1064nm 250mW TO9 DBR Laser Diode

Product Description

A DBR laser consists of a gain section and a separate DBR grating. The waveguide on the laser diode provides wavelength-specific optical feedback and also acts partially as the gain medium. As single-frequency semiconductor lasers, DBR diodes, together with DFB laser diodes, deliver extremely narrow spectral linewidth below 5 MHz with typical SMSR over 40 dB. GaAs-based DFB and DBR lasers adopt InGaAs quantum well or InAs/GaAs quantum dot active regions with proprietary chip designs, covering the spectral range of 970–1330 nm.

Product features

High power output; DBR single longitudinal mode; superior wavelength stability; 9 mm TO-can package; low-noise design

Part Number

MP-DBR-1064-250-TO9-PM

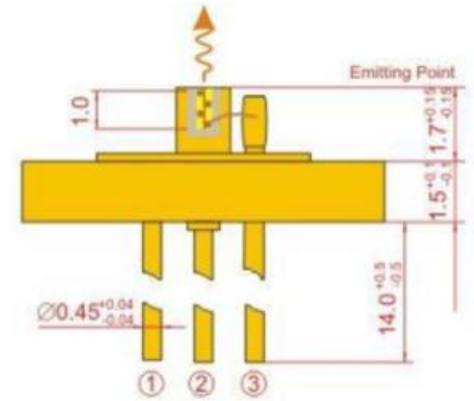
Application area

Optical fiber communication | Gas sensing | LiDAR | Scientific research | Quantum technology

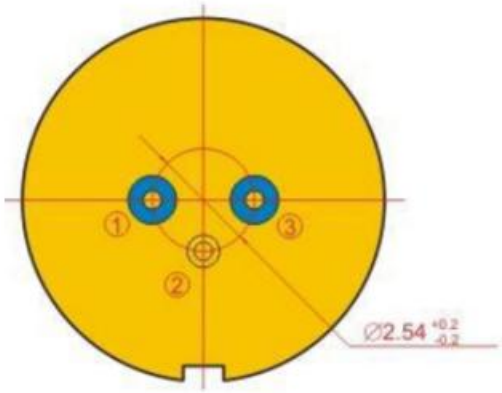
Core parameters

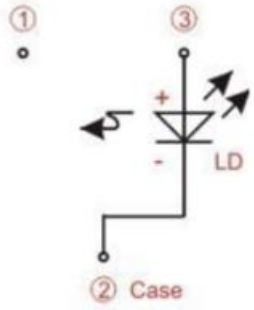
Central Wavelength
1064nm

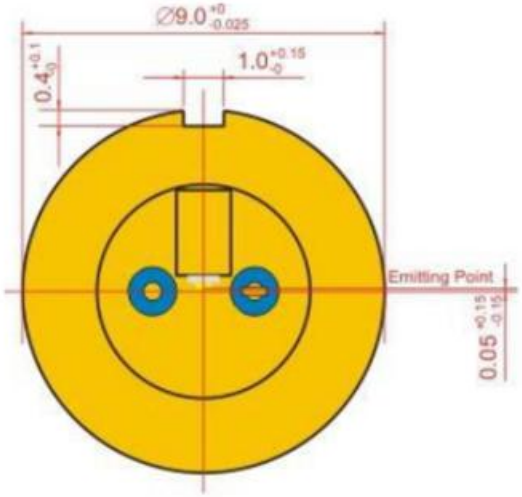
Dimension Drawing



Pins connection







General Parameters

Model Parameters

Detailed parameters

Test Conditions: CW operation, Tchip = 25 °C, module mounted on a heat sink at room temperature.

Parameter	Symb.	Min.	Typ.	Max.	Unit
Output Power	Pout	250	—	—	mW
Peak Wavelength @ Pout	λP	1062	1064	1066	nm
Spectral Width @ Pout [1]	Δλ	—	<3	5	MHz
Wavelength Temperature Coefficient	Δλ/ΔT	—	90	120	pm/°C
Wavelength Current Coefficient	Δλ/ΔI	—	2	5	pm/mA
Side Mode Suppression Ratio @ Pout	SMSR	35	40	—	dB
Threshold Current	Ith	—	35	50	mA
Operating Current @ Pout	Iop	—	300	400	mA
Forward Voltage @ Pout	Vf	—	1.7	1.9	V
Polarization Extinction Ratio	PER	15	20	—	dB
Divergence Angle Perpendicular to PN	θ⊥	25	30	38	deg.

Junction (FWHM)					
Divergence Angle Parallel to PN Junction (FWHM)	θ //	4	6	9	deg.

[1] Extracted from self-heterodyne response with a 9 km delay line.

Absolute Maximum Ratings

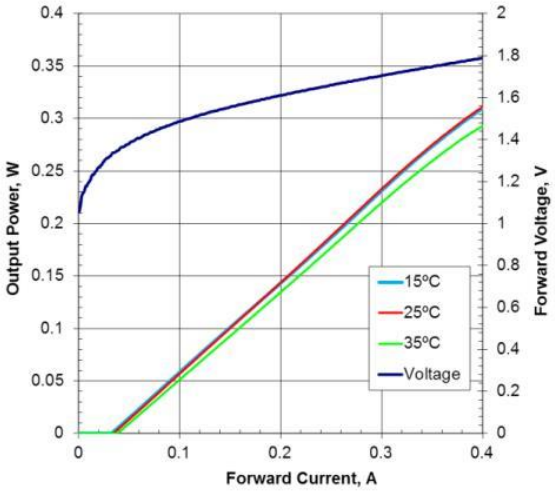
Parameter	Min.	Max.	Unit
Laser Diode Reverse Voltage	—	1	V
Laser Diode CW Forward Current	—	500	mA
Storage Temperature (Original Sealed Package)	-40	80	°C
Lead Soldering Temperature (Max. 5 s)	—	250	°C
Operating Temperature Range	15	50	°C

Characteristic Curves

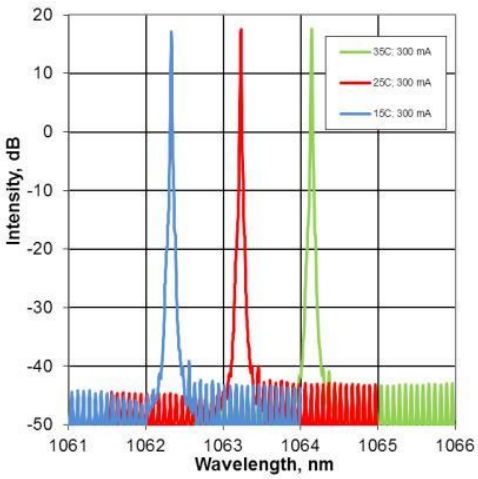
Typical performance for reference only (Test conditions: continuous operation, module mounted on a heat sink at room temperature)

Optical-current-voltage characteristics / Output spectrum at operating current (10 pm resolution) / Fast-axis far-field pattern at operating current / Slow-axis far-field pattern at 25 ℃ under operating current

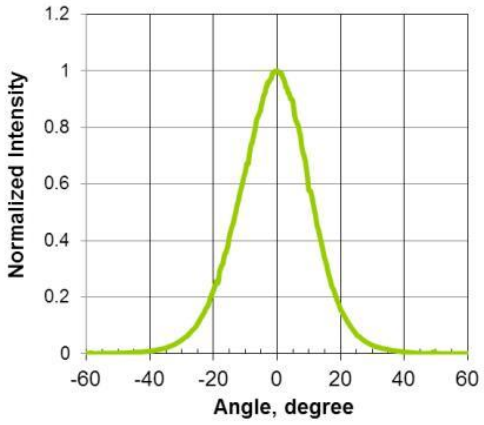
Light-Current-Voltage Characteristics



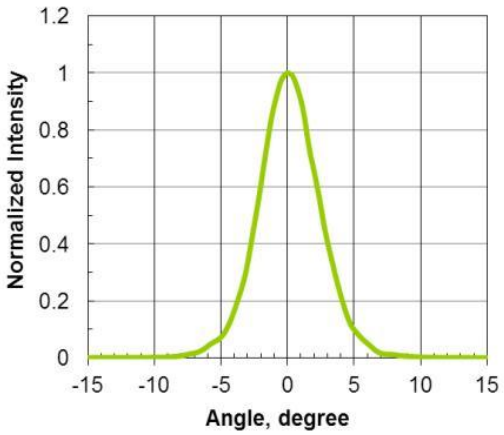
Output Spectra at operating current (resolution 10pm)



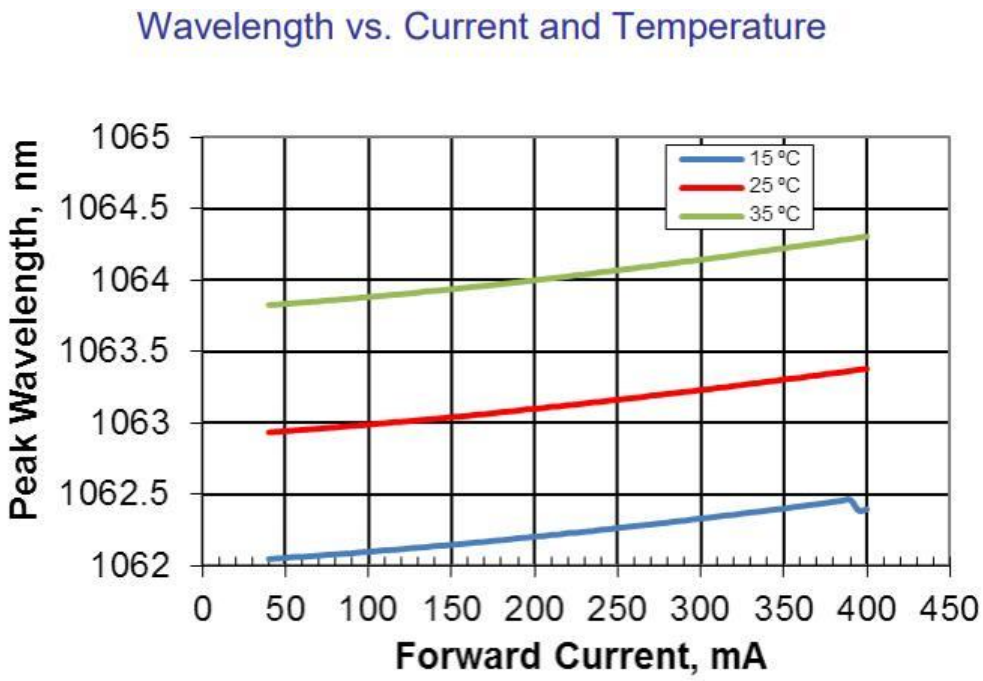
Fast Axis Far Field at operating current, 25^{0}C



Slow Axis Far Field at operating current, 25^{0}C



Wavelength versus current and temperature curve



NoticeThe laser emitted by this device is invisible and potentially hazardous to human eyes. Avoid direct viewing of fiber output or looking into the collimated beam along the optical axis during operation. Appropriate laser safety goggles must be worn at all times.

Absolute maximum ratings shall only be applied to the device for a short duration. Long-term operation at or beyond maximum ratings may cause permanent damage and degrade long-term reliability.

Operation outside the specified maximum ratings will result in device failure and potential safety hazards. A dedicated matched power supply must be used to ensure the peak optical power does not exceed the limit. The device requires a qualified heat sink with sufficient heat dissipation and thermal conductivity.

This is an open-heatsink laser diode. It shall only be operated in a cleanroom environment or dustproof enclosure. Operating temperature and relative humidity must be controlled to prevent condensation on the laser facet. Any contamination or physical contact with the laser facet must be strictly avoided.

ESD ProtectionElectrostatic discharge is a primary cause of unexpected device failure. Strict ESD precautions are mandatory. Wear an anti-static wrist strap, use grounded work surfaces, and follow standardized anti-static operating procedures during handling.