TAPERED AMPLIFIER

GaAs Semiconductor Laser Diode

PRELIMINARY SPECIFICATION

Tapered Amplifier

EYP-TPA-0780-01000-3006-CMT03-0000

General Product Information

Product	Application
780 nm Tapered Amplifier	Spectroscopy
C-Mount Package	Metrology

Absolute Maximum Ratings

	Symbol	Unit	min	typ	max	
Storage Temperature	T_S	°C	-40		85	non condensing
Operational Temperature at Case	T_C	°C	0		50	non condensing
Current	I_F	A			3.3	
Reverse Voltage	V_R	V			0	
Output Power	P_{opt}	W			1.2	

Stress in excess of the Absolute Maximum Ratings can cause permanent damage to the device. Operation at the Absolute Maximum Rating for extended periods of time can adversely affect the device realibility and may lead to reduced operational life.

Recommended Operational Conditions

	Symbol	Unit	min	typ	max	
Operational Temperature at Case	T_C	°C	5		40	non condensing
Forward Current	$I_{F\ Gain}$	A			3.0	
Input Power	P_{input}	mW	10		50	
Output Power	P_{opt}	W			1.0	with proper injection from a seed laser

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

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Center Wavelength	λ_C	nm	770	780	785	
Gain Width (FWHM)	$\Delta\lambda$	nm	10	20		
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.25		
Amplification		dB		13		
Operational Current @ P_{opt} = 1.0 W	$I_{op\ Gain}$	A			3.0	with proper injection from a seed laser

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

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Output Power @ I_F = 3.0 A	P_{opt}	W	1.0			with proper injection from a seed laser
Cavity Length	L	µm		2750		
Input Aperture (at rear side)	d_{input}	µm		3		
Output Aperture (at front side)	d_{output}	µm		190		
Astigmatism	A	µm	325	375	425	depending on operating conditions
Divergence parallel (FWHM)	$\Theta_{\|\|}$	°		10		
Divergence perpendicular (FWHM)	$\Theta_{\perp}$	°		28		
Polarization				TM		E field perpendicular to junction plane

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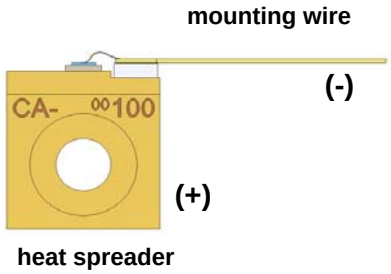
Package Dimensions

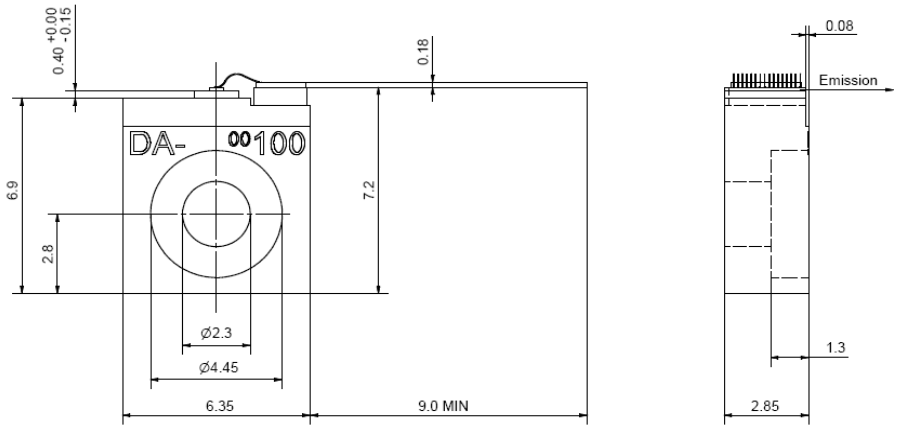
	Symbol	Unit	min	typ	max
Emission Plane	l	mm	7.05	7.20	7.35
C-Mount Thickness	d	mm		2.75	

Package Pinout

Cathode (-)	Mounting Wire
Anode (+)	Housing



Package Drawings



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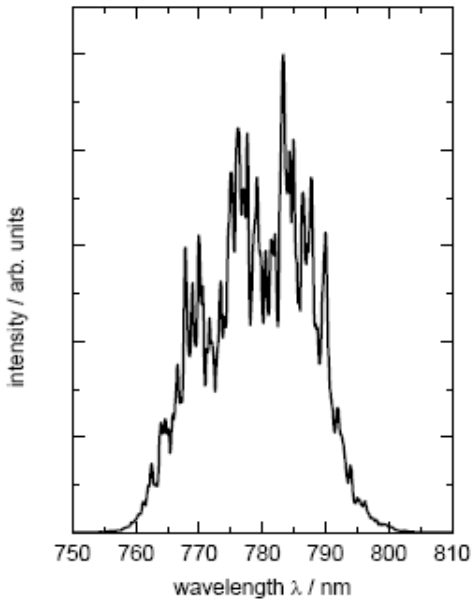
Typical Measurement Results

Spectrum measured w/o injection:



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.

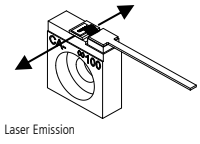
Unpacking, Installation and Laser Safety

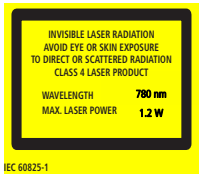
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use.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

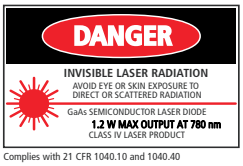
The TPA diode type is known to be sensitive against thermal stress. It should not be operated without appropriate injection from a seed laser. Operating at moderate temperatures on propper heat sinks willl contribute to a long lifetime of the diode.

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 thread to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.







Complies with 21 CFR 1040.10 and 1040.40

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