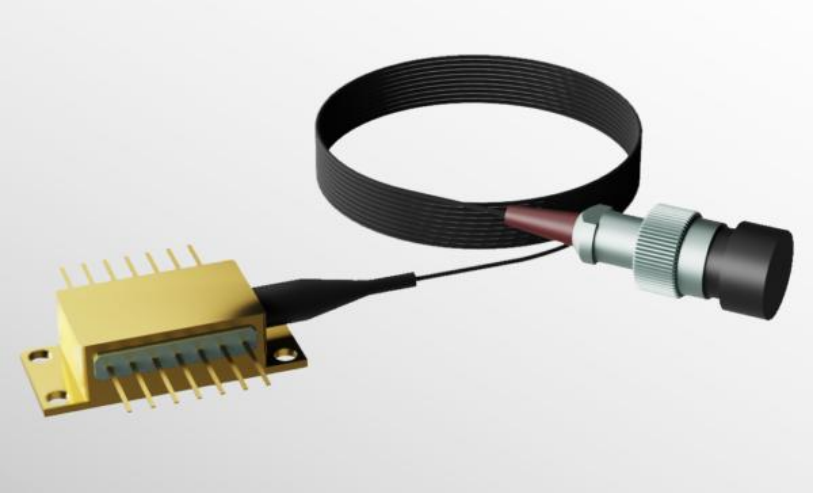
852.347 nm DBR Laser Diode



Product Description

The 852.347 nm DBR series high-performance edge-emitting laser diodes adopt advanced monolithic integrated single-frequency GaAs laser technology. This laser series delivers single transverse mode beam output and features facet passivation process for high reliability. The 852.347 nm DBR devices are suitable for cesium (Cs)-based atomic spectroscopy and Raman spectroscopy applications. Spectral certification ensures accurate tuning to the cesium atomic D2 transition line within ±10 °C around room temperature.

Product features

Precise atomic transition locking; advanced monolithic DBR technology; excellent beam and spectral characteristics; flexible power and modulation capability

Part Number

MP-DBR-852.347-140-14BF-PA

Application area

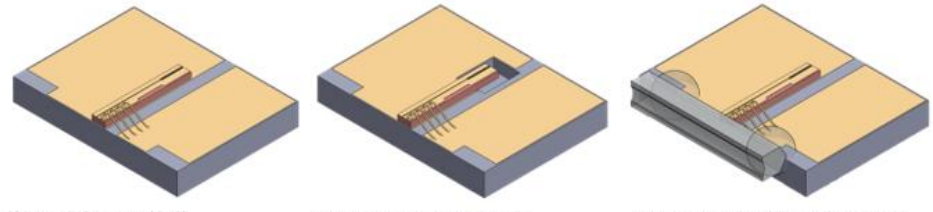
Quantum precision measurement and atomic clocks | Atomic, molecular and optical physics research | Nonlinear frequency conversion

Core parameters

Central Wavelength
852.347nm

General Parameters

Detailed parameters



Chip on Submount (CoS)

CoS + Mode-Hop Free (MHF)

CoS + Virtual Point Source (VPS) Lens

852.347nm (COS) package characteristics

	Chip architecture		
Parameter [1]	HOT[3] (High Operating Temperature)	Low power	High power
Nominal wavelength (nm)[2]	852.347 ± 0.6		
Power range (mW).	10–30	40-80	80-240
Maximum operating current (CW & Pulsed) (mA).	90	140	350
Optical power (mW) at maximum operating current	30	80	240
Nominal Slope Efficiency (W/A).	0.6	0.9	0.9
Nominal threshold current (mA).	40	30	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.

3. HOT characteristics specified at 65 °C.

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	Basic 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 package

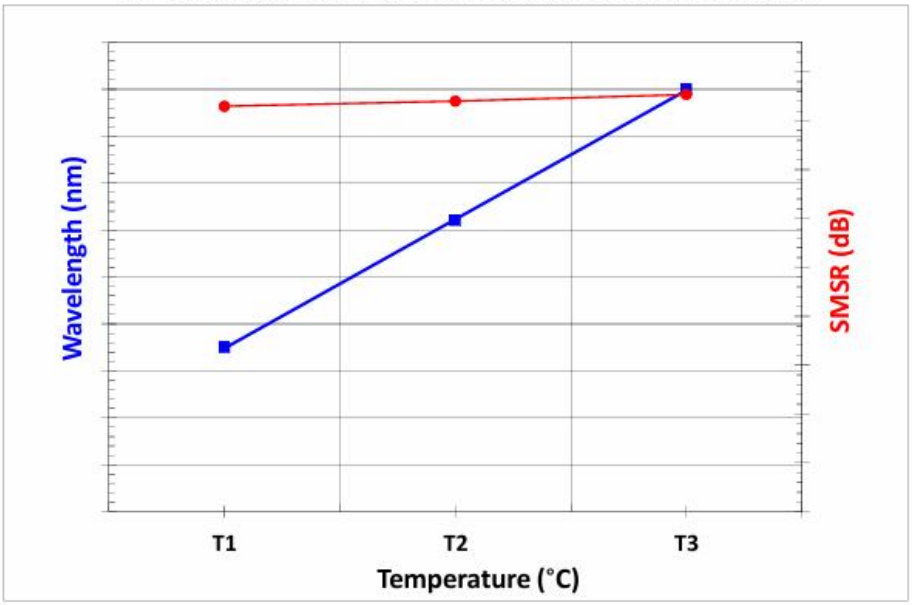
Free-space Package adds-on

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