820 nm Laser Diode, 100 mW

L820P100

Description

Thorlabs' 820 nm, 100 mW laser diode is suited for a variety of applications, including IR illumination and instruments for sensing, measurement, and imaging. Packaged in a ∅5.6 mm TO can with a C pin configuration, this single spatial mode laser diode exhibits minimal thermal rollover at elevated temperatures. The diode has a low aspect ratio with similar divergence along the parallel and perpendicular axes. It is recommended to have the base of the laser diode in good thermal contact with a heat sink.

Specifications

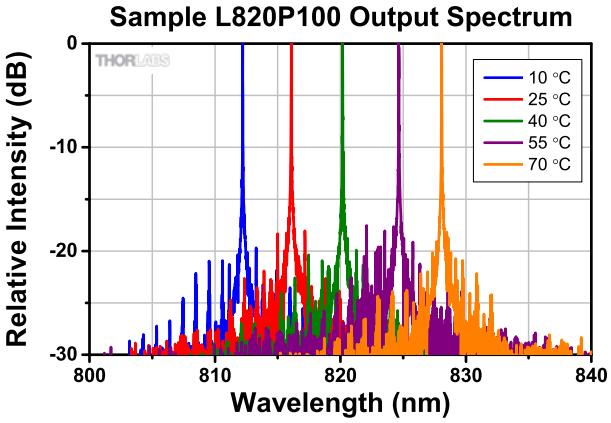
Absolute Maximum Ratings*		
Specification	**Symbol**	**Maximum**
Output Power, CW	P_{max}	110 mW
LD Reverse Voltage	$V_{reverse}$	2 V
PD Reverse Voltage	V_R(PD)	20 V
Operating Case Temperature	T_{op}	-10 to +75 °C
Storage Temperature	T_{stor}	-40 to +80 °C

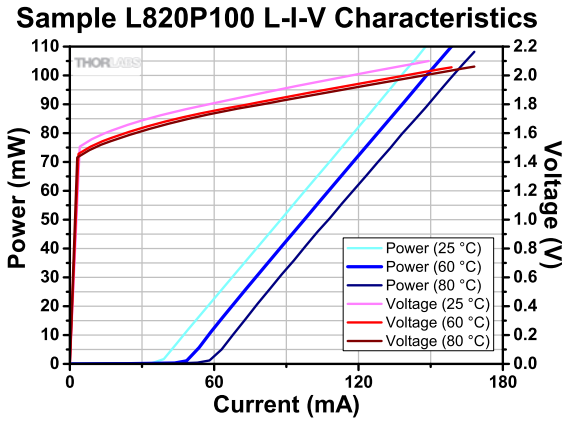
*Absolute Maximum Rating specifications should never be exceeded.
Operating at or beyond these conditions can permanently damage the laser.

L820P100 Specifications					
		Symbol	**Min**	**Typical**	**Max**
Center Wavelength @ P_{op}		λ_o	808 nm	820 nm	828 nm
Output Power, CW		P_{op}	-	100 mW	-
Threshold Current		I_{TH}	-	40 mA	70 mA
Operating Current CW @ P_{op}		I_{op}	-	145 mA	210 mA
Operating Voltage @ P_{op}		V_{op}	-	2.1 V	3.0 V
Slope Efficiency		η	0.7 W/A	0.95 W/A	-
Monitor PD Current @ P_{op}		I_{mon}	0.05 mA	0.15 mA	0.75 mA
Polarization Extinction Ratio (TE/TM)		PER	-	20 dB	-
Beam Divergence (FWHM) @ P_{op}	**Parallel**	$\theta_{\parallel}$	7°	9°	12°
	Perpendicular	$\theta_{\perp}$	13°	17°	22°
Off-Axis Deviation @ P_{op}	**Parallel**	$\Delta\theta_{\parallel}$	-3°	-	3°
	Perpendicular	$\Delta\theta_{\perp}$	-3°	-	3°
Emission Point Accuracy		ΔX, ΔY, ΔZ	- 80 µm	-	+ 80 µm

T_{CASE} = 25°C, CW

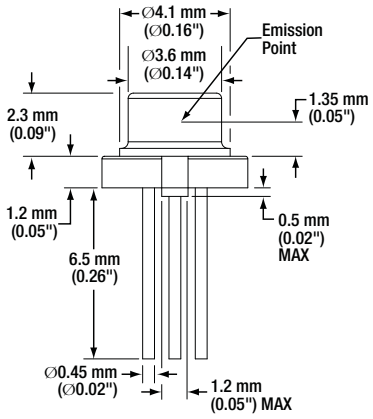
Performance Plots

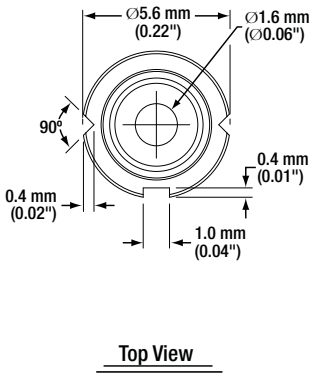


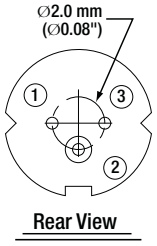


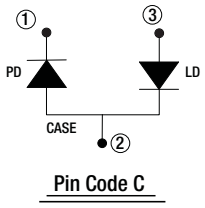
The data presented here was measured for one particular laser diode. Slight variations in performance will occur from device to device. The sample spectrum of the L820P100 laser diode was measured using a Thorlabs OSA201 Spectrum Analyzer with resolution of 7.5 GHz.

Drawings









Pin	Description
1	Cathode
2	Case
3	Anode