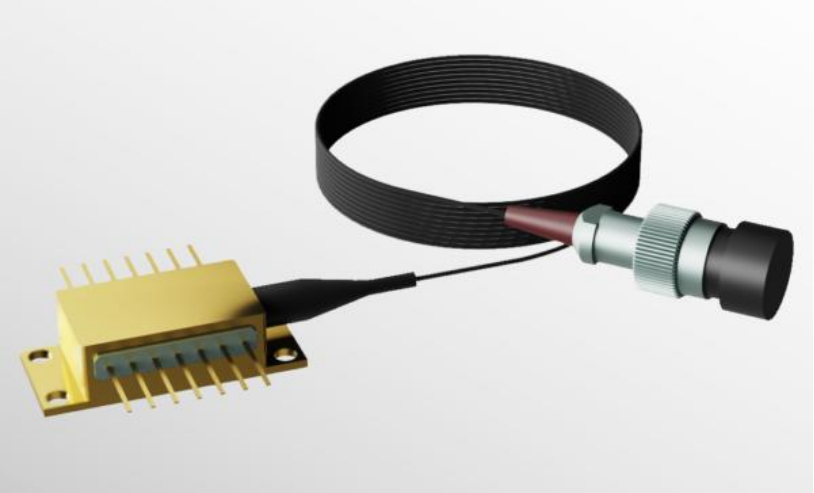
854.209nm DBR Laser Diode



Product Description

The 854.209 nm Distributed Bragg Reflector (DBR) high-performance edge-emitting laser diode is based on advanced monolithic integrated single-frequency Gallium Arsenide (GaAs) laser technology.This series of laser diodes outputs single spatial mode laser beams, with passivated facet design to ensure device reliability. The 854.209 nm DBR device is applicable to atomic spectroscopy fields under Calcium (Ca)-based application scenarios. In addition, this series of devices has passed spectral certification, which can accurately match the frequency doubling of calcium atom cooling transition within the ambient range of room temperature ±10 °C.

Product features

Excellent spectral performance ; High output power and outstanding operational reliability; Intelligent control and user-friendly usability

Part Number

MP-DBR-854.209-160-14BF-PA

Application area

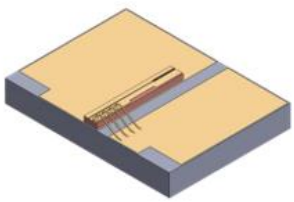
High-end Pumping Applications | Precision Sensing & Measurement Applications

Core parameters

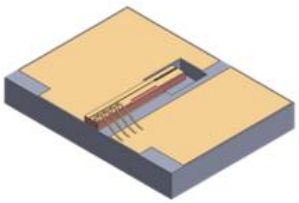
Central Wavelength
854.209nm

General Parameters

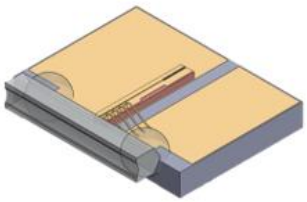
Detailed parameters



Chip on Submount (CoS)



CoS + Mode-Hop Free (MHF)



CoS + Virtual Point Source (VPS) Lens

854.209nm (COS) package characteristics

	Chip architecture
Parameter [1]	High power
Nominal wavelength (nm)[2]	854.209± 0.6
Power range (mW).	80–240
Maximum operating current (CW & Pulsed) (mA).	350
Optical power (mW) at maximum operating current	240
Nominal Slope Efficiency (W/A).	0.9
Nominal threshold current (mA).	50

1. Unless otherwise stated, all parameters are measured at a junction temperature of 25°C. If used outside of these parameters, the warranty will be void

2. The sealed package may contain a chip-on-substrate (CoS) with a deviation of ±1.2 nm from the nominal value.

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 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

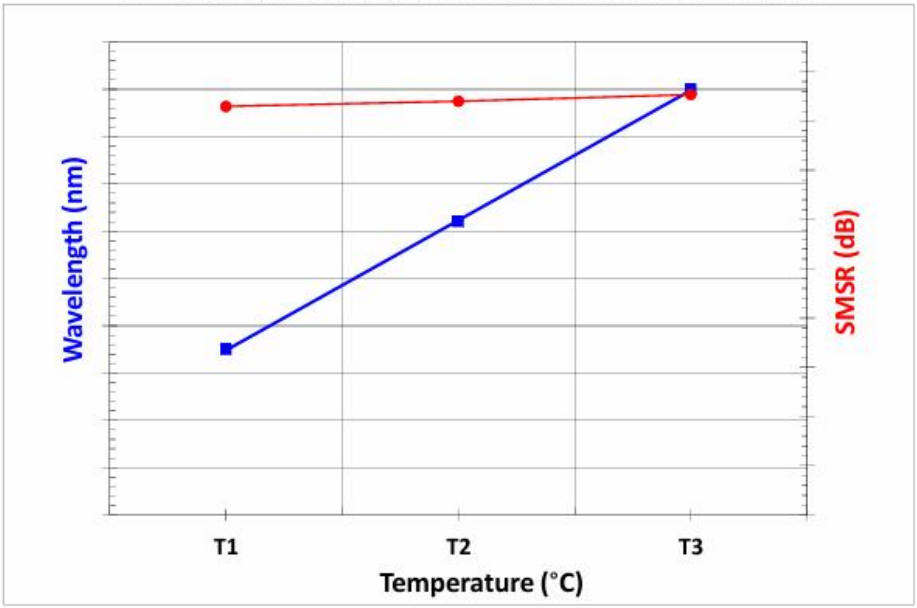
Freespace Encapsulation add-on specifications

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