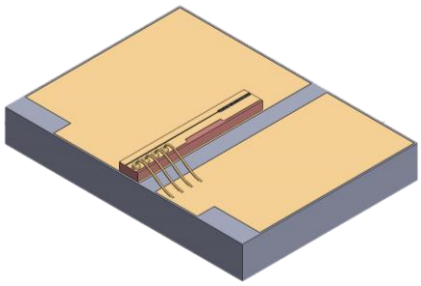
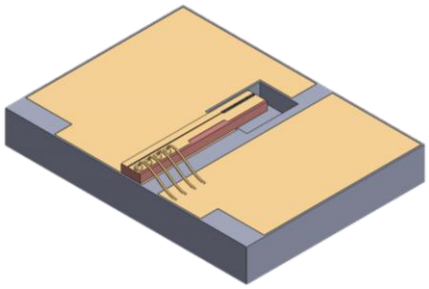
Specification Sheet | **852.347 nm Series**

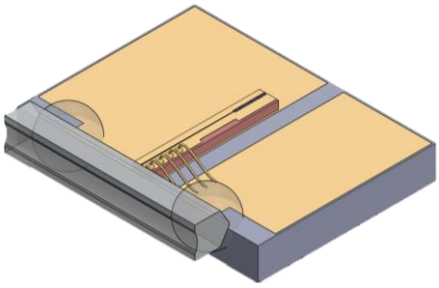
Distributed Bragg Reflector (DBR) Laser Diode



Chip on Submount (CoS)



CoS + Mode-Hop Free (MHF)



CoS + Virtual Point Source (VPS) Lens

Description

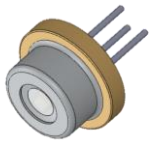
The 852.347 nm DBR Series of high-performance edge-emitting laser diodes are based on Photodigm's advanced monolithic single-frequency Gallium Arsenide (GaAs) based laser technology. It provides a single spatial mode beam and has passivated facets for reliability. The 852.347 nm Series DBR devices are used in atomic spectroscopy for cesium-based (Cs) applications as well as Raman spectroscopy. The 852.347 nm Series DBR devices are Spectroscopy Certified; guaranteed to hit the Cs D2 transition ± 10 °C from room temperature.

852.347 nm DBR Chip on Submount (CoS) Characteristics

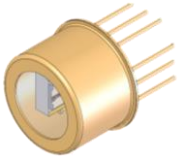
	Chip Architecture		
Parameters[1]	**HOT[3] (High Operating Temperature)**	**Low Power**	**High Power**
Wavelength, Nominal (nm)[2]	852.347 ± 0.6		
Power Range (mW)	10–30	40–80	80–240
Operating Current, Max (CW & Pulsed) (mA)	90	140	350
Optical Power at Max Operating Current (mW)	30	80	240
Slope Efficiency, Nominal (W/A)	0.6	0.9	0.9
Threshold Current, Nominal (mA)	40	30	50

1. Characteristics at T_C = 25 °C unless otherwise specified. Operating outside of these parameters voids warranty.
2. Hermetically sealed packages may contain CoS that are ± 1.2 nm from nominal.
3. HOT characteristics specified at 65 °C.

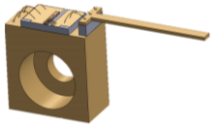
Available Free-Space Package Add-ons



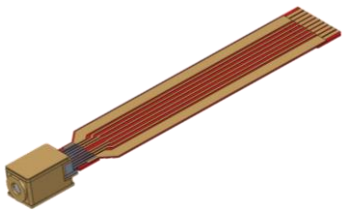
9MM



TO-8



C-Mount



Transmitter Optical Subassembly (TOSA)

Photodigm, Inc.
www.photodigm.com
3.13.2024
972-235-7584
1155 E Collins Blvd, #200, Richardson, TX 75081

Specification Sheet | **852.347 nm Series**

Distributed Bragg Reflector (DBR) Laser Diode

Specifications

Laser

Parameter	Unit	Min	Typical	Max
Storage Temperature	°C	0	-	70
Operating Temperature at case	°C	5	-	70
Operating Temperature at laser chip[1]	°C	5	-	45
Laser Series Resistance	Ω	-	2	-
Laser Forward Voltage @ LIV Current	V	-	2	-
Nominal Laser Linewidth @ LIV Current	kHz	-	500	-
Beam Divergence @ FWHM ($\theta_{\parallel}$ x $\theta_{\perp}$)	º	-	6 x 28	8 x 32
Side Mode Suppression Ratio (SMSR)	dB	-	-40	-
Polarization Extinction Ratio	dB	-17	-20	-
Laser Polarization	TE			
Mode Structure	Fundamental Mode			
Temperature Tuning Rate	nm/°C	-	0.06	-
Current Tuning Rate	nm/mA	-	0.002	-
Laser Reverse Voltage	V	-	-	0

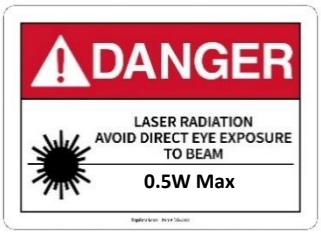
1. Operation below dew point not recommended without hermetically sealed packaged

Free-Space Package Add-Ons

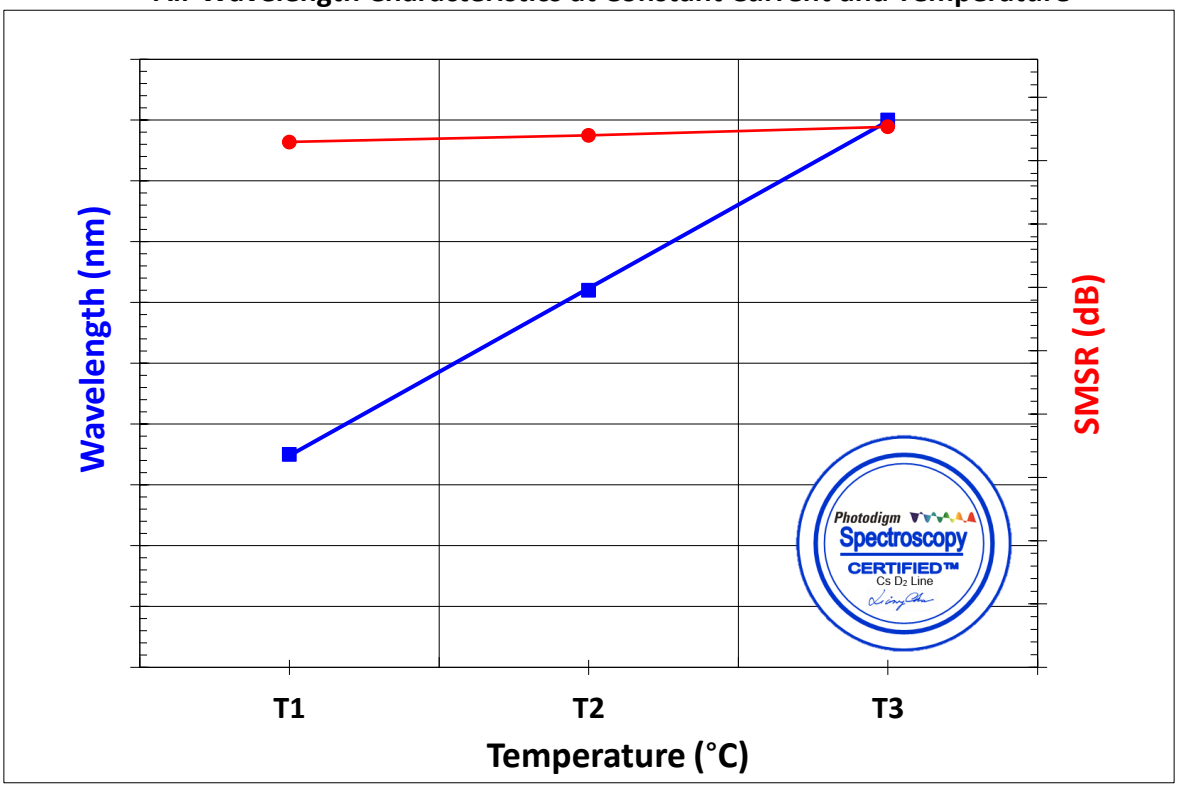
Parameter	Unit	Min	Typical	Max
Photodiode Forward Current	mA	-	-	10
Photodiode Reverse Voltage	V	-	-	50
TEC Current (TOSA)	A	-1.1	-	1.1
TEC Voltage (TOSA)	V	-3.0	-	3.0
TEC Current (TO-8)	A	-1.8	-	1.8
TEC Voltage (TO-8)	V	-2.2	-	2.2
Thermistor Resistance	kΩ	-	10	-

Handling Precautions

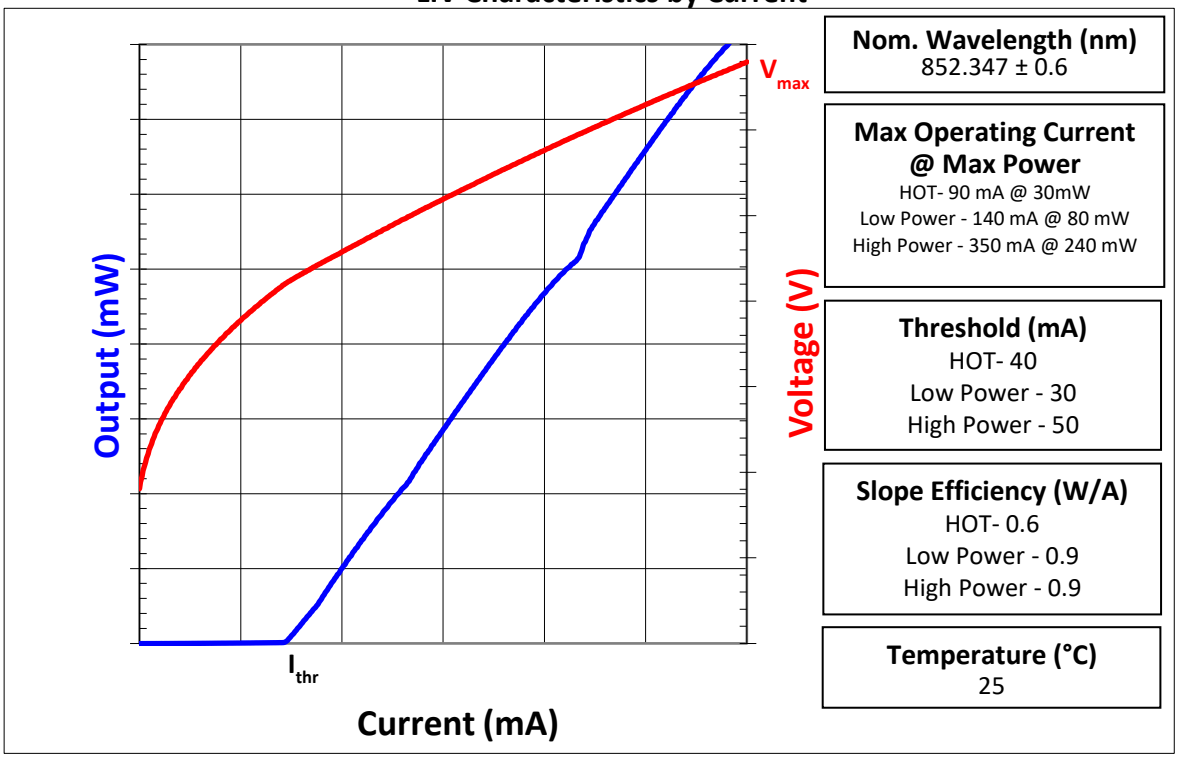
These devices are sensitive to ESD. When handling the module, grounded work area and wrist strap must be used. Always store in an antistatic container with all leads shorted together.



Air Wavelength Characteristics at Constant Current and Temperature



LIV Characteristics by Current



Nom. Wavelength (nm)
852.347 ± 0.6

Max Operating Current @ Max Power
HOT- 90 mA @ 30mW
Low Power - 140 mA @ 80 mW
High Power - 350 mA @ 240 mW

Threshold (mA)
HOT- 40
Low Power - 30
High Power - 50

Slope Efficiency (W/A)
HOT- 0.6
Low Power - 0.9
High Power - 0.9

Temperature (°C)
25

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