Datasheet

EYP-TPA-0670-00500-2004-CMT02-0000

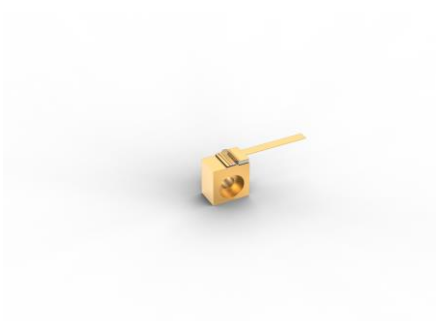
Revision 0.90

2023-01-05

TAPERED AMPLIFIER
Semiconductor Optical Amplifier

General Product Information

Product	Application
670 nm Tapered Amplifier	Spectroscopy
C-Mount Package	



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	0		30	
Forward Current	I_F	A			1.3	
Reverse Voltage	V_R	V			2	
Output Power	P_{opt}	W			0.6	

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Operational Temperature at Case	T_{case}	°C		20		non condensing
Forward Current	I_F	A			1.2	seeding required above 0.6 A
Input Power	P_{opt}	mW	10		50	
Output Power	P_{opt}	W			0.5	with proper injection from a seed laser

Characteristics Tcase'= 20° C at BOL

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Wavelength	λ	nm		670		
Gain Width (FWHM)	$\Delta\lambda$	nm		10		
Operational Current	$I_{Op\ Gain}$	A			1.2	with proper injection from a seed laser
Output Power	P_{opt}	W	0.5			
Polarization				TE		E field parallel to junction plane
Amplification	G	dB		13		with proper injection from a seed laser
Temp. Coefficient of Wavelength	$d\lambda$ / dT	nm/K		0.3		
Cavity Length	L	µm		2000		
Reflectivity at Front Facet	R_{ff}			$3{\cdot}10^{-4}$	$1{\cdot}10^{-3}$	
Reflectivity at Rear Facet	R_{ff}			$3{\cdot}10^{-4}$	$1{\cdot}10^{-3}$	

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Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Input Divergence parallel	$\Theta_{out\|\|}$	°		10		1/e² (full angle)
Input Divergence perpendicular	$\Theta_{out\perp}$	°		50		1/e² (full angle)
Output Divergence parallel	$\Theta_{out\|\|}$	°		10		1/e² (full angle)
Output Divergence perpendicular	$\Theta_{out\perp}$	°		45		1/e² (full angle)

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Height of Emission Plane	d_{EP}		7.05	7.1	7.2	

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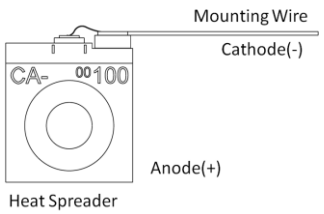
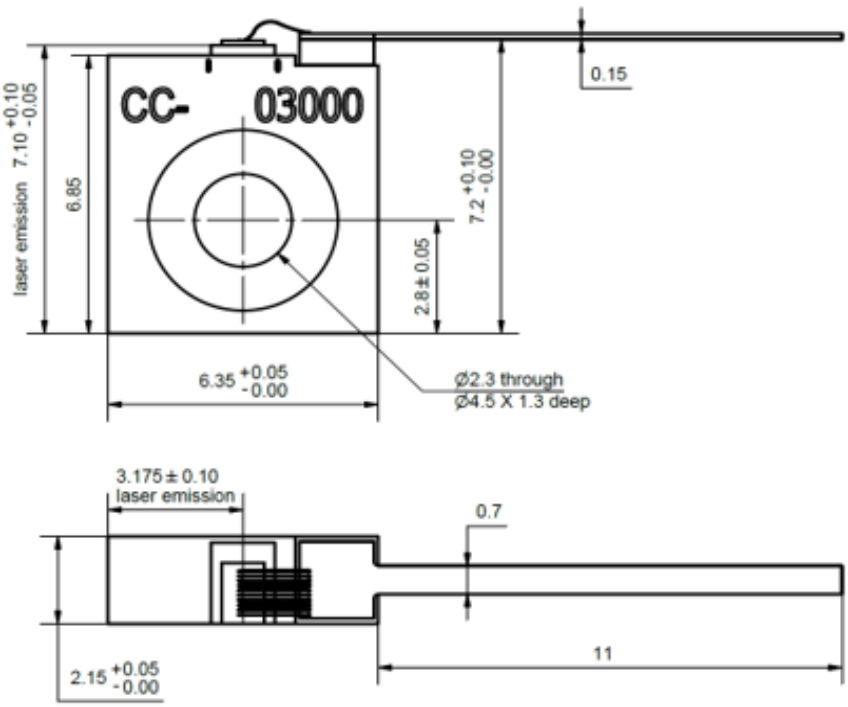
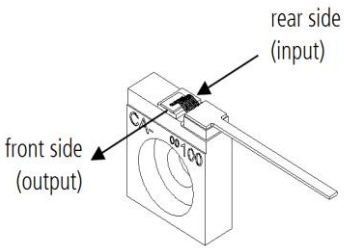
Pin Assignment

Laser Diode Cathode (-)	Mounting Wire
Laser Diode Anode (+)	Housing



Package Drawings





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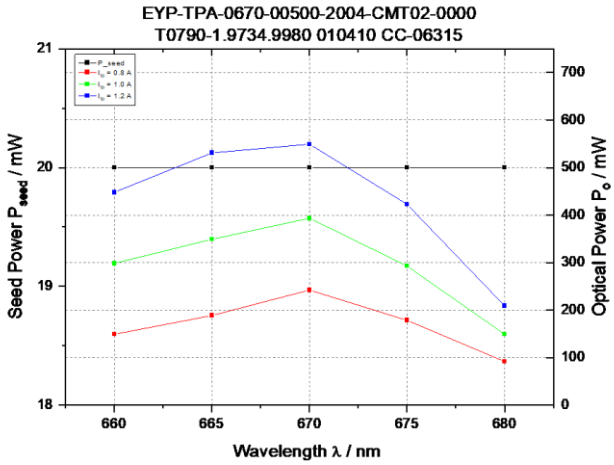
Typical Measurement Results



Measurement results and other 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.

Ordering Information:

XSoptix
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 taperd amplifier 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.

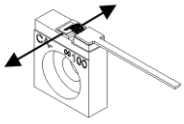
The TPA diode type is known to be sensitive against thermal stress. It should not be operated without appropriate injection from a seed laser. Operating at moderate temperatures on proper heat sinks willl contribute to a long lifetime of the diode.

This amplifier is designed for the setup of MOPA systems. An optical isolator should be used between seed laser and amplifier in order to suppress backreflections that may disturb the emission spectrum of the seed laser and may cause mode-hops in case of wavelength tuning.

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

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.

In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



Laser Emission

LASER RADIATION
TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT
AVOID EYE OR SKIN EXPOSUR
WAVELENGTH 670 nm
MAX. OUTPUT POWER 0.6 W

IEC-60825-1

DANGER
LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION
GaAs SEMICONDUCTOR LASER DIODE
0.6 W MAX OUTPUT AT 670 nm
CLASS IV LASER PRODUCT

Complies with 21 CFR 1040.10 and 1040.40

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