

DBR785P

Description

Thorlabs' DBR785P 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 DBR785P includes an integrated optical isolator, thermo-electric 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

DBR785P Absolute Max Rating	
LD Reverse Voltage (Max)	2.5 V
Absolute Max Current	250 mA
Absolute Max Power	50 mW
PD Reverse Voltage (Max)	2 V
Operating Temperature	0 to 50 °C
Storage Temperature	-10 to 65 °C



$T_{CHIP} = 15 - 35\text{ °C}$, $T_{CASE} = 25\text{ °C}$, $I_{OP} = 230\text{ mA}$

DBR785P				
	Symbol	Min	Typical	Max
Center Wavelength ^a	λ_C	783 nm	785 nm	787 nm
Laser Linewidth	$\Delta\nu$	-	3 MHz	-
Output Power CW @ I_{OP} ^a	P_{OP}	20 mW	25 mW	-
Operating Current	I_{OP}	-	230 mA	250 mA
Mode Hop Free Range ^b	$\Delta I_{\text{Mode-Hop-Free}}$	10 mA	20 mA	-
SMSR in Mode Hop Free Range	SMSR	30 dB	50 dB	-
Threshold Current	I_{TH}	-	70 mA	-
Forward Voltage ^a	V_F	-	2.0 V	2.5 V
Slope Efficiency	$\Delta P/\Delta I$	-	0.15 W/A	-
Current Tuning @ I_{OP}	$\Delta\lambda/\Delta I$	-	0.002 nm/mA	-
Temperature Tuning @ I_{OP}	$\Delta\lambda/\Delta T$	-	0.065 nm/°C	-
Monitor Diode Responsivity @ I_{OP}	I_{MON}/P	-	50 $\mu\text{A}/\text{mW}$	-
Polarization Extinction Ratio ^c	Γ_{ex}	-	16 dB	-
Internal Isolator Isolation	ISO	-	25 dB	-

a. $T_{CHIP} = 25\text{ °C}$.

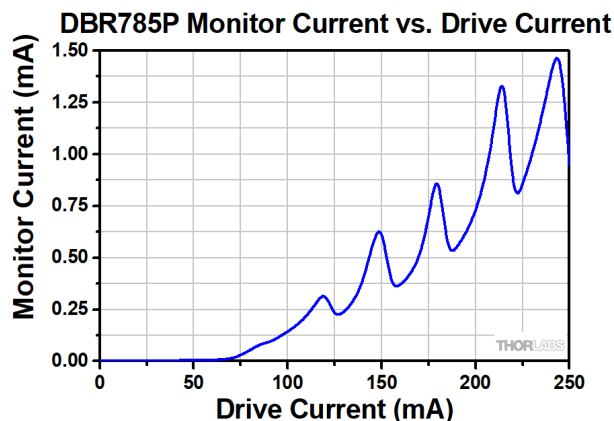
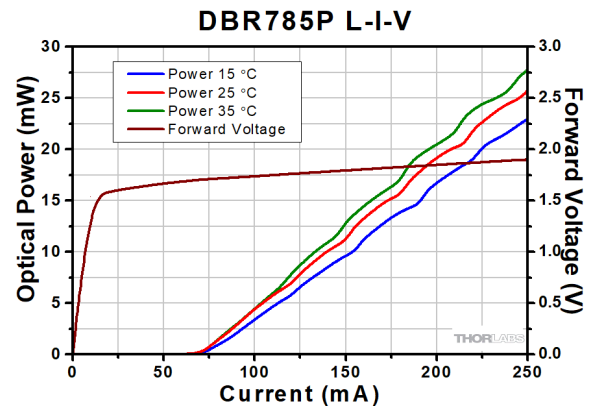
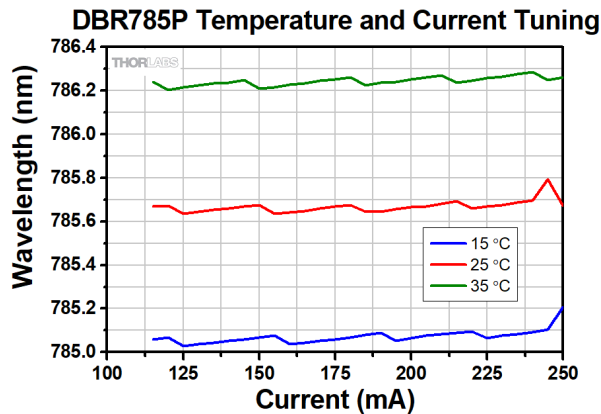
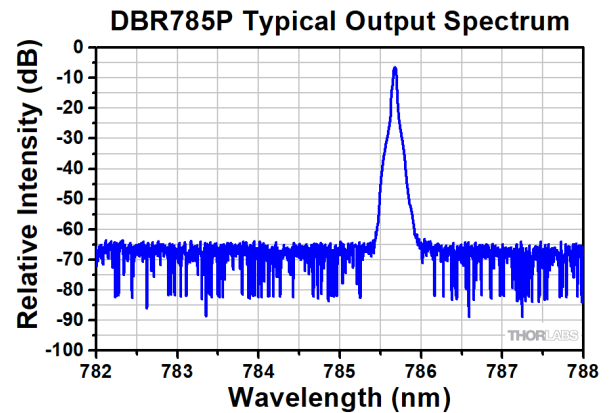
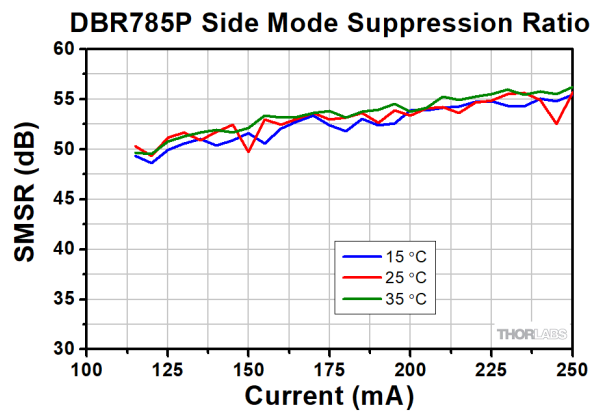
b. Continuous tuning range between mode hops.

c. Ratio of transmitted light polarized along the fibers slow axis to transmitted light polarized along the fast axis.

DBR785P TEC Operation

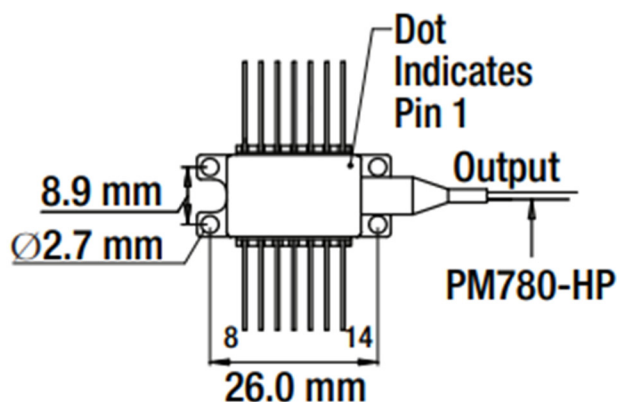
	Symbol	Min	Typical	Max
TEC Current	I_{TEC}	-	0.1 A	1.5 A
TEC Voltage	V_{TEC}	-	2.8 V	4.0 V
Thermistor Resistance @ 25 °C	R_{TH}	-	10 k Ω	-

Typical Performance Plots



Drawings

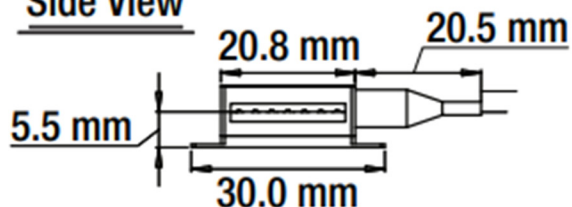
Butterfly Top View



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

Side View



14.0 mm (min)

Front View

