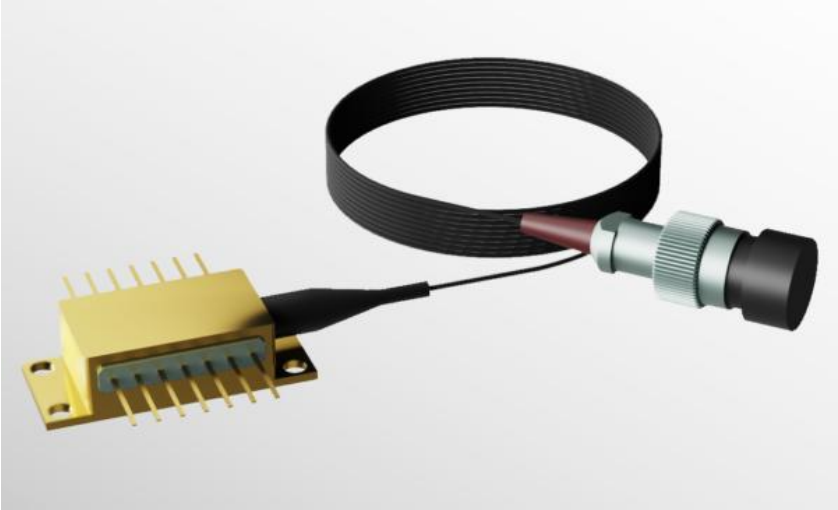
1080nm DBR Laser Diode



Product Description

The 1080 nm DBR series high-performance edge-emitting laser diodes adopt advanced monolithic single-frequency GaAs laser technology. This series outputs single spatial mode beam and employs facet passivation technology to ensure long-term reliability. 1080 nm DBR laser diodes can serve as a low-noise nitrogen-vacancy (NV) center probe after frequency doubling.

Product features

Monolithically integrated DBR architecture; support for multiple operating modes; facet passivation treatment

Part Number

MP-DBR-1080-180-14BF-PA

Application area

DPSS laser pumping | Spectroscopy | Helium atom applications | Optical fiber communication systems

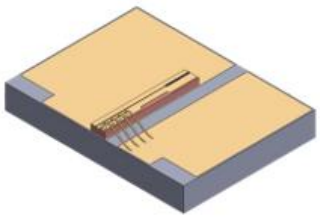
Core parameters

Central Wavelength
1080nm

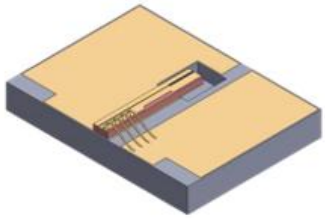
General Parameters

Model Parameters

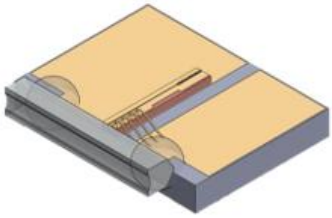
Detailed parameters



Chip on Submount (CoS)



CoS + Mode-Hop Free (MHF)



CoS + Virtual Point Source (VPS) Lens

1080nm (COS) package characteristics

	Chip architecture
Parameter [1]	Low power
Nominal wavelength (nm)[2]	1080 ± 1.0nm
Power range (mW)	40–180
Maximum Operating Current (CW & Pulsed) (mA)	250
Optical power at maximum operating current (mW)	180
Nominal Slope Efficiency (W/A)	0.8
Nominal threshold current (mA)	40

1. Characteristics at TC = 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)

Laser specifications

Parameters	unit	Minimum	Typical values	Maximum
Storage temperature	°C	0	-	70
Shell operating temperature	°C	5	-	70
Laser chip operating temperature [1]	°C	5	-	45
Laser series resistance	Ω	-	2	-
Forward voltage of the laser at LIV current	V	-	2	-
Nominal laser line width at LIV current	kHz	-	500	-
Beam divergence angle at half-height and full width (θ∥ × θ⊥)	°	-	6 x 28	8 x 32
Edge-mode rejection ratio (SMSR)	dB	-	-40	-
Polarization extinction ratio	dB	-17	-20	-
Polarized state of the laser	TE			
Pattern structure	Fundamental mode			
Temperature tuning rate	nm/°C	-	0.06	-
Current tuning rate	nm/mA	-	0.002	-
Laser reverse voltage	V	-	-	0

If not sealed, it is not recommended to use below the dew point

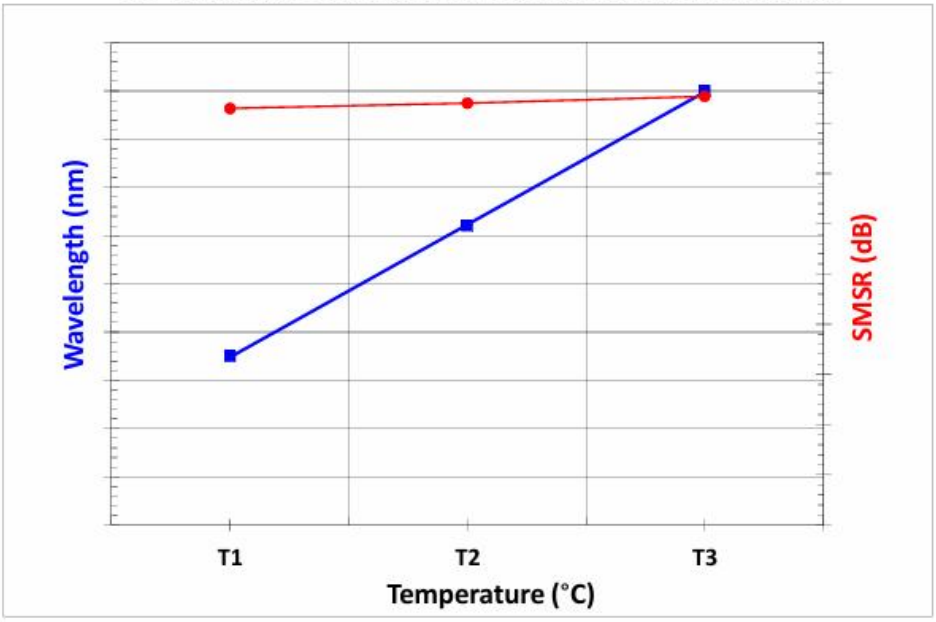
Freespace Encapsulation add-on specifications

Parameters	unit	Minimum	Typical values	Maximum
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
Thermistors	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 by Temperature



LIV Characteristics by Current