

DBR785S

Description

Thorlabs' DBR785S 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 DBR785S includes an integrated optical isolator, thermo-electric cooler (TEC), thermistor, and monitor photodiode. It is packaged in a 14 pin butterfly package with 780HP single mode optical fiber and an FC/APC connector.

Specifications

DBR785S Absolute Max Ratings	
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



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

DBR785S				
	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 $\mu\text{A/mW}$	-
Internal Isolator Isolation	ISO	-	25 dB	-

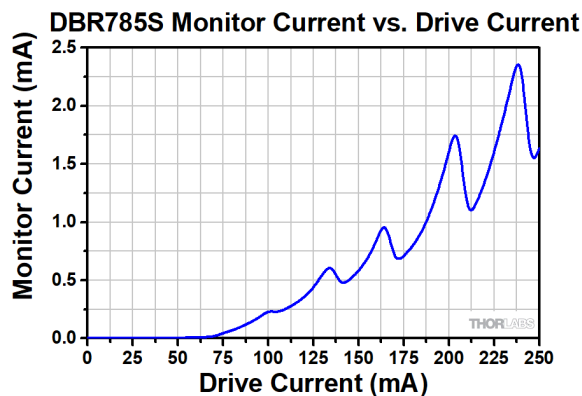
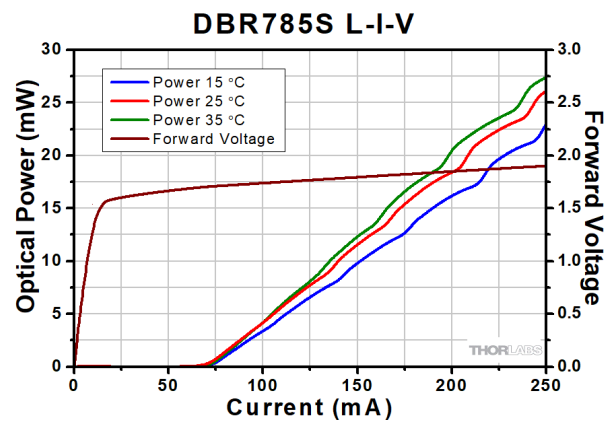
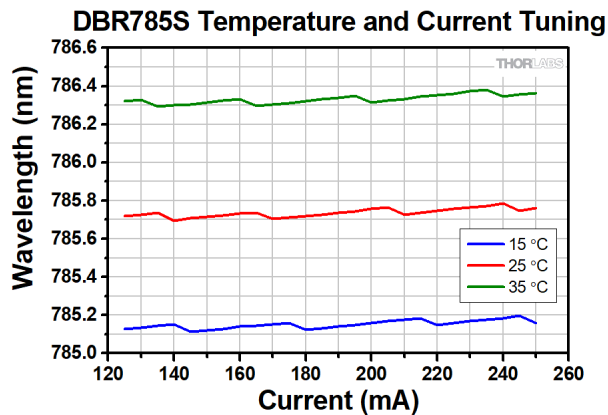
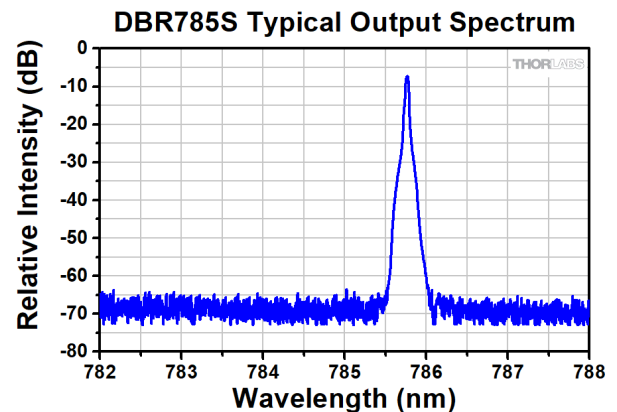
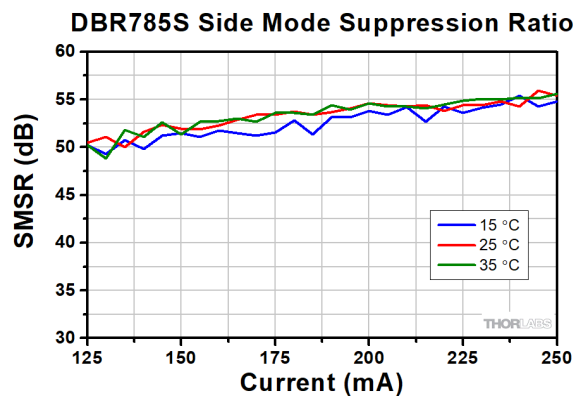
a. $T_{CHIP} = 25\text{ °C}$.

b. Continuous tuning range between mode hops.

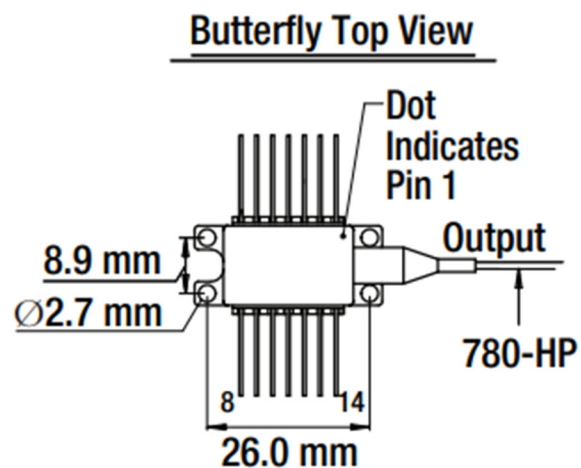
DBR785S TEC Operation

	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



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

