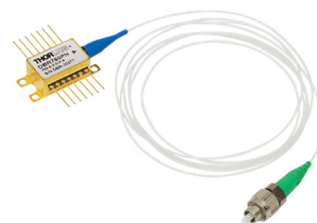


## 761 nm, 9 mW DBR Butterfly Laser with Isolator, PM Fiber



### DBR760PN

### Description

Thorlabs' DBR760PN Distributed Bragg Reflector (DBR) laser is a single-frequency laser diode that is well-suited for low-noise pump applications, second harmonic generation, and time-resolved fluorescence spectroscopy, as well as O<sub>2</sub> gas sensing applications. The DBR760PN includes an integrated optical isolator, thermoelectric cooler (TEC), thermistor, and monitor photodiode. It is packaged in a 14-pin butterfly package with PM780-HP polarization-maintaining optical fiber and an FC/APC connector with the connector key aligned to the slow axis of the fiber.

### Specifications

DBR760PN <sup>a</sup>				
	Symbol	Min	Typical	Max
Center Wavelength	$\lambda_c$	759 nm	761 nm	763 nm
Laser Linewidth	$\Delta\nu$	-	1 MHz	-
Output Power CW @ I <sub>OP</sub>	P <sub>OP</sub>	6 mW	9 mW	-
Operating Current	I <sub>OP</sub>	-	125 mA	-
Mode-Hop-Free Range <sup>b</sup>	$\Delta I_{\text{Mode-Hop-Free}}$	20 mA	-	-
Side-Mode Suppression Ratio (SMSR) in Mode-Hop-Free Range <sup>c</sup>	SMSR	30 dB	50 dB	-
30 dB BW in Mode-Hop-Free Range <sup>c</sup>	30 dB BW	-	-	0.3 nm
Threshold Current	I <sub>TH</sub>	-	55 mA	-
Forward Voltage	V <sub>F</sub>	-	2.0 V	2.5 V
Slope Efficiency	$\Delta P / \Delta I$	0.1 W/A	0.12 W/A	-
Current Tuning	$\Delta \lambda / \Delta I$	-	0.002 nm/mA	-
Temperature Tuning	$\Delta \lambda / \Delta T$	-	0.052 nm/°C	-
Monitor Diode Responsivity	I <sub>MON</sub> /P	-	50 $\mu$ A/mW	-
Polarization Extinction Ratio <sup>d</sup>	r <sub>ex</sub>	-	16 dB	-
Internal Isolation	ISO	-	30 dB	-
TEC Current	I <sub>TEC</sub>	-	0.24 A	-
TEC Voltage	V <sub>TEC</sub>	-	0.31 V	-
Thermistor Resistance @ 25 °C	R <sub>TH</sub>	-	10 k $\Omega$	-

a. T<sub>CASE</sub> = 25 °C; T<sub>CHIP</sub> = 25 °C.

b. Continuous tuning range between mode hops.

c. As measured with an optical spectrum analyzer (OSA) to empirically determine single frequency range. Laser 30 dB bandwidth and SMSR are subject to monochromator settings and OSA internal algorithms, and will differ from instrument to instrument.

d. Ratio of transmitted light polarized along the fiber's slow axis to transmitted light polarized along the fast axis.



July 22, 2020

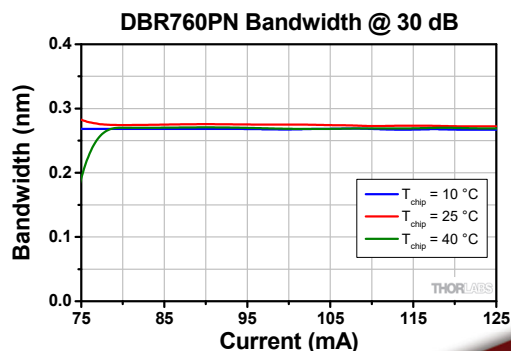
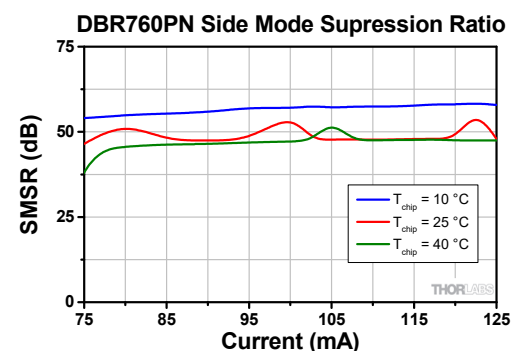
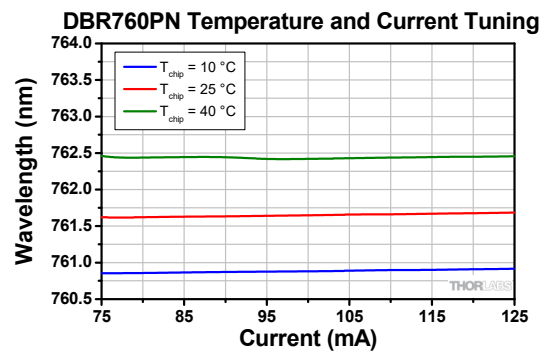
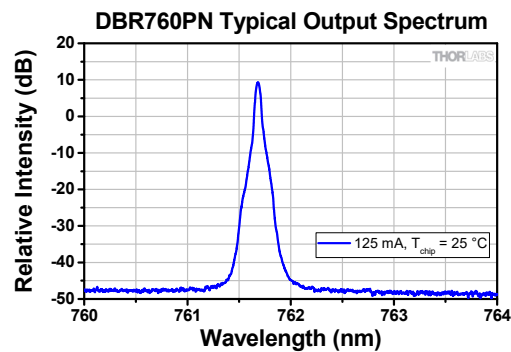
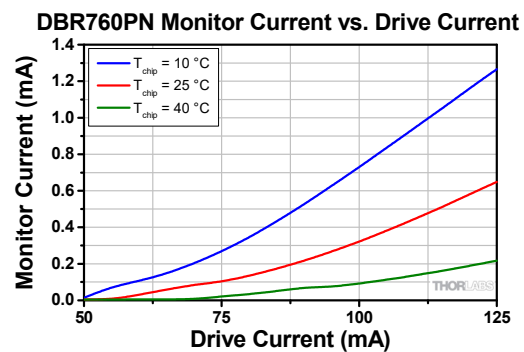
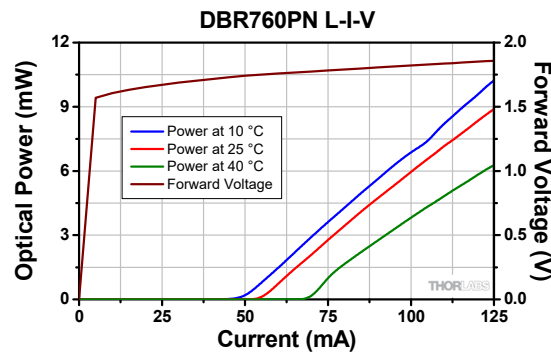
QTN024953-S01, Rev C

## Absolute Max Ratings

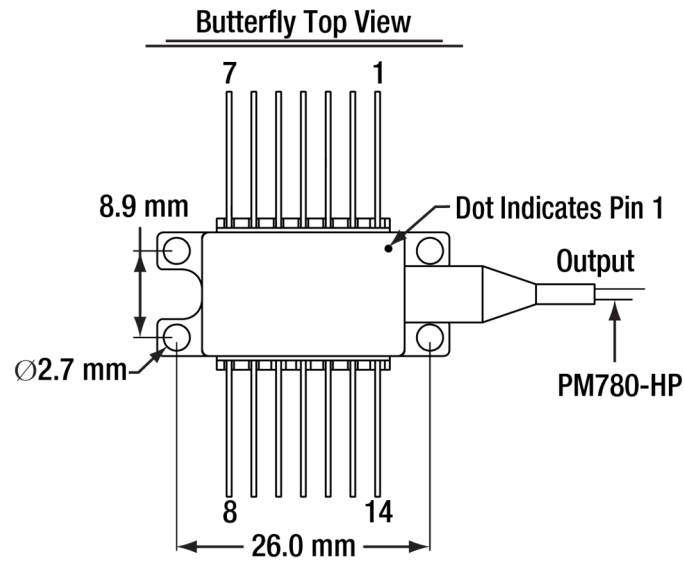
LD Reverse Voltage (Max)	2 V
Laser Current (Max) <sup>a</sup>	See Serialized Datasheet
Laser Power (Max) <sup>a</sup>	See Serialized Datasheet
TEC Current (Max)	3.0 A ( $T_{CASE} = 20\text{ }^{\circ}\text{C}$ ); 2.9 A ( $T_{CASE} = 70\text{ }^{\circ}\text{C}$ )
TEC Voltage (Max)	3.6 V ( $T_{CASE} = 20\text{ }^{\circ}\text{C}$ ); 4.4 V ( $T_{CASE} = 70\text{ }^{\circ}\text{C}$ )
PD Reverse Voltage (Max)	15 V
Operating Case Temperature	0 to 50 $^{\circ}\text{C}$
Operating Chip Temperature	10 to 40 $^{\circ}\text{C}$
Storage Temperature	-10 to 65 $^{\circ}\text{C}$

- a. Some devices will produce the max laser power before exceeding the typical operating current. Do not drive the laser diode beyond the absolute max laser current or power. Operating in this regime can cause damage to the device.

## Typical Performance Plots



## Drawings



PIN IDENTIFICATION	
1. TEC +	14. TEC -
2. Thermistor	13. Case
3. PD Anode	12. NC
4. PD Cathode	11. LD Cathode
5. Thermistor	10. LD Anode
6. NC	9. NC
7. NC	8. NC

