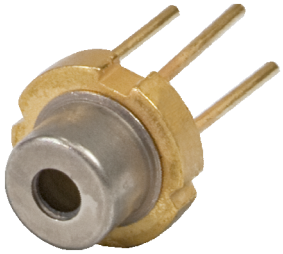
405 nm Laser Diode, 20 mW



L405P20

Description

This 405 nm, 20 mW laser diode is a compact light source suited to many applications, including fluorescence and spectroscopic measurements, flow cytometry, microscopy, and as a component in optical instruments. It comes in a ∅5.6 mm TO package with a monitor photodiode. It is recommended to have the base of the laser diode in good thermal contact with a heat sink.

Specifications

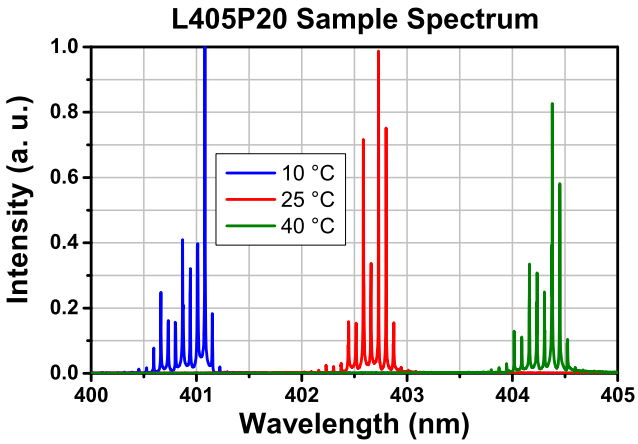
Absolute Maximum Ratings*	
Specification	**Maximum**
Output Power	35 mW
LD Reverse Voltage	2 V
Operating Case Temperature	0 to +75 °C
Storage Temperature	-40 to +85 °C

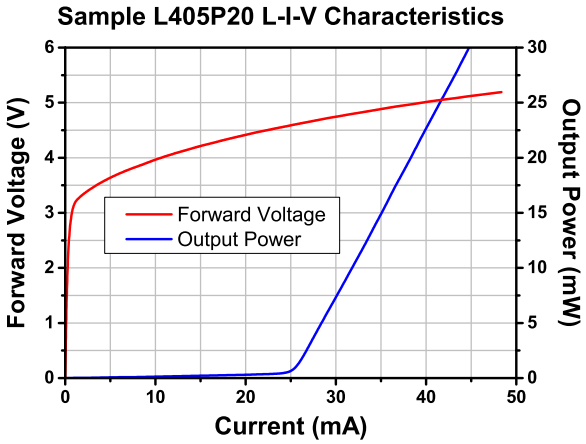
*Absolute Maximum Rating specifications should never be exceeded.
Operating at or beyond these conditions can permanently damage the laser.

L405P20 Specifications				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength @ P_{op}	λ_o	400 nm	405 nm	410 nm
Output Power, CW	P_{op}	-	20 mW	-
Threshold Current	I_{TH}	20 mA	26 mA	30 mA
Operating Current CW @ P_{op}	I_{op}	-	38 mA	55 mA
Operating Voltage @ P_{op}	V_{op}	-	4.8 V	5.8 V
Slope Efficiency	η	0.7 W/A	1.2 W/A	-
Monitor Current @ P_{op}	I_{pd}	0.1 mA	0.7 mA	2.0 mA
Beam Divergence (FWHM) Parallel @ P_{op}	$\theta_{//}$	6°	8.5°	12°
Beam Divergence (FWHM) Perpendicular @ P_{op}	$\theta_{\perp}$	16°	19°	23°
Off-axis deviation, Perpendicular @ P_{op}	$\Delta\theta_{//}$	-3°	-	3°
Off-axis deviation, Parallel @ P_{op}	$\Delta\theta_{\perp}$	-3°	-	3°

T_{CASE} = 25°C

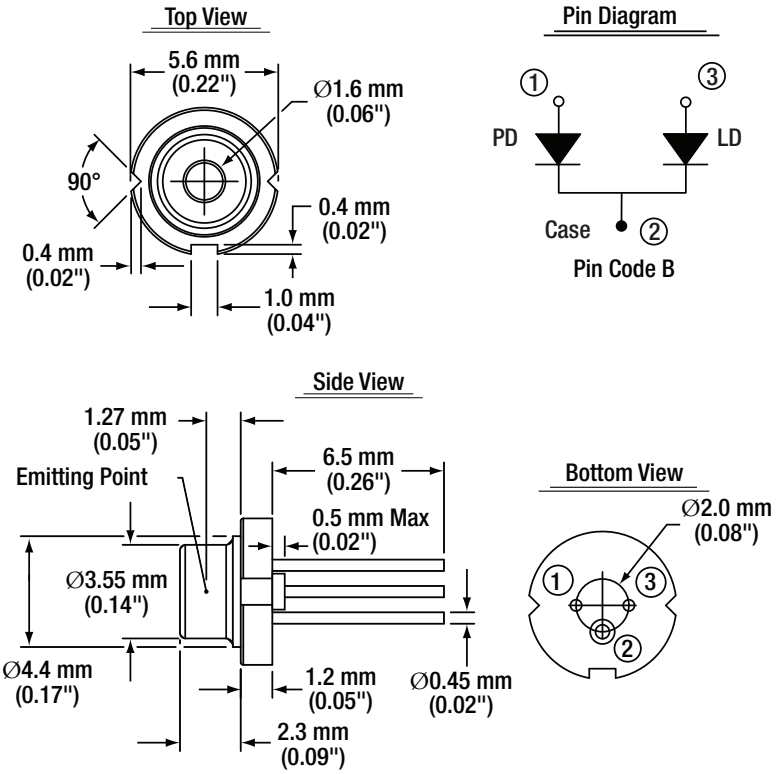
Performance Plots





The data presented here is for one particular laser diode. Slight variations in performance data will occur from device to device. The sample spectrum of the L405P20 laser diode was taken at 10 °C, 25 °C, and 40 °C using a Thorlabs OSA201 Spectrum Analyzer with resolution of 7.5 GHz. The L-I-V characteristics data was taken at 25 °C. Please visit our website for raw data and L-I-V characteristics at 10 °C, 25 °C, and 40 °C.

Drawings



Pin	Description
1	Photodiode Anode
2	Case
3	Laser Anode