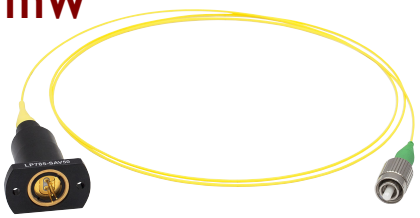
785 nm Grating Stabilized Pigtailed Laser Diode, 50 mW

LP785-SAV50



Description

The LP785-SAV50 785 nm, Single-Frequency, Pigtailed 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 frequency pigtailed laser diode features an internal optical isolator and produces a wavelength stabilized spectrum with a single frequency narrow linewidth over the operating power range of approximately 20 to 50 mW. The output is coupled to 1.0 m of FC/APC-connectorized 780HP single-mode fiber. Each unit is tested before shipment. Please refer to the unit-specific test datasheet for optimal operating parameters.

Specifications

LP785-SAV50	
LD Reverse Voltage (Max)	2 V
Absolute Max Current	500 mA
Absolute Max Power	70 mW
Operating Temperature	See Note[a]
Storage Temperature	-10 to 65 °C
Pin Code	9E

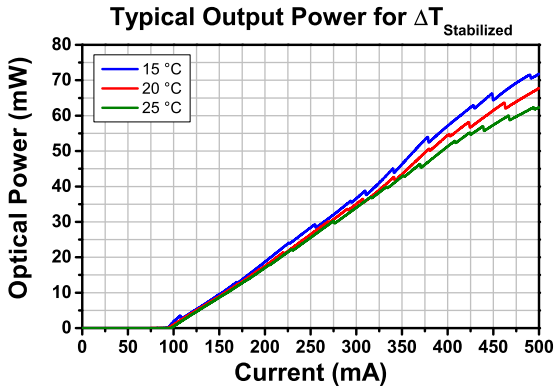
a. Note: The operating temperature corresponds to the range of temperatures over which the laser diode produces wavelength-stabilized output. The exact temperature range typically spans a minimum of 5 °C centered on a temperature between 15 °C and 30 °C. This specification is given for each device on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

LP785-SAV50				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength	λ_C	784 nm	785 nm	786 nm
Single Frequency Output Power[a] (CW @ I_{CW} and T_{CS})	$P_{CW\text{-}SF}$	-	50 mW	-
Single Frequency Power Range	ΔP_{SF}	30 mW[b]	-	-
Operating Current (CW)	I_{CW}	-	-	500 mA
Center Temperature for $\Delta T_{Stabilized}$	T_{CS}	15 °C	-	30 °C
Wavelength Stabilized Temperature Range	$\Delta T_{Stabilized}$	5 °C	-	-
Threshold Current	I_{TH}	-	100 mA	150 mA
Side Mode Suppression Ratio (SMSR)	SMSR	25 dB	40 dB	-
Internal Isolator Isolation	ISO	35 dB	-	-
Forward Voltage	V_F	-	2.2 V	2.8 V
Slope Efficiency at 25 °C	$\Delta P/\Delta I$	-	0.2 W/A	-
Laser Linewidth	Δv	-	10 MHz	-

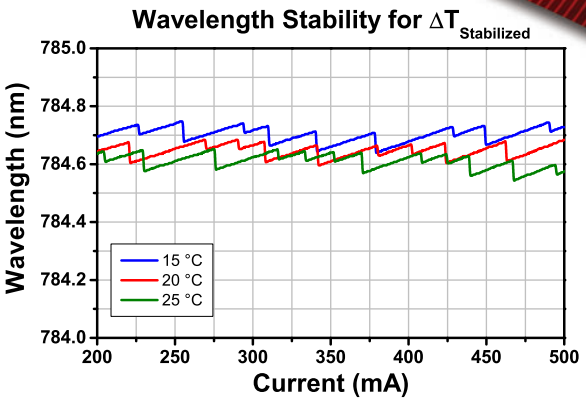
a. This value is the upper limit of the range where the diode can produce single frequency output and varies from laser to laser. The performance of each individual laser can be found on the unit-specific data sheet.

b. This value is specified for temperatures in the range given by $T_{CS} \pm \frac{1}{2}\Delta T_{Stabilized}$. The 30 mW minimum single frequency power range corresponds to output powers between the typical $P_{CW\text{-}SF} - \Delta P_{SF}$ and $P_{CW\text{-}SF}$, i.e. between 20 mW and 50 mW.

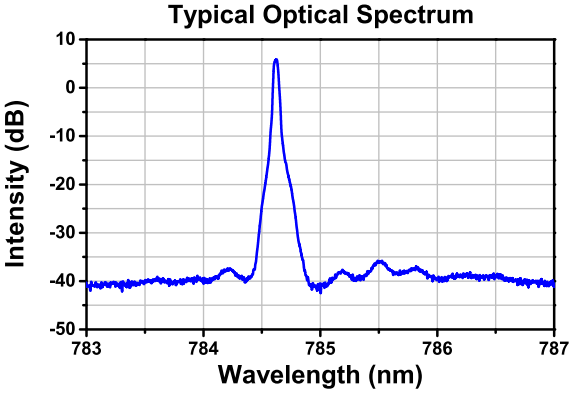
Typical Performance Plots



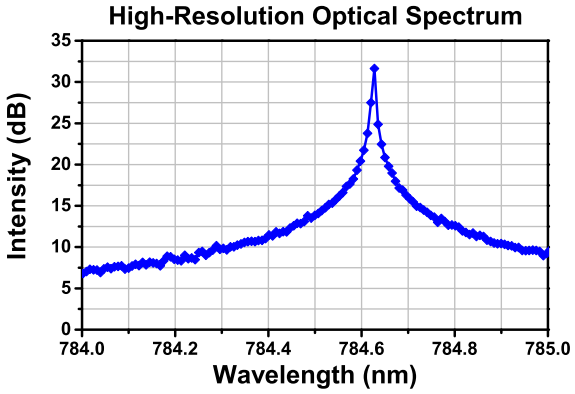
The typical output power vs. current is shown for three temperatures within the wavelength stabilized temperature range ($\Delta T_{Stabilized}$)* of a LP785-SAV50 laser diode.



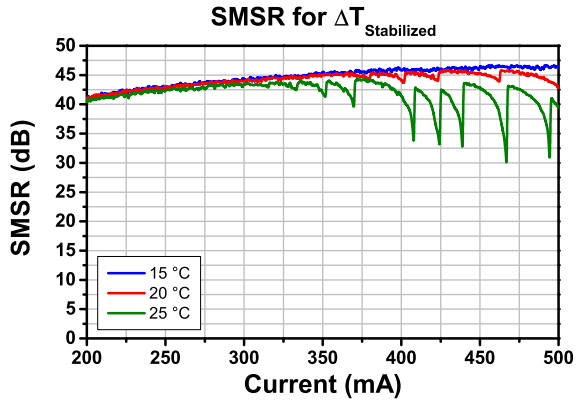
When used within the wavelength stabilized temperature range ($\Delta T_{Stabilized}$)*, the LP785-SAV50 shows excellent wavelength stability over a range of drive currents.



The typical optical spectrum is shown above. The data was obtained with a 400 mA drive current and the device held at 25 °C.



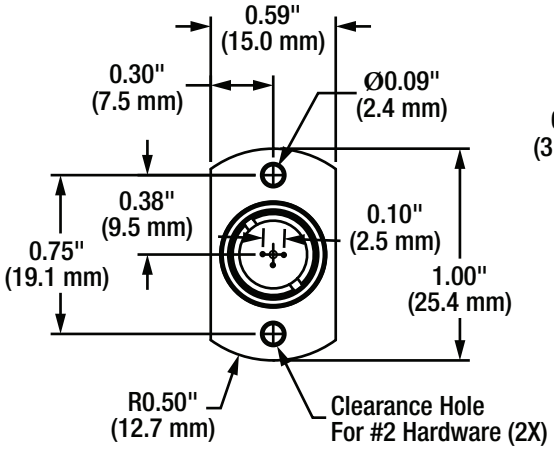
This high-resolution optical spectrum was obtained using one of Thorlabs' Optical Spectrum Analyzers (OSA201), which provides 8 pm resolution at 785 nm.

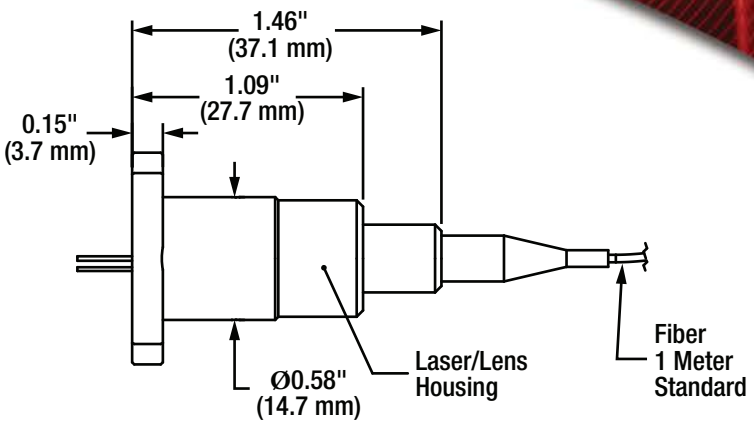


The typical side mode suppression ratio (SMSR) is shown for three temperatures within the wavelength stabilized temperature range ($\Delta T_{Stabilized}$)*.

*The wavelength stabilized temperature range varies from laser diode to laser diode. The temperature range that supports wavelength-stabilized performance for each LP785-SAV50 laser is provided on the item-specific data sheet.

Drawing





Pin Code