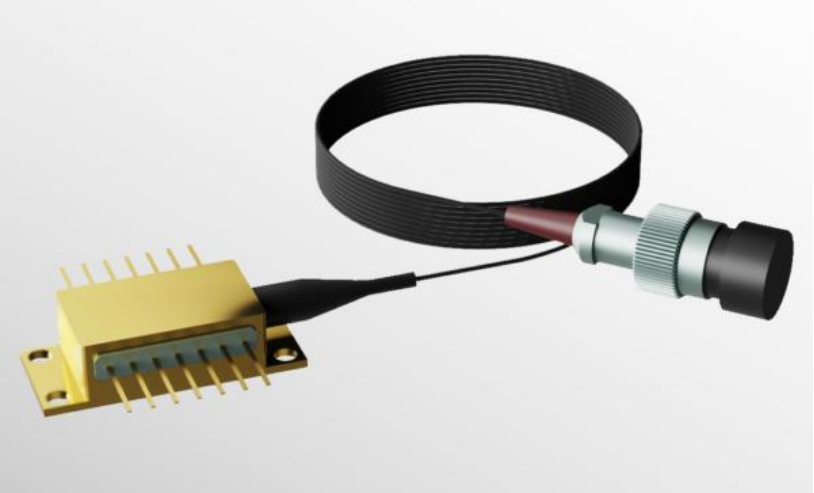
866.214nm DBR Laser Diode



Product Description

The 866.214nm DBR series high-performance edge-emitting laser diodes are based on advanced monolithic single-frequency gallium arsenide (GaAs) laser technology. These lasers provide single spatial mode beam output and employ facet passivation technology to ensure reliability. The 866.214nm DBR series devices are widely used in calcium ion-based atomic spectroscopy applications. The 866.214nm DBR series is spectroscopically certified to precisely cover the calcium ion cooling transition frequency within an ambient temperature range of ±10°C around room temperature.

Product features

Monolithically integrated DBR structure;cavity facet passivation;high-reliability design;ESD-sensitive device

Part Number

MP-DBR-866.214-240-14BF-PA

Application area

Quantum Technology | Atomic Physics | Precision Spectroscopy

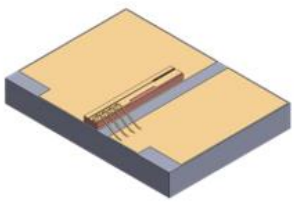
Core parameters

Central Wavelength
866.214nm

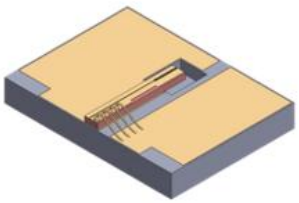
General Parameters

Model Parameters

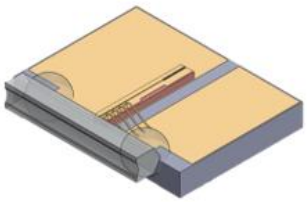
Detailed parameters



Chip on Submount (CoS)



CoS + Mode-Hop Free (MHF)



CoS + Virtual Point Source (VPS) Lens

866.214nm (COS) package characteristics

	Chip architecture
Parameter [1]	High power
Nominal wavelength (nm)[2]	866.214 ± 0.6
Power range (mW)	80–240
Maximum Operating Current (CW & Pulsed) (mA)	350
Optical power at maximum operating current (mW)	240
Nominal Slope Efficiency (W/A)	0.9
Nominal threshold current (mA)	50

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

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	Basic 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

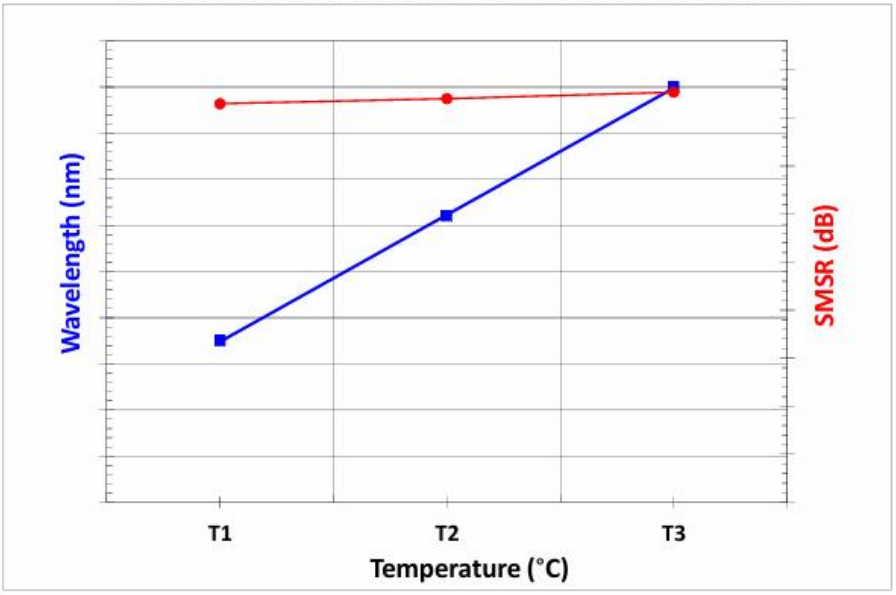
Freespace Encapsulation add-on specifications

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