operating Temperature		-20	+70	$^{\circ}$ C
<b>Fiber Pigtail</b>				
Fiber Temperature		-40	+85	$^{\circ}$ C
Tensile Stress			5	N
Bend Radius			12.5	mm

## Operating Powers

Product Number	Operating Power	Maximum Operating Current	Maximum Kink-Free Power	Maximum Kink-Free Current
	P <sub>op</sub> (mW)	I <sub>op</sub> (mA)	P <sub>max</sub> (mW)	I <sub>max</sub> (mA)
SDLO-2564-80	70	230	80	250
SDLO-2564-90	80	230	90	250
SDLO-2564-100	90	230	100	250
SDLO-2564-110	100	240	110	260
SDLO-2564-125	115	250	125	280
SDLO-2564-130	120	270	130	290
SDLO-2564-135	120	270	135	300
SDLO-2564-140	125	280	140	310
SDLO-2564-145	130	290	145	320
SDLO-2564-150	135	300	150	330
SDLO-2564-155	140	310	155	340
SDLO-2564-160	145	320	160	350
SDLO-2564-165	150	330	165	360
SDLO-2564-170	150	330	170	370

## Electro-Optical Performance

Parameter	Symbol	Test Condition	Value		Units
			Min.	Max.	
<b>Spectrum</b>					
Peak Wavelength	$\lambda_c$	(see Note 1)	974	985	nm
Power in Band	P <sub>band</sub>	P <sub>op</sub> <P <sub>f</sub> <P <sub>max</sub>	90		%
Spectral Shift w/temperature	$\Delta\lambda/\Delta T$		-	0.02	nm/ $^{\circ}$ C
Spectrum Stability	$\Delta\lambda/\Delta t$	25 $^{\circ}$ C, I <sub>max</sub> , t = 60 seconds		0.1	nm
Optical Power Stability	$\Delta P_{opt}/\Delta t$	25 $^{\circ}$ C, I <sub>max</sub> , t = 60 seconds	-	0.5	%

**Laser Diode**

Parameter	Symbol	Test Condition	Value	Units
Threshold Current	I <sub>th</sub>	-	- 25	mA
Slope Deviation	$\Delta L/\Delta I$	50mA<I<I <sub>max</sub>	no negative slope	
Laser diode forward voltage	V <sub>fwdLD</sub>	I <sub>max</sub>	- 2.5	volts

**Monitor Photodiode**

Parameter	Symbol	Value	Units
Current	I <sub>mpd</sub>	50 -	$\mu$ A

**Thermoelectric Cooler Operation**

Parameter	Symbol	Test Condition	Value	Units
TEC voltage	V <sub>TEC</sub>	$\Delta T=45^{\circ}$ C, I <sub>max</sub>	- 2.5	volts
TEC current	I <sub>TEC</sub>	$\Delta T=45^{\circ}$ C, I <sub>max</sub>	- 1.5	amps
Thermistor resistance	R <sub>therm</sub>		9.5 10.5	K $\Omega$

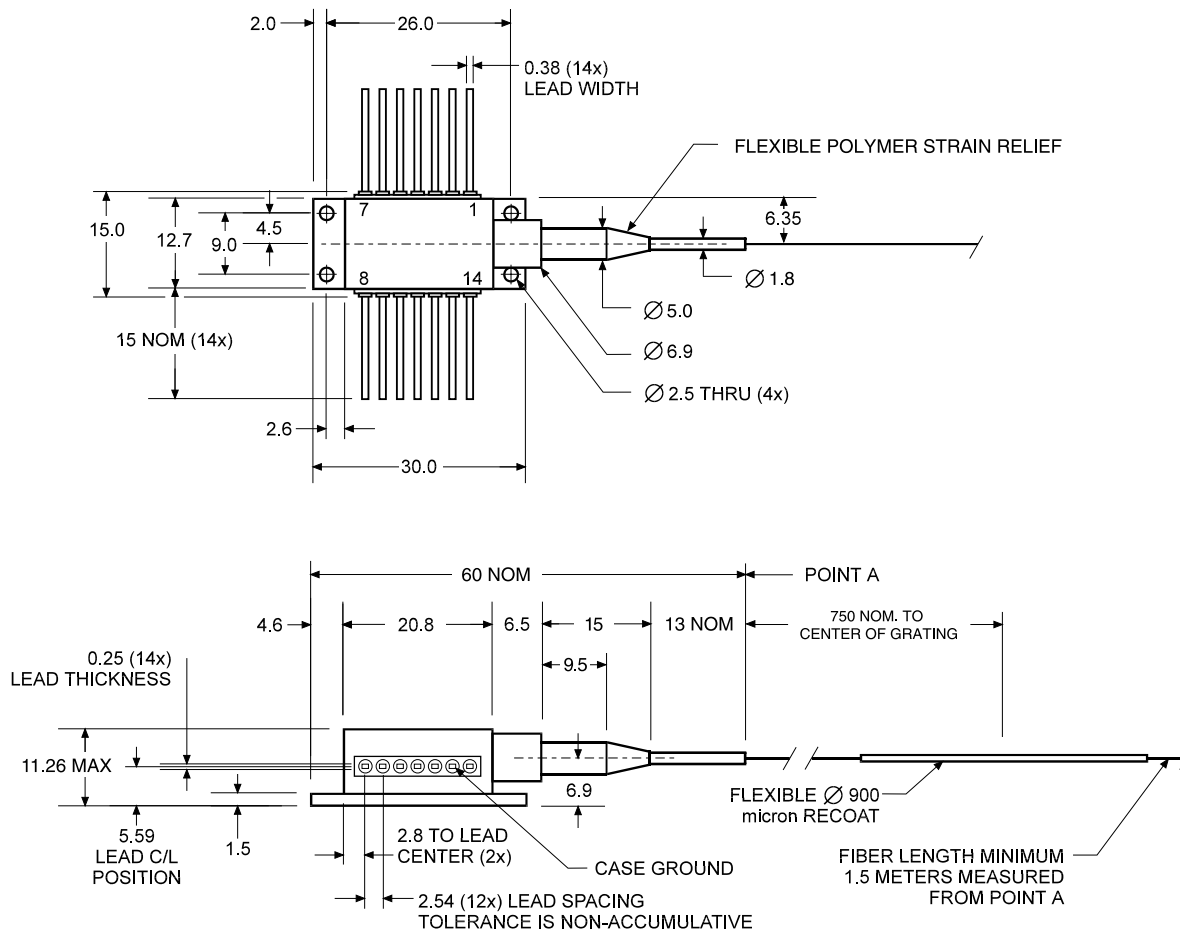
Parameter	Specification	Units
<b>Fiber Pigtail Specifications</b>		
Type	SM	-
Mode-field Diameter	6.5 $\pm$ 1	$\mu$ m
Cladding Diameter	125 $\pm$ 2	$\mu$ m
Jacket Diameter	250	$\mu$ m

## Notes

1. Wavelength selection available
2. All specifications are at BOL for an operating temperature range For T<sub>case</sub> = 0 to 70  $^{\circ}$ C and back reflection < -50 dB.

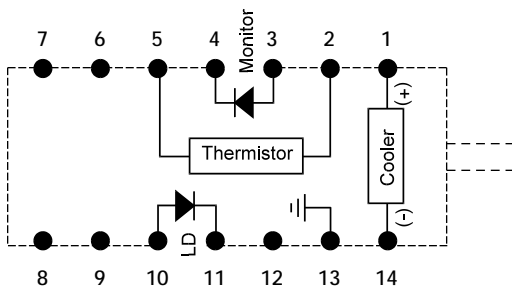
## Outline Drawing

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.

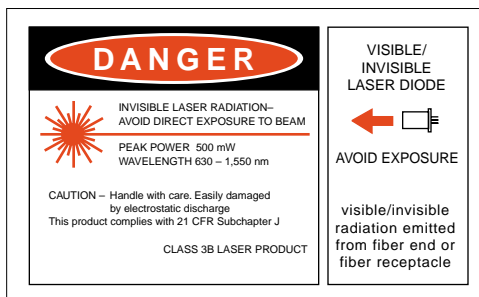
### 21 CFR 1040.10 Compliance

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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[www.sdli.com](http://www.sdli.com)

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