DATA SHEET

EYP-TPA-0780-03000-4006-CMT04-0000

Revision 1.01

2017-11-22

TAPERED AMPLIFIERS
Semiconductor Optical Amplifier

General Product Information

Product	Application
780 nm Tapered Amplifier	Spectroscopy
C-Mount Package	

Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature (non condensing)	T_S	°C	-40		85
Operational Temperature at Case (non cond.)	T_C	°C	0		50
Forward Current	I_F	A			5
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	W			3.2

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.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Operational Temperature at Case	T_C	°C	5		40	non condensing
Forward Current	I_F	A			4.5	
Input Power	P_{input}	mW	10		50	
Output Power	P_{opt}	W			3.0	with proper injection from a seed laser

Characteristics at T_{LD} = 25 °C at BOL

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Design Wavelength	λ_C	nm		780		
Gain Width (FWHM)	$\Delta\lambda$	nm		20		
Temperature Coefficient of Wavelength	$d\lambda$ / dT	nm / K		0.3		
Operational Current @ P_{opt} = 3.0 W	$I_{op\ Gain}$	A			4.5	with proper injection from a seed laser
Output Power	P_{opt}	W	3.0			
Amplification	G	dB		23		at recommended maximum forward current
Cavity length	L_C	µm		4000		

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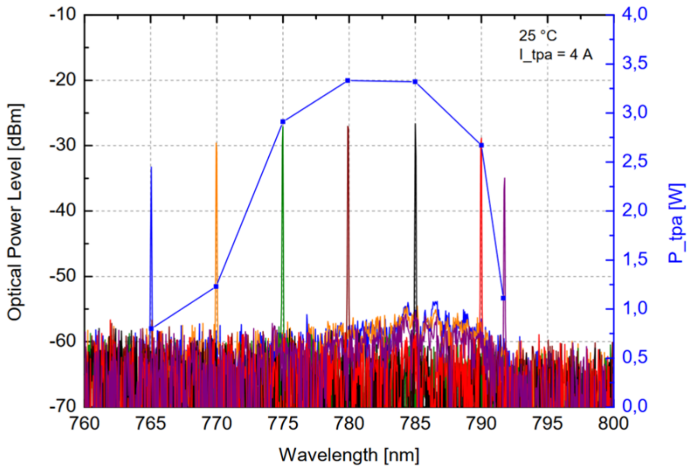
Characteristics at T_{LD} = 25 °C at BOL cont'd

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Reflectivity at Front Facet	R_{ff}			3·10-4	1·10-3	
Reflectivity at Rear Facet	R_{rf}			3·10-4	1·10-3	
Input Aperture (at rear side)	d_{in}	µm		3		
Output Aperture (at front side)	d_{out}	µm		210		
Astigmatism	A	µm		720		estimated at recommended maximum forward current
Input Divergence parallel ($1/e^2$)	$\Theta_{in\,\|}$	°		23		
Input Divergence perpendicular ($1/e^2$)	$\Theta_{in\perp}$	°		40		
Output Divergence parallel ($1/e^2$)	$\Theta_{out\,\|}$	°		18		
Output Divergence perpendicular ($1/e^2$)	$\Theta_{out\perp}$	°		40		
Polarization				TM		E field perpendicular to junction plane

Typical Measurement Results

Output power at various wavelengths



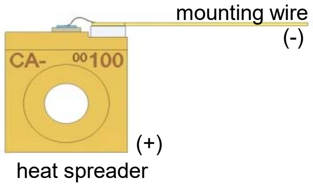
Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.

Package Dimensions

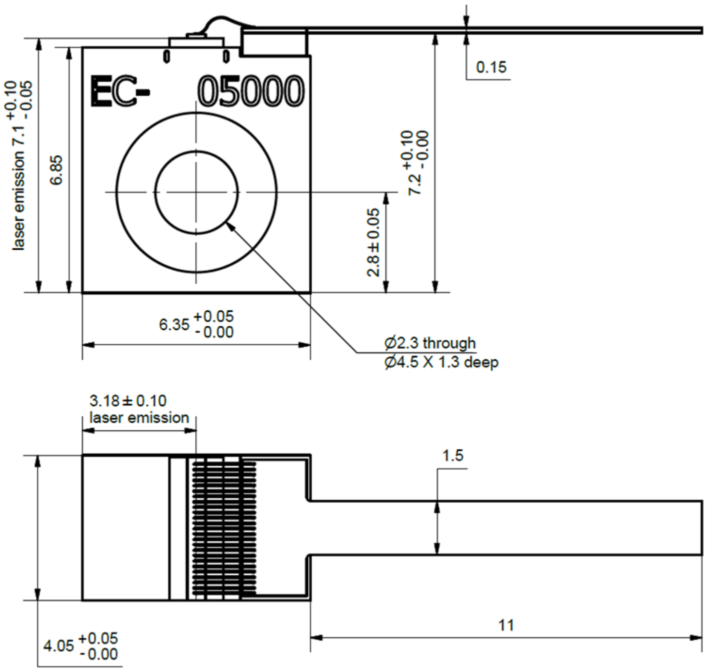
Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Height of Emission Plane	h	mm	7.05	7.10	7.20	
C-Mount Thickness	t	mm		4.05		

Package Pinout

Mounting Wire	Cathode (-)
Housing	Anode (+)



Package Drawings



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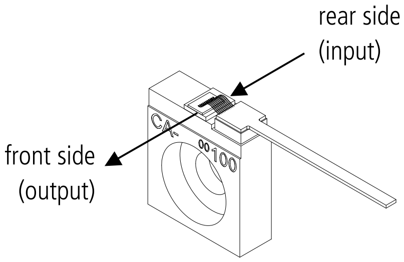


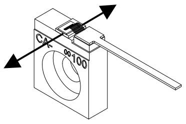
Unpacking, Installation and Laser Safety

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 proper heat sinks willl contribute to a long lifetime of the diode. The chip should be protected against moisture. A water vapor content below 5000 ppm is recommended for applications with high reliability requirements.

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.



Laser Emission

INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE
TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT
WAVELENGTH 780 nm
MAX. OUTPUT POWER 3.2 W

IEC-60825-0

DANGER

INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION
GaAs SEMICONDUCTOR LASER DIODE
3.2 W MAX OUTPUT AT 780 nm
CLASS IV LASER PRODUCT

Complies with 21 CFR 1040.10 and 1040.40