

SINGLE FREQUENCY LASER DIODES

Stabilized Ridge Waveguide Laser

General Product Information

Product	Application
760 nm Wavelength Stabilized Laser	Spectroscopy
with hermetic TO Package (RoHS compliant)	Metrology
including Monitor Diode	Oxygen Detection

Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
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
Operational Temperature at Case	T_{case}	°C	15		35
Forward Current	I_F	mA			120
Output Power	P_{opt}	mW	10		40

Characteristics at $T_{LD} = 25^\circ\text{C}$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_c	nm	758	760	762
Laser Current @ $P_{opt} = 40\text{ mW}$	I_F	mA			120
Slope Efficiency	η	W / A	0.6	0.8	1.1
Threshold Current	I_{th}	mA			70
Selectable Linewidth	$\Delta\lambda$	pm			0.1
Overall Linewidth	$\Delta\lambda_{total}$	nm			0.2
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm / mA		0.003	



Measurement Conditions / Comments

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.

Measurement Conditions / Comments

measured with integrating sphere

Measurement Conditions / Comments

single mode operation (see p. 4)

multi mode operation (see p. 4)

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Characteristics at $T_{LD} = 25^{\circ}C$ at BOL cont'd

Parameter	Symbol	Unit	min	typ	max
Sidemode Supression Ratio	SMSR	dB	30	45	
Divergence parallel (FWHM)	$\Theta_{ }$	$^{\circ}$		8	
Divergence perpendicular (FWHM)	Θ_{\perp}	$^{\circ}$		21	

Measurement Conditions / Comments

under single mode condition
 parallel to Pin 2 - Pin 3 plane (see p. 3)
 perpendicular to Pin 2 - Pin 3 plane (see p. 3)

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{opt}	$\mu A/mW$	1.5		50

Measurement Conditions / Comments

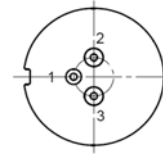
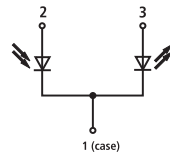
$U_R = 5V$

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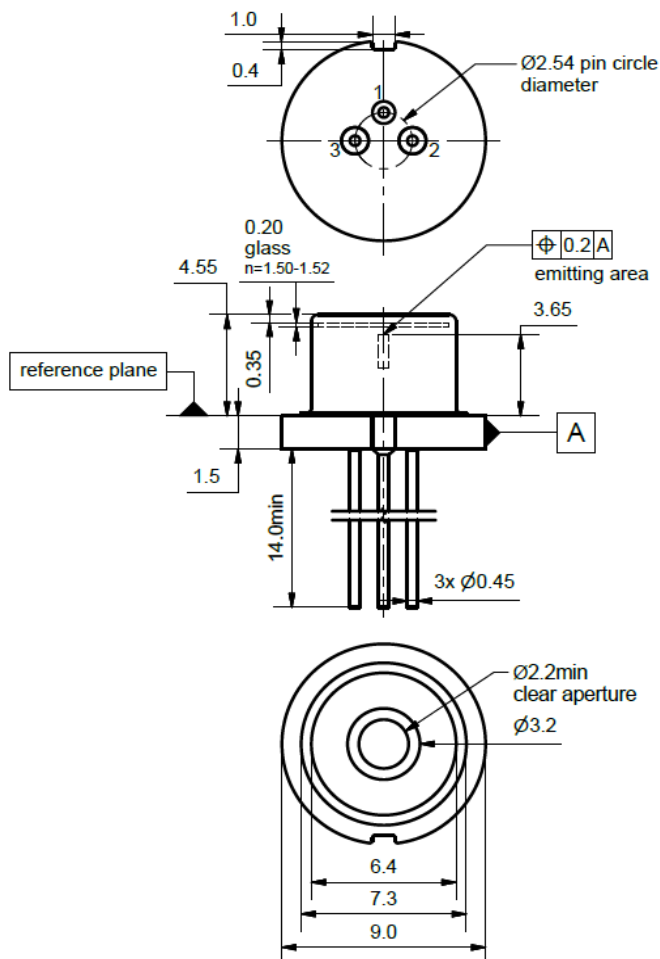
Pin Assignment

M-type

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



Package Drawings

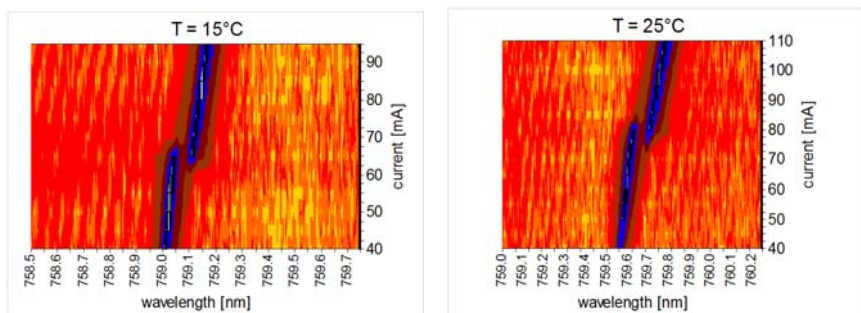


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Typical Measurement Results

Spectral maps at 15° C and 25° C



The spectral maps show the power spectral density at different operating modes. The graphs illustrate that the laser exhibits single and multi mode behavior under different operational conditions. The spectral maps may differ from part to part. Single mode operation can be achieved by selecting the appropriate laser current and temperature.

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 RWS 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 the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the main parameters given in this document. It does not include the detailed spectral maps which are shown above in order to illustrate the spectral behavior of this laser type.

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.

