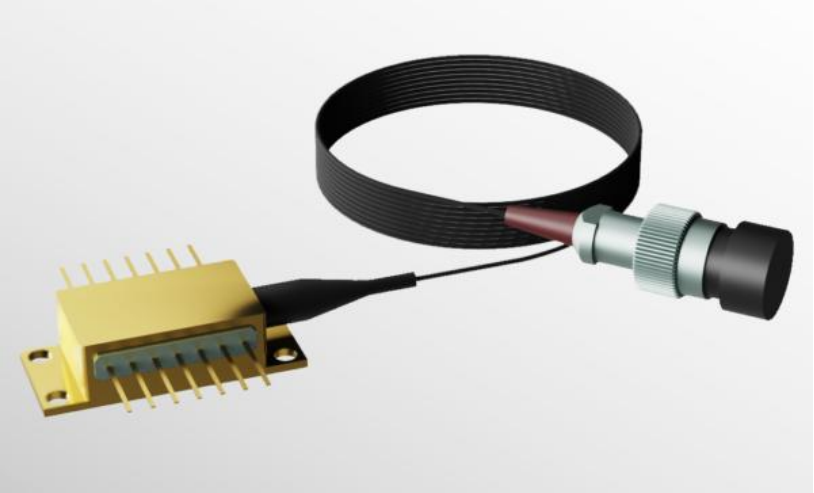
823 nm DBR Laser Diode



Product Description

The 823 nm DBR series high-performance edge-emitting laser diodes adopt the advanced monolithic single-frequency GaAs laser technology. This laser series delivers single spatial mode beam output and applies end-face passivation technology for enhanced reliability. The 823 nm DBR series devices serve as low-noise pump sources for biomedical diagnosis and imaging applications.

Product features

Monolithically integrated DBR structure; predictable mode hopping; cavity surface passivation treatment

Part Number

MP-DBR-823-180-14BF-PA

Application area

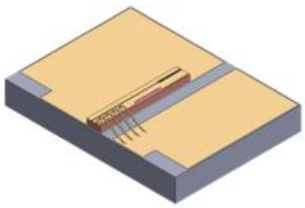
Rare-earth ion pumping | Biomedical imaging | Spectroscopy | General scientific research

Core parameters

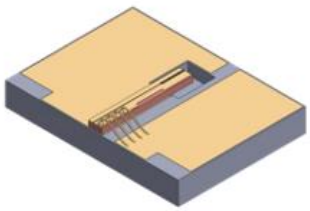
Central Wavelength
823nm

General Parameters

Detailed parameters



Chip on Submount (CoS)



CoS + Mode-Hop Free (MHF)

823nm (COS) package characteristics

	Chip architecture
Parameter [1]	High power
Nominal wavelength (nm)[2]	823 ± 0.6

Power range (mW)	80–180
Maximum Operating Current (CW & Pulsed) (mA)	250
Optical power at maximum operating current (mW)	180
Nominal Slope Efficiency (W/A)	0.85
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

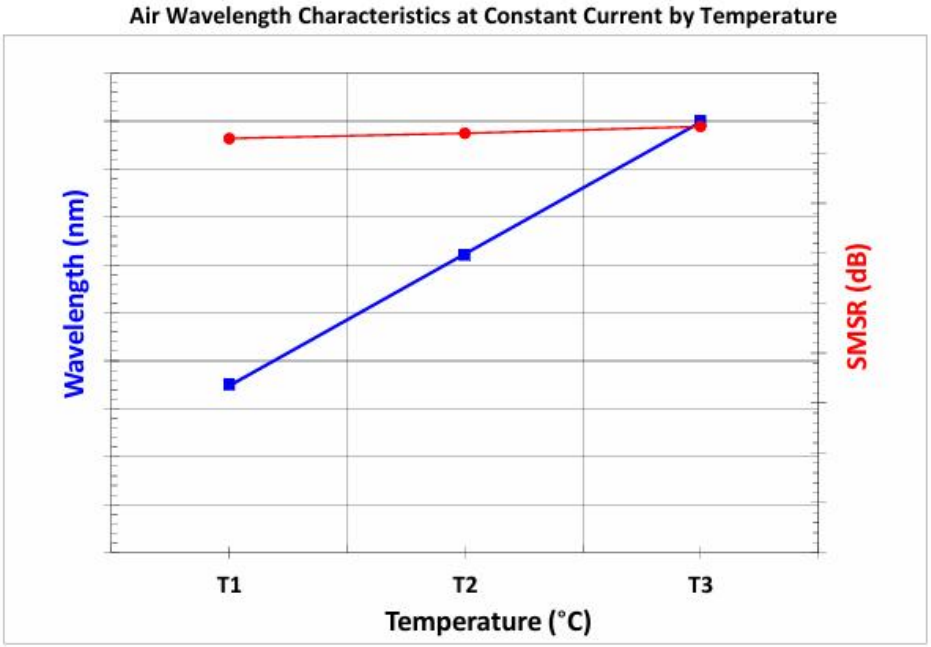
Freespace Encapsulation add-on specifications

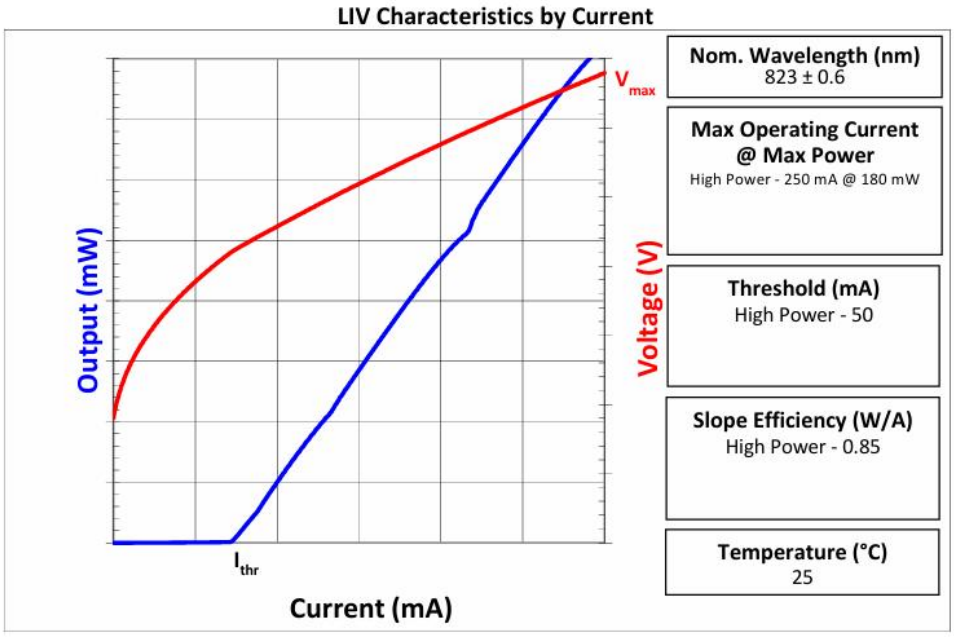
Parameters	unit	Minimum	Typical values	Maximum
Photodiode forward current	mA	-	-	10
Photodiode reverse voltage	V	-	-	50
TEC Current (TOSA)	A	-1.1	-	1.1
TEC Voltage (TOSA)	V	-3.0	-	3.0
TEC current TO-8	A	-1.8	-	1.8

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.




LIV Characteristics by Current
Output (mW)
Voltage (V)
V max
I thr
Current (mA)
Nom. Wavelength (nm)
823 ± 0.6
Max Operating Current @ Max Power
High Power - 250 mA @ 180 mW
Threshold (mA)
High Power - 50
Slope Efficiency (W/A)
High Power - 0.85
Temperature (°C)
25