

# EYP-RWL-0870-00100-0750-SOT01-0000

## RIDGE WAVEGUIDE LASER

GaAs Semiconductor Laser Diode  
Fabry-Perot Laser



### General Product Information

Product	Application
870 nm Fabry-Perot Laser with hermetic TO Housing	Spectroscopy
Monitor Diode	



Stress in excess of the Absolute Maximum Ratings can cause permanent damage to the device.

### Absolute Maximum Ratings

	Symbol	Unit	min	typ	max
Storage Temperature	$T_S$	°C	-20		85
Operational Temperature at Case	$T_C$	°C	-20		50
Forward Current	$I_F$	mA			170
Reverse Voltage	$V_R$	V			0
Output Power	$P_{opt}$	mW			110

Measurement Conditions / Comments

### Recommended Operational Conditions

	Symbol	Unit	min	typ	max
Operational Temperature at Case	$T_C$	°C	15		40
Forward Current	$I_F$	mA			150
Output Power	$P_{opt}$	mW	10		100

Measurement Conditions / Comments
see images on page 4
total output measured with integrating sphere
FWHM
FWHM

### Characteristics at $T_{LD} = 25\text{ °C}$ at Begin Of Life

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	$\lambda_C$	nm	863	870	877
Spectral Width (FWHM)	$\Delta\lambda$	nm		1	
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.3	
Output Power @ $I_F = 150\text{ mA}$	$P_{opt}$	mW	100		
Slope Efficiency	$\eta_d$	W / A		1.0	
Threshold Current	$I_{th}$	mA			70
Cavity Length	L	$\mu\text{m}$		750	
Divergence parallel	$\Theta_{  }$	°		10	
Divergence perpendicular	$\Theta_{\perp}$	°		30	

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### Characteristics at $T_{amb}$ 25 °C at Begin Of Life cont'd

Parameter	Symbol	Unit	min	typ	max
Polarization				TE	
Spatial Mode (transversal)				TEM <sub>00</sub>	
Spectral Mode (longitudinal)				Single/Multi Mode	

Measurement Conditions / Comments
E field parallel to Pin 2 - Pin 3 - plane
Fundamental Mode
depending on operating conditions

### Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	$I_{mon} / P_{opt}$	$\mu A / mW$	0.5		10
Reverse Voltage Monitor Diode	$U_{R MD}$	V	3		5

Measurement Conditions / Comments
$U_R = 5 V$ , target values

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### Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	$d_{EP}$	mm	2.30	2.45	2.50
Excentricity of Emission Center	R	mm			0.12
Pin Length	$l_{PIN}$	mm		14	

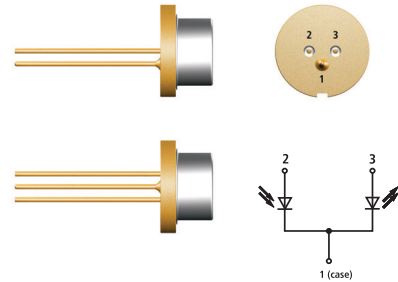
### Measurement Conditions / Comments

reference plane: top side of TO header

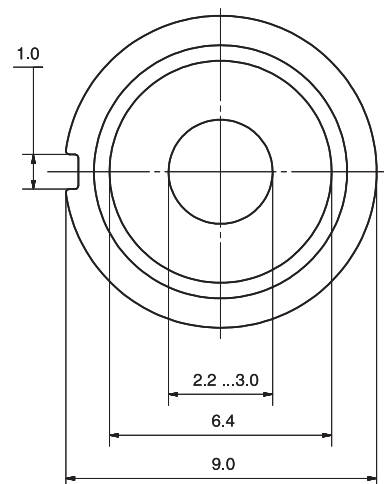
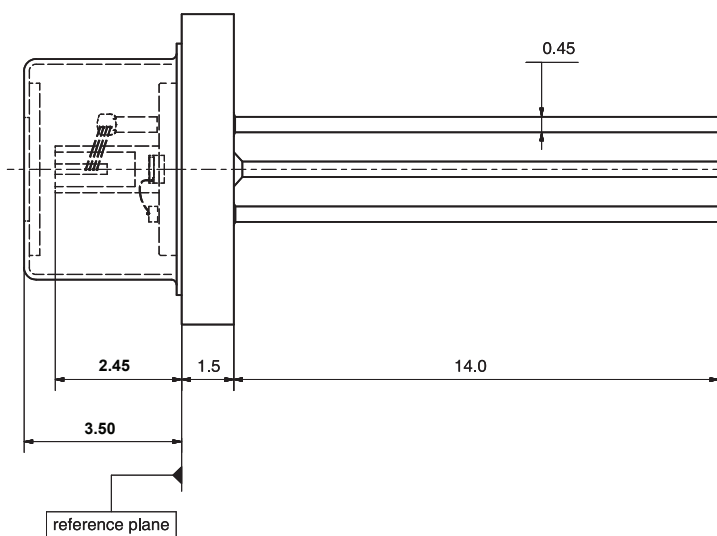
reference: center of outer diameter of header

### Package Pinout

Ground	1
Photo Diode (+)	2
Laser (+)	3



### Package Drawings



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We focus on power.

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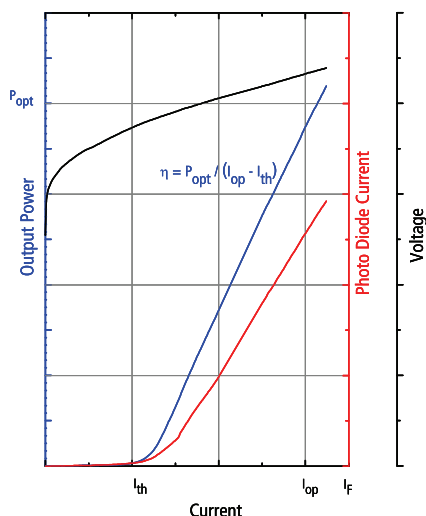
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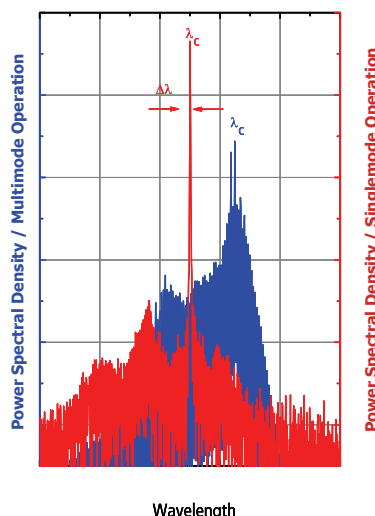


### Typical Measurement Results

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 RWL diode type is known to be sensitive against thermal stress. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

The laser emission from this diode is close to the invisible infrared region of the electromagnetic spectrum. 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 parameters given in this document.

