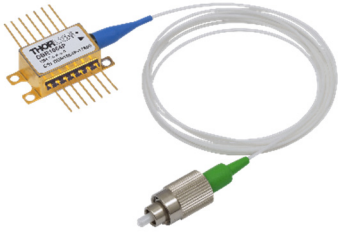
1064 nm Pigtailed DBR Laser Diode, 40 mW



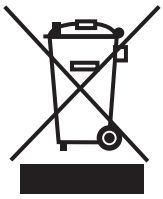
DBR1064P

Description

Thorlabs' DBR1064P 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. The DBR1064P includes an integrated optical isolator, thermo-electric cooler (TEC), thermistor, and monitor photodiode. It is packaged in a 14 pin butterfly package with PM 980 polarization-maintaining optical fiber and an FC/APC connector with the connector key aligned to the slow axis of the fiber.

Specifications

Absolute Max Ratings	
LD Reverse Voltage (Max)	2 V
Absolute Max Current	200 mA
Absolute Max Power	75 mW
PD Reverse Voltage (Max)	15 V
Operating Temperature	0 to 50 °C
Storage Temperature	-10 to 65 °C



T_{CHIP} = 15 – 35 °C, T_{CASE} = 25 °C, I_{OP} = 150 mA

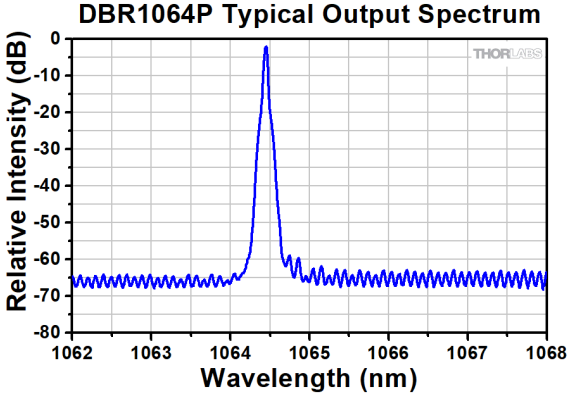
DBR1064P				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength[a]	λ_C	1062 nm	1064 nm	1066 nm
Laser Linewidth	Δv	-	5 MHz	-
Output Power CW @ I_{OP}[a]	P_{OP}	20 mW	40 mW	-
Operating Current	I_{OP}	-	150 mA	200 mA
Mode Hop Free Range[b]	$\Delta I_{Mode\text{-}Hop\text{-}Free}$	20 mA	50 mA	-
SMSR in Mode Hop Free Range	SMSR	30 dB	50 dB	-
Threshold Current	I_{TH}	-	35 mA	-
Forward Voltage[a]	V_F	-	2.0 V	2.5 V
Slope Efficiency	$\Delta P/\Delta I$	-	0.25 W/A	-
Current Tuning @ I_{OP}	$\Delta\lambda/\Delta I$	-	0.002 nm/mA	-
Temperature Tuning @ I_{OP}	$\Delta\lambda/\Delta T$	-	0.08 nm/°C	-
Monitor Diode Responsivity @ I_{OP}	I_{MON}/P	-	10 µA/mW	-
Polarization Extinction Ratio[c]	r_{ex}	-	16 dB	-
Internal Isolation	ISO	-	25 dB	-

a. T_{CHIP} = 25C.
b. Continuous tuning range between mode hops.
c. Ratio of transmitted light polarized along the fiber's slow axis to transmitted light polarized along the fast axis.

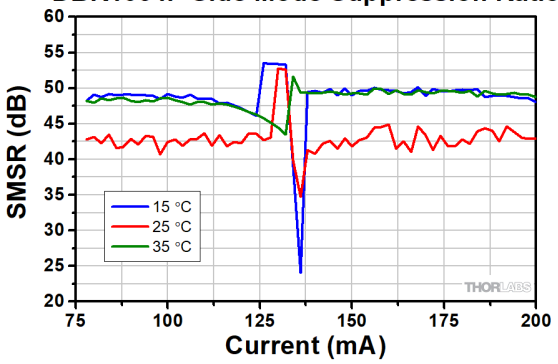
DBR1064P TEC Operation				
	Symbol	Min	Typical	Max
TEC Current	I_{TEC}	-	0.1 A	1.5 A
TEC Voltage	V_{TEC}	-	2.8 V	4.0 V
Thermistor Resistance @ 25 °C	R_{TH}	-	10 kΩ	-

Typical Performance Plots

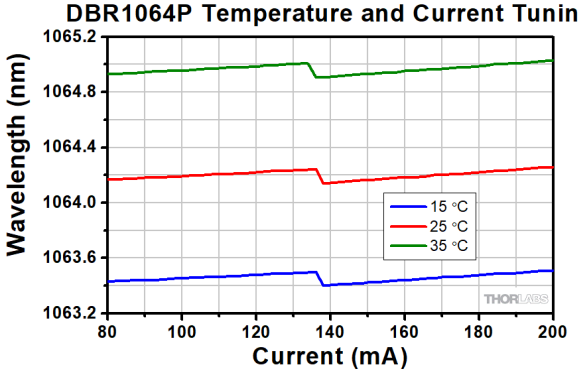
DBR1064P Typical Output Spectrum



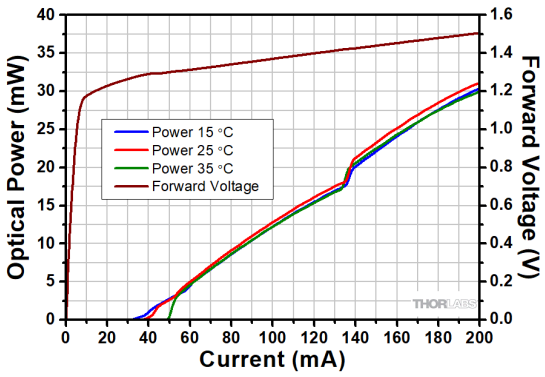
DBR1064P Side Mode Suppression Ratio



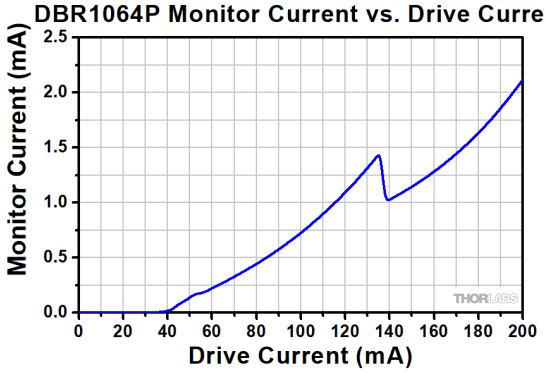
DBR1064P Temperature and Current Tuning



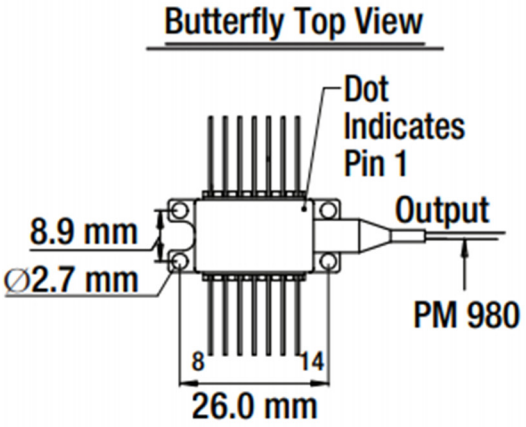
DBR1064P L-I-V



DBR1064P Monitor Current vs. Drive Current



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