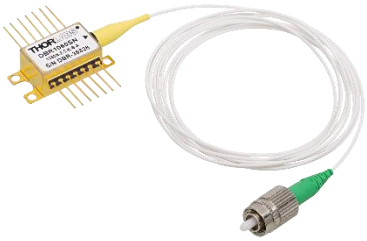
1060 nm, 130 mW DBR Butterfly Laser with Isolator, SM Fiber



DBR1060SN

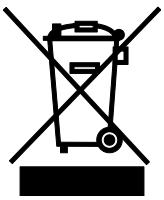
Description

Thorlabs' DBR1060SN 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 DBR1060SN includes an integrated optical isolator, thermoelectric cooler (TEC), thermistor, and monitor photodiode. It is packaged in a 14-pin butterfly package with HI1060 single mode optical fiber and an FC/APC connector.

Specifications

DBR1060SN[a]				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength	λ_C	1058 nm	1060 nm	1062 nm
Laser Linewidth	$\Delta\nu$	-	10 MHz	-
Output Power CW @ I_{OP}	P_{OP}	100 mW	130 mW	-
Operating Current	I_{OP}	-	650 mA	-
Mode-Hop-Free Range[b]	$\Delta I_{Mode\text{-}Hop\text{-}Free}$	20 mA		
Side Mode Suppression Ratio in Mode-Hop-Free Range[c]	SMSR	30 dB	50 dB	-
30 dB BW in Mode-Hop-Free Range[c]	30 dB BW	-	-	0.25 nm
Threshold Current	I_{TH}	-	50 mA	-
Forward Voltage	V_F	-	1.8 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	-	50 µA/mW	-
Internal Isolation	ISO	-	33 dB	-
TEC Current	I_{TEC}	-	0.3 A	-
TEC Voltage	V_{TEC}	-	0.4 V	-
Thermistor Resistance @ 25 °C	R_{TH}	-	10 kΩ	-

a. T_{CASE} = 25 °C; T_{CHIP} = 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.

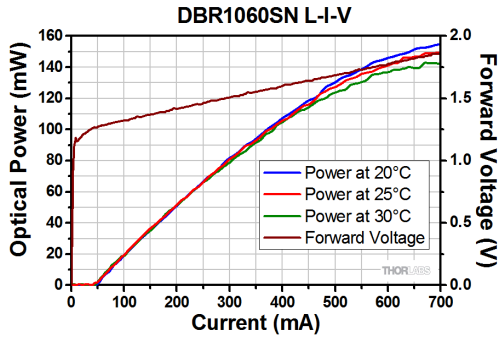


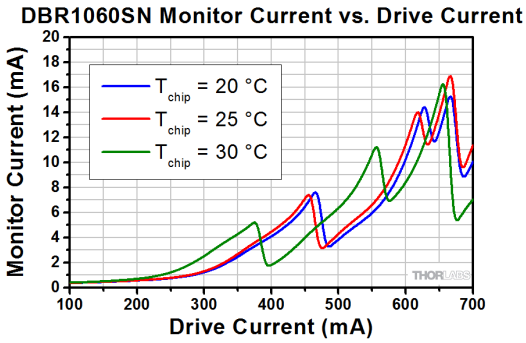
Absolute Max Ratings	
LD Reverse Voltage (Max)	2 V
Laser Current (Max)[a]	See Serialized Datasheet
Laser Power (Max)[a]	See Serialized Datasheet
TEC Current (Max)	3.0 A (T_{CASE} = 20 °C); 2.9 A (T_{CASE} = 70 °C)[b]
TEC Voltage (Max)	3.6 V (T_{CASE} = 20 °C); 4.4 V (T_{CASE} = 70 °C)[b]
PD Reverse Voltage (Max)	15 V
Operating Case Temperature	0 to 50 °C
Operating Chip Temperature	10 to 40 °C
Storage Temperature	-10 to 65 °C

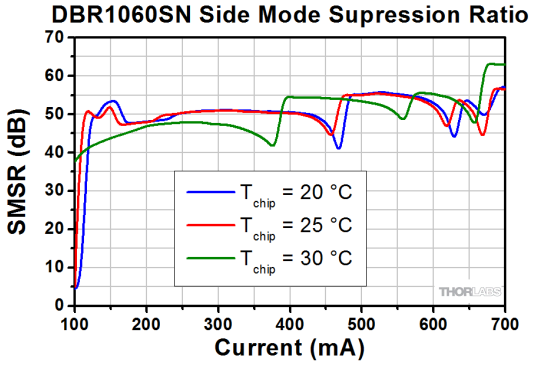
a. Some devices will produce the max laser power before exceeding the typical operating current. Do not drive the laser diode beyond the absolute max laser current or power. Operating in this regime can cause damage to the device.

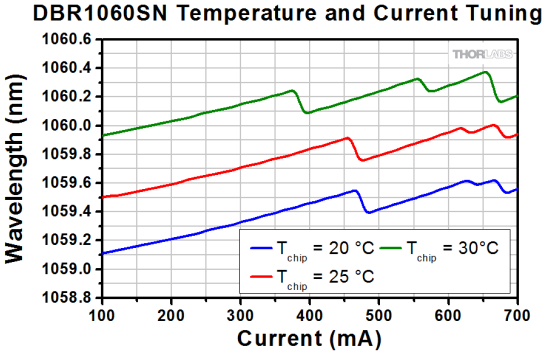
b. Do not operate above maximum operating case temperature. Given for reference purposes only

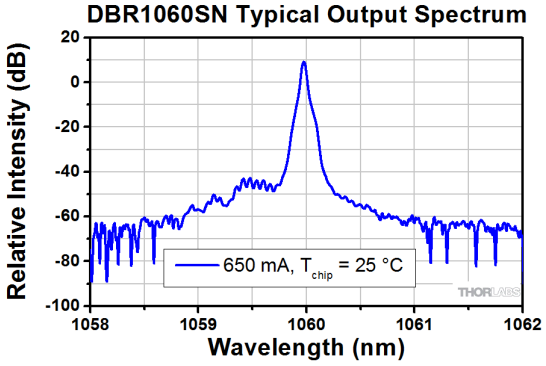
Typical Performance Plots

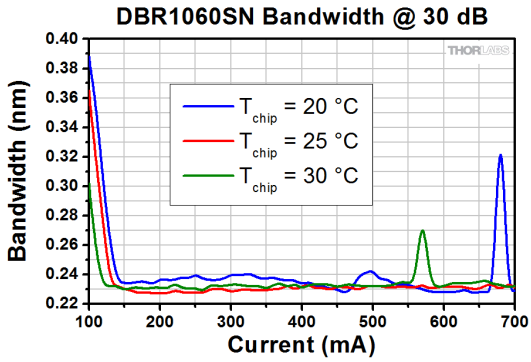




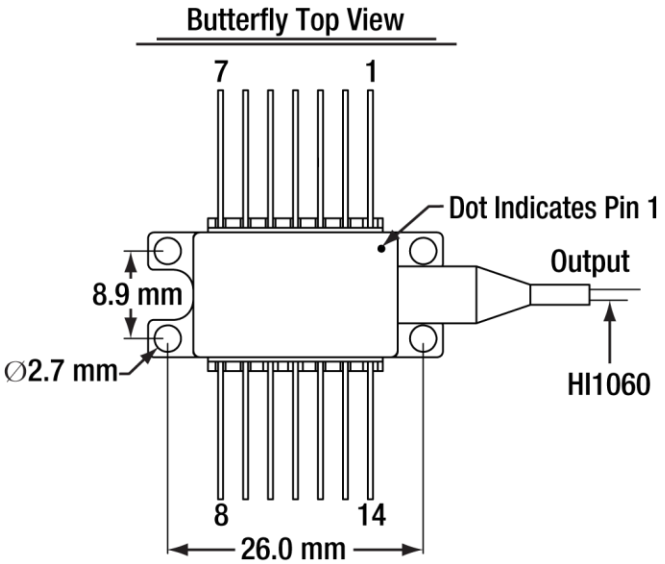








Drawings



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