EYP-DFB-0760-00040-1500-SOT02-0004

Revision 0.70

2017-03-01

SINGLE FREQUENCY LASER DIODES
Distributed Feedback Laser

General Product Information

Product	Application
760 nm DFB Laser	Oxygen Detection
with hermetic TO Package (RoHS compliant)	Laser meets one of the strong
including Monitor Diode	Oxygen Absorption Lines
	(see Target Wavelengths A - E)

Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Storage Temperature	T_S	°C	-40		85	Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.
Operational Temperature at Case	T_C	°C	-20		75	
Forward Current	I_F	mA			130	
Reverse Voltage	V_R	V			2	
Output Power	P_{opt}	mW			50	

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Operational Temperature at Case	T_{case}	°C	15		35	
Forward Current	I_F	mA			120	
Output Power	P_{opt}	mW	10		40	measured with integrating sphere

Characteristics at T_{LD} = 25° C at BOL

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Center Wavelength	λ_C	nm	759		765	see images on page 4
Target Wavelength (A = 760.66nm or B = 760.80nm or C = 761.14nm or D = 763.42nm or E = 763.84nm)						reached within T_{LD} = 15°…35°C at 40 mW
Laser Current @ P_{opt} = 40 mW	I_{LD}	mA			120	
Slope Efficiency	η	W / A	0.6	0.9	1.1	
Threshold Current	I_{th}	mA			70	
Linewidth (FWHM)	$\Delta\lambda$	MHz		2		
Mode-hop free Tuning Range	$\Delta\lambda_{tune}$	pm	20			reached by current modulation
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.06		
Current Coefficient of Wavelength	$d\lambda / dI$	nm / mA		0.003		

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Characteristics at T_{LD} = 25° C at BOL cont'd

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Sidemode Supression Ratio	SMSR	dB	30	50		P_{opt} = 40 mW
Divergence parallel (FWHM)	$\Theta_{\parallel}$	°		8		parallel to Pin 2 - Pin 3 plane (see p. 3)
Divergence perpendicular (FWHM)	$\Theta_{\perp}$	°		21		perpendicular to Pin 2 - Pin 3 plane (see p. 3)
Degree of Polarization	DOP	%		80		P_{opt} = 40 mW

Monitor Diode

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Monitor Detector Responsivity	I_{mon} / P_{opt}	µA/mW	1.5		50	$U_{R\ MD}$: 5 V

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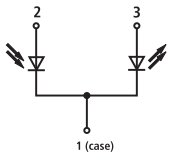
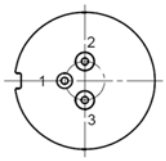
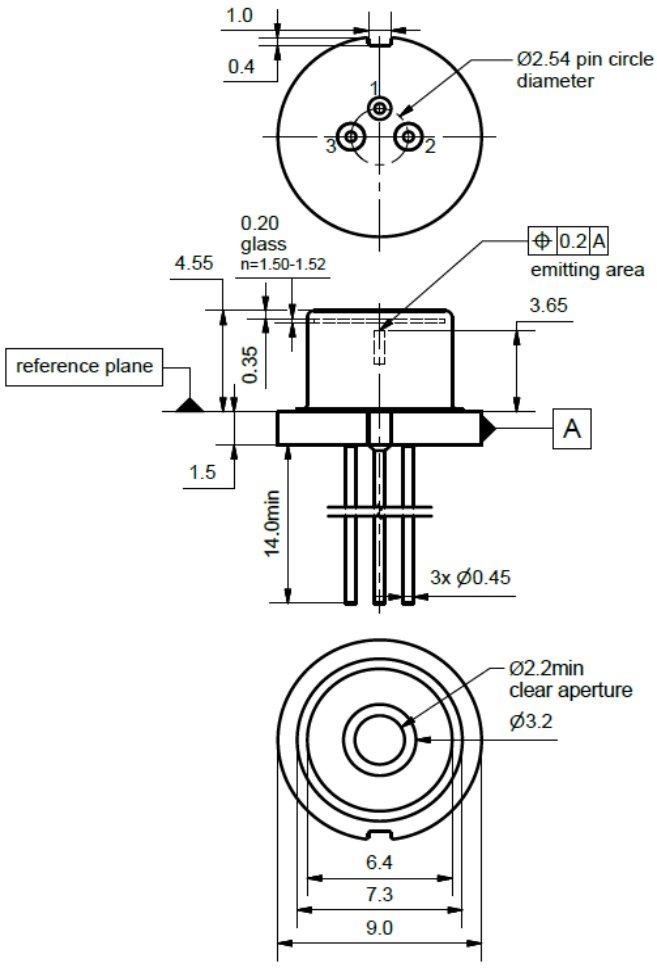
Pin Assignment M-type

1	Laser Diode Cathode, Monitor Diode Cathode, Case
2	Photo Diode Anode
3	Laser Diode Anode





Package Drawings



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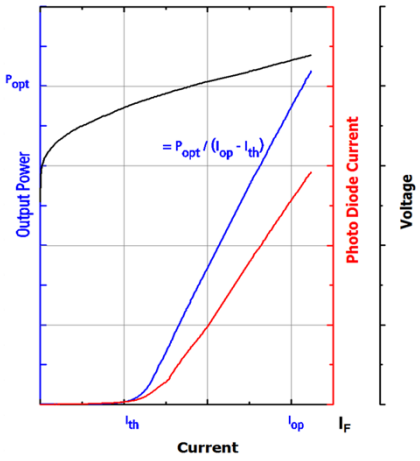
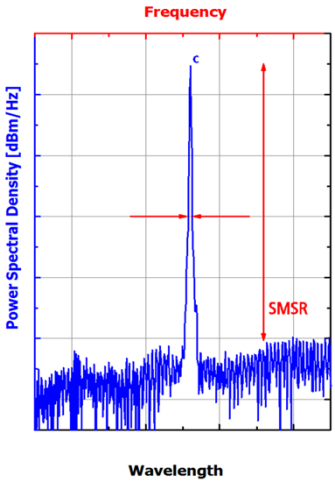
Typical Measurement Results

Output Power vs. Current



Spectra at Specified Optical Output Power



Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.

Unpacking, Installation and Laser Safety

Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The DFB laser is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating or focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

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Laser Emission

IEC-60825-0

Complies with 21 CFR 1040.10 and 1040.40

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