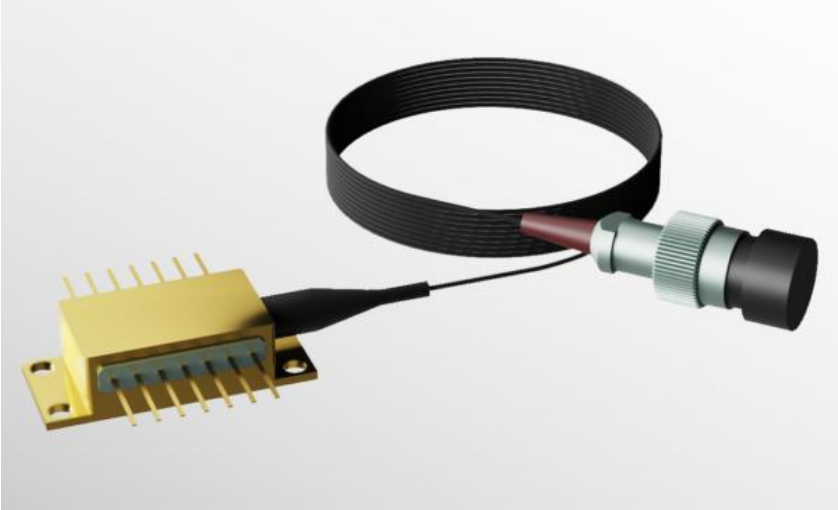
766.700nm DBR laser diode



Product Description

The 766.700nm DBR series high-performance edge-emitting laser diodes are based on Advanced OptoElectronic's state-of-the-art monolithically integrated single-frequency gallium arsenide (GaAs) laser technology. These laser diodes deliver a single spatial mode beam and feature passivated facet design to ensure high reliability. The 766.700nm DBR devices are ideal for potassium (K)-based atomic spectroscopy applications. The series is spectrally certified to precisely cover the potassium D2 transition line over an ambient temperature range of ±10°C.

Product features

Precise matching of atomic energy levels;excellent spectral performance;professional packaging and control interfaces

Part Number

MP-DBR-766.7-60-14BF-PA

Application area

Potassium Atomic Physics and Quantum Technologies | Precision Spectroscopy

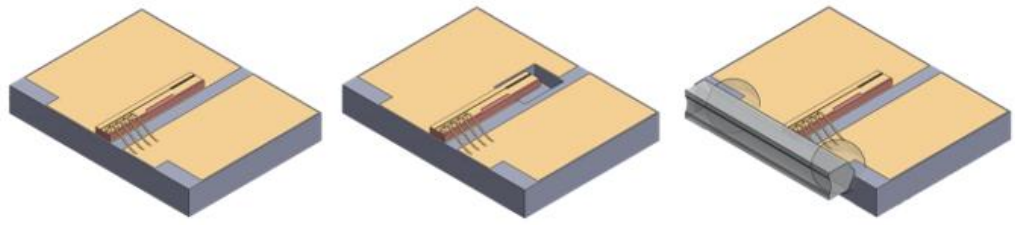
Core parameters

Central Wavelength
766.7nm

General Parameters

Model Parameters

Detailed parameters



Chip on Submount (CoS)

CoS + Mode-Hop Free (MHF)

CoS + Virtual Point Source (VPS) Lens

766.700nm (COS) package characteristics

	Chip architecture
Parameter [1]	High power
Nominal wavelength (nm)[2]	766.700 ± 0.6
Power range (mW)	40–80
Maximum Operating Current (CW & Pulsed) (mA)	200
Optical power at maximum operating current (mW)	80
Nominal Slope Efficiency (W/A)	0.8
Nominal threshold current (mA)	100

1. Unless otherwise noted, 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.

3. High temperature characteristics are specified at 65 degrees Celsius.

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.

Characteristics of air wavelength changes with temperature under constant current conditions