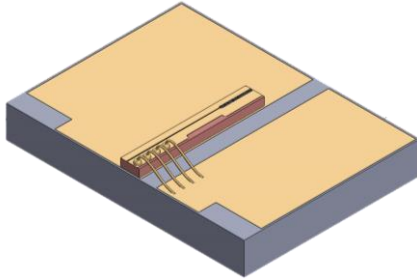
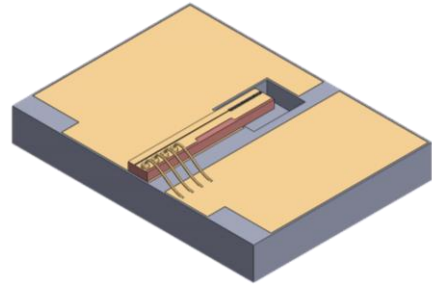


Specification Sheet | 1039 nm Series
Distributed Bragg Reflector (DBR) Laser Diode



Chip on Submount (CoS)



CoS + Mode-Hop Free (MHF)

Description

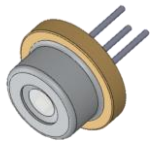
The 1039 nm DBR Series of high-performance edge-emitting laser diodes are based on Photodigm’s advanced monolithic single-frequency Gallium Arsenide (GaAs) based laser technology. It provides a single spatial mode beam and has passivated facets for reliability. The 1039 nm Series DBR devices are used as a low noise nitrogen-vacancy (NV) center probe when frequency doubled.

1039 nm DBR Chip on Submount (CoS) Characteristics

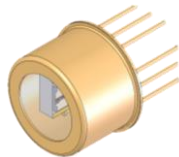
Parameters ¹	Chip Architecture
	Low Power
Wavelength, Nominal (nm) ²	1039 ± 0.6
Power Range (mW)	40–180
Operating Current, Max (CW & Pulsed) (mA)	350
Optical Power at Max Operating Current (mW)	180
Slope Efficiency, Nominal (W/A)	0.7
Threshold Current, Nominal (mA)	30

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.

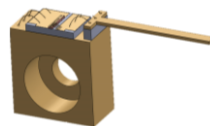
Available Free-Space Package Add-ons



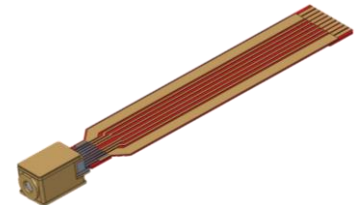
9MM



TO-8



C-Mount



Transmitter Optical Subassembly (TOSA)

Specification Sheet | 1039 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.

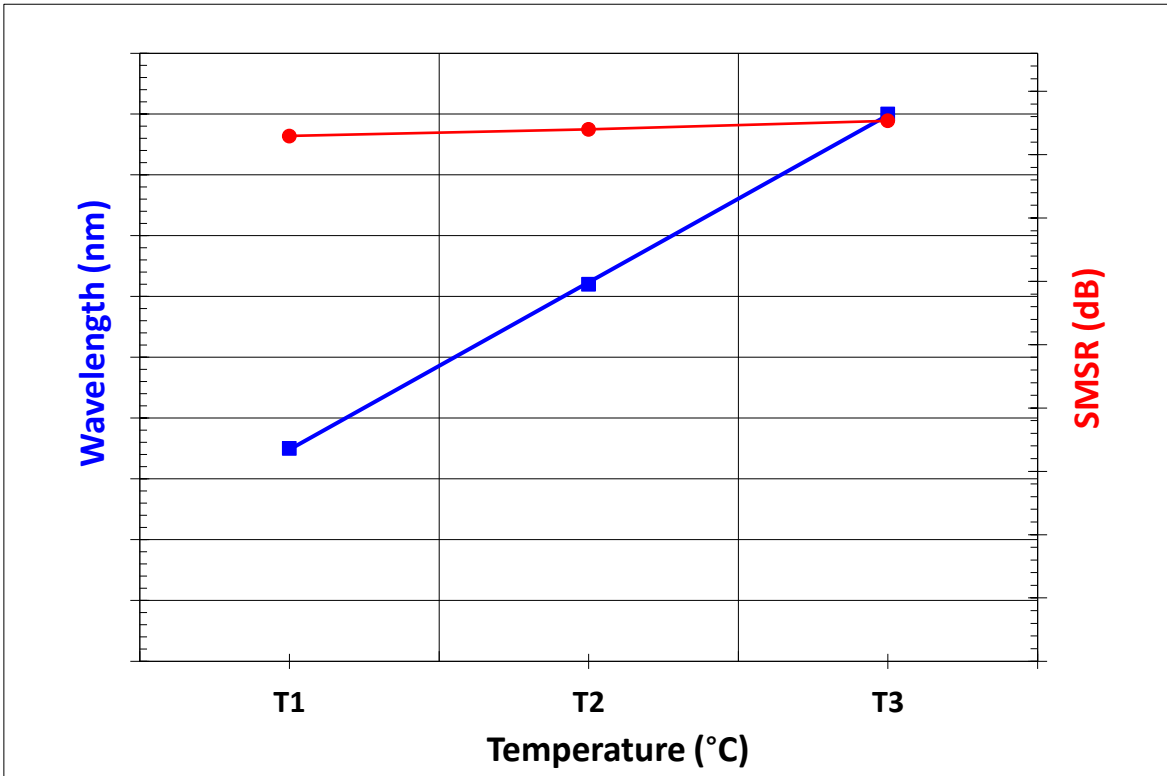


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Specification Sheet | 1039 nm Series

Distributed Bragg Reflector (DBR) Laser Diode

Air Wavelength Characteristics at Constant Current by Temperature



LIV Characteristics by Current

