

EYP-RWS-0785-00080-1500-TOS51-0000

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STABILIZED RIDGE WAVEGUIDE LASER

Wavelength Stabilized
GaAs Semiconductor Laser Diode

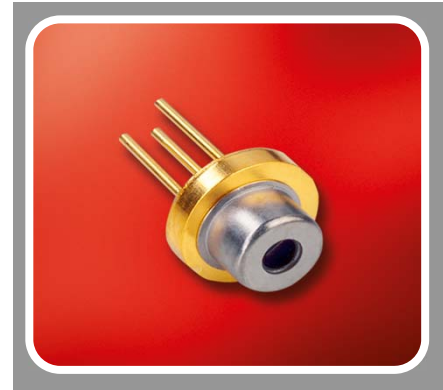


General Product Information

Product	Application
785 nm Wavelength Stabilized Laser	Metrology
with narrow Linewidth (< 0.1 pm)	Raman Spectroscopy
sealed SOT Housing	

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			190
Reverse Voltage	V_R	V			2
Output Power (extracavity)	P_{opt}	mW			90



Stress in excess of one of the Absolute Maximum Ratings can cause permanent damage to the device. Please note that a damaging optical power level may occur although the maximum current is not reached.

Recommended Operational Conditions

	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_C	°C	15		40
Forward Current	I_F	mA			170
Output Power	P_{opt}	mW	20		80

Measurement Conditions / Comments

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

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_c	nm	782	785	788
Selectable Linewidth	$\Delta\lambda$	pm			0.1
Overall Linewidth	$\Delta\lambda$	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	
Output Power @ $I_F = 170\text{ mA}$	P_{opt}	mW	80		
Slope Efficiency	η_d	W / A	0.6	0.8	1.1
Threshold Current	I_{th}	mA			70
Cavity Length	L	μm		1500	

Measurement Conditions / Comments

see images on page 4
total output measured with integrating sphere

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

Parameter	Symbol	Unit	min	typ	max
Divergence parallel	$\Theta_{ }$	°		8	
Divergence perpendicular	Θ_{\perp}	°		21	
Sidemode Supression Ratio	SMSR	dB	30	45	
Degree of Polarization	DOP	dB		20	
Spatial Mode (transversal)				TEM ₀₀	

Measurement Conditions / Comments

FWHM
FWHM
FWHM
E field perpendicular to Pin 1 - Pin 3 - plane
fundamental mode

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Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	d_{EP}	mm		1.60	
Diameter	D	mm		5.6	
Pin Length	l_{PIN}	mm	6		

Measurement Conditions / Comments

reference plane: top side of TO header

Package Pinout

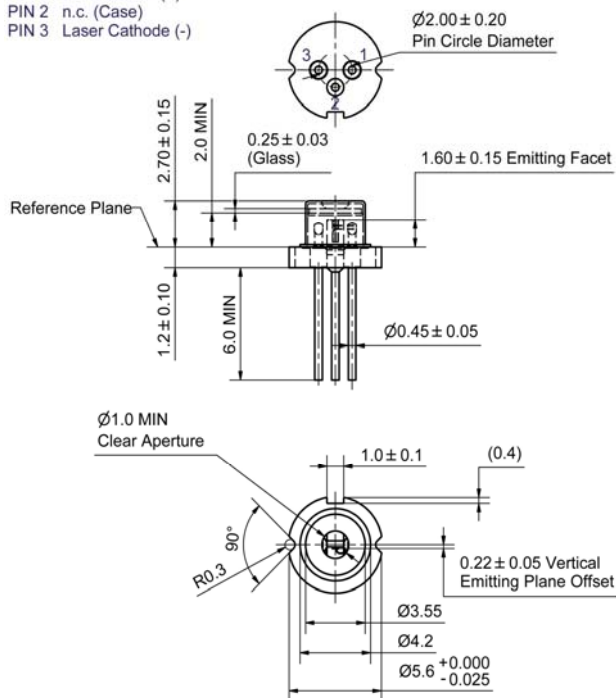
Case	2
Laser Cathode (-)	3
Laser Anode (+)	1



○
2 (case)

Package Drawings

PIN 1 Laser Anode (+)
PIN 2 n.c. (Case)
PIN 3 Laser Cathode (-)



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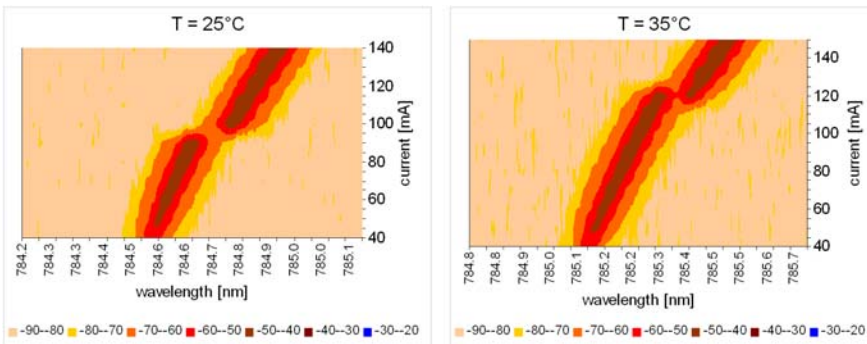
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Typical Measurement Results

Spectral Maps at 25°C and 35°C



The spectral maps show the power spectral density at different operating modes. The graphs illustrates 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.

Ordering Information:



800 Village Walk #316
Guilford, CT 06437
Ph: 203-401-8093

Email orders to: sales@xsoptix.com
Fax orders to: 800-878-7282

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 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.

