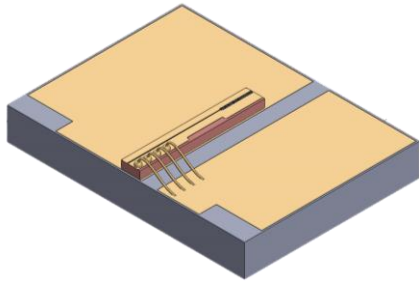
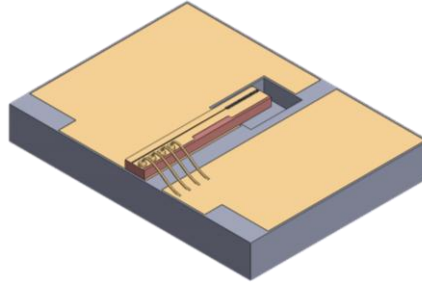


Specification Sheet | 1083.33 nm Series

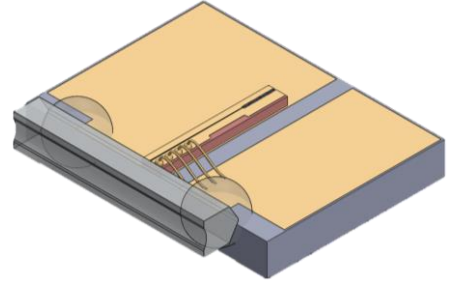
Distributed Bragg Reflector (DBR) Laser Diode



Chip on Submount (CoS)



CoS + Mode-Hop Free (MHF)



CoS + Virtual Point Source (VPS) Lens

Description

The 1083.33 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 1083.33 nm Series DBR devices are used in atomic spectroscopy for metastable Helium-based (He*) applications. The 1083.33 nm Series DBR devices are Spectroscopy Certified; guaranteed to hit the He* transition ± 10 °C from room temperature.

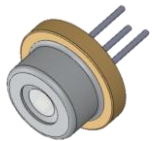
1083.33 nm DBR Chip on Submount (CoS) Characteristics

Parameters ¹	Chip Architecture	
	Low Power	High Power
Wavelength, Nominal (nm) ²	1083.33 \pm 0.6	
Power Range (mW)	40–120	100–350
Operating Current, Max (CW & Pulsed) (mA)	250	550
Optical Power at Max Operating Current (mW)	120	350
Slope Efficiency, Nominal (W/A)	0.7	0.7
Threshold Current, Nominal (mA)	30	70

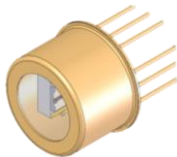
1. Characteristics at T_c = 25 °C unless otherwise specified. Operating outside of these parameters voids warranty.

2. Hermetically sealed packages may contain CoS that are ± 1.2 nm from nominal.

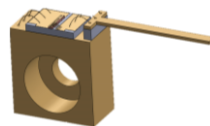
Available Free-Space Package Add-ons



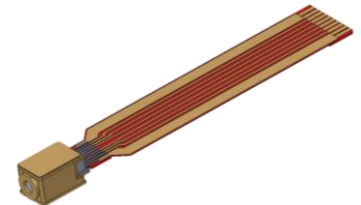
9MM



TO-8



C-Mount



Transmitter Optical Subassembly (TOSA)

Specification Sheet | 1083.33 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 ($\theta_{ }$ x θ_{\perp})	°	-	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.

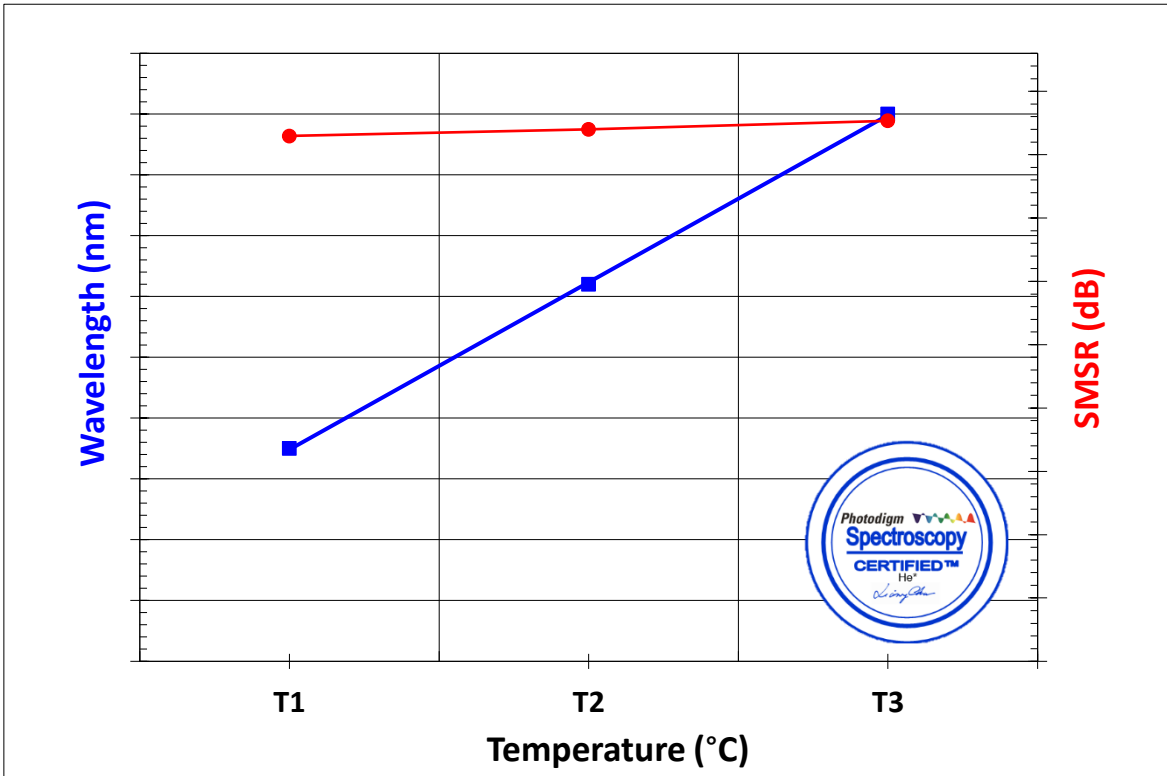


Photodigm, Inc. reserves the right to make changes in design, specifications, and other information at any time, and without prior notice. The information contained within the specification sheet is believed to be accurate. However, no responsibility is assumed for possible inaccuracy or omission. Any information contained herein shall not legally bind Photodigm, Inc. unless it is specifically incorporated in the terms and conditions of a sales agreement.

Specification Sheet | 1083.33 nm Series

Distributed Bragg Reflector (DBR) Laser Diode

Air Wavelength Characteristics at Constant Current by Temperature



LIV Characteristics by Current

