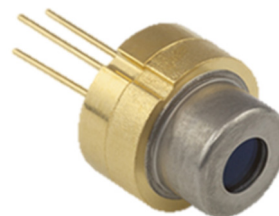


## 976 nm Grating Stabilized TO Can Laser Diode, 270 mW

**L976SEV1**



### Description

The L976SEV1 976 nm, Single-Frequency TO-Can Laser Diode is based on quantum well epitaxial layer growth and a highly reliable ridge waveguide structure with external volume holographic grating (VHG) feedback. This single-transverse mode laser diode features high optical output power and produces a wavelength stabilized spectrum with a single frequency narrow linewidth over the operating power range of approximately 250 to 300 mW. Contained in a Ø9 mm package, the L976SEV1 laser is ideal for Raman spectroscopy, instrumentation, and pumping applications.

### Specifications

Absolute Maximum Ratings	
LD Reverse Voltage (Max)	2 V
Absolute Max Output Power	350 mW
Absolute Max Current	450 mA
Operating Temperature	See Note <sup>a</sup>
Storage Temperature	-10 to 65 °C
Pin Code	E



- a. Note: The operating temperature corresponds to the range of temperatures over which the laser diode produces wavelength-stabilized output. The exact temperature range typically spans a minimum of 5 °C centered on a temperature between 15 °C and 30 °C. This specification is given for each device on the unit-specific data sheet.

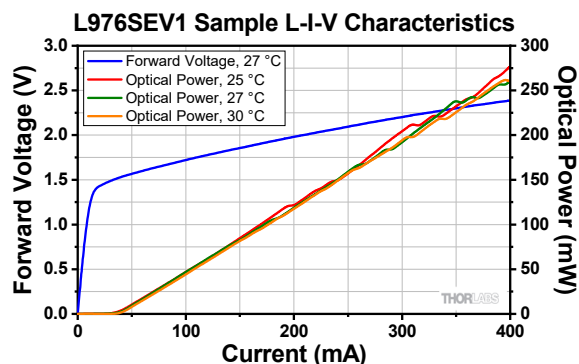
L976SEV1				
	Symbol	Min	Typical	Max
Center Wavelength	$\lambda_c$	975 nm	976 nm	977 nm
Single Frequency Output Power (CW @ $I_{OP}$ and $T_{OP}$ ) <sup>a</sup>	$P_{CW}$	250 mW	270 mW	-
Threshold Current	$I_{th}$	-	40 mA	-
Operating Current	$I_{OP}$	-	350 mA	400 mA
Side Mode Suppression Ratio	SMSR	35 dB	45 dB	-
Operating Temperature	$T_{op}$	15 °C	-	30 °C
Slope Efficiency	$\Delta P / \Delta I$	-	0.75 W/A	-
Forward Voltage	$V_F$	-	2.0 V	2.5 V
Vertical Beam Divergence Angle (FWHM @400 mA)	$\theta$	-	12°	18°
Lateral Beam Divergence Angle (FWHM @400 mA)	$\theta$	-	9°	12°

- a. This value is the upper limit of the range where the diode can produce single frequency output and varies from laser to laser. The performance of each individual laser can be found on the unit-specific data sheet.

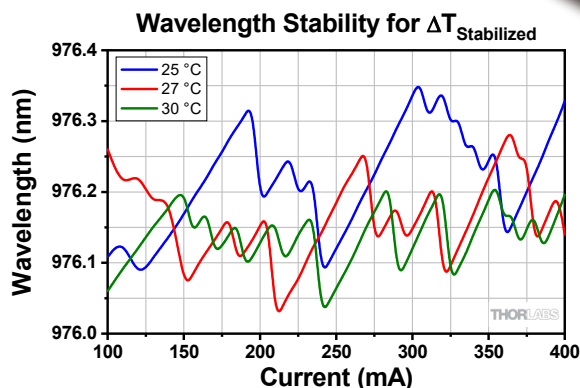
May 17, 2023

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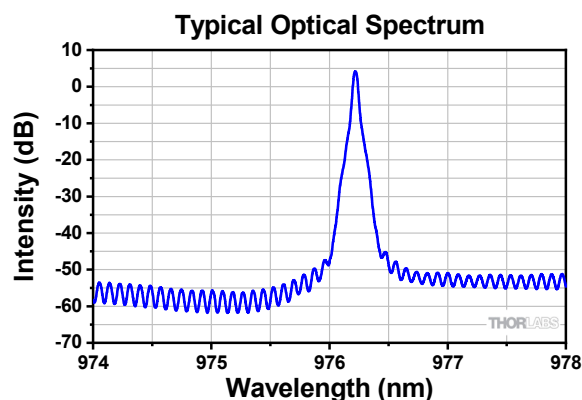
## Typical Performance Plots



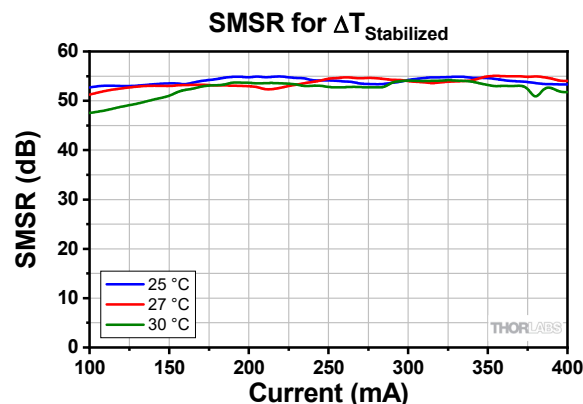
The typical output power vs. current is shown for three temperatures within the wavelength stabilized temperature range ( $\Delta T_{\text{Stabilized}}$ )\* of a L976SEV1 laser diode.



When used within the wavelength stabilized temperature range ( $\Delta T_{\text{Stabilized}}$ )\*, the L976SEV1 shows excellent wavelength stability over a range of drive currents.



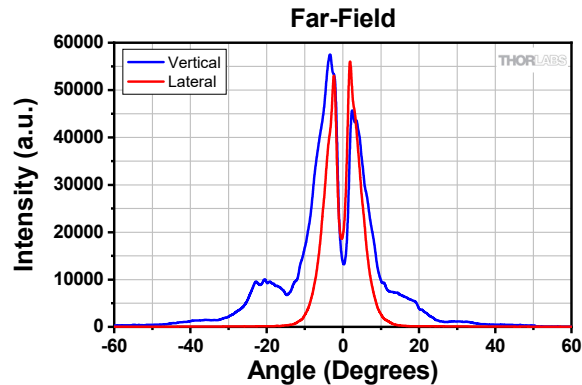
The typical optical spectrum is shown above. The data was obtained with a 350 mA drive current and the device held at 27° C.



The typical side mode suppression ratio (SMSR) is shown for three temperatures within the wavelength stabilized temperature range ( $\Delta T_{\text{Stabilized}}$ )\*.

\*The wavelength stabilized temperature range varies from laser diode to laser diode. The temperature range that supports wavelength-stabilized performance for each L976SEV1 laser is provided on the item-specific data sheet.

## Typical Performance Plots Cont.



The diverging beam from the laser chip freely propagates through the external volume holographic grating (VHG), while the light in the center of the beam is reflected back into the chip. This results in a stabilized wavelength emitting from the laser and also creates a dark spot in the far field, as shown in the graphs above. These were measured with a current of 400 mA.

## Drawing

