

## EYP-TPA-0765-02000-4006-CMT04-0000

Revision 0.89

2014-08-29

page 1 from 4

## TAPERED AMPLIFIER

GaAs Semiconductor Laser Diode



## General Product Information

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

## Absolute Maximum Ratings

	Symbol	Unit	min	typ	max
Storage Temperature	$T_S$	°C	-40		85
Operational Temperature at Case	$T_C$	°C	0		50
Forward Current	$I_F$	A			5
Reverse Voltage	$V_R$	V			2
Output Power	$P_{opt}$	W			2.2

## Recommended Operational Conditions

	Symbol	Unit	min	typ	max
Operational Temperature at Case	$T_C$	°C	5		40
Forward Current	$I_F$	A			4.0
Input Power	$P_{input}$	mW	10		50
Output Power	$P_{opt}$	W			2.0

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

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	$\lambda_C$	nm	760	765	770
Gain Width (FWHM)	$\Delta\lambda$	nm		20	
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.25	
Amplification	$P_{opt}$	dB		13	
Operational Current @ $P_{opt} = 2.0\text{ W}$	$I_{op\ Gain}$	A			4.0
Output Power @ $I_F = 4.0\text{ A}$	$P_{opt}$	W	2.0		
Cavity Length	L	μm		4000	



non condensing

non condensing

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

## Measurement Conditions / Comments

non condensing

with proper injection from a seed laser

## Measurement Conditions / Comments

see images on page 4

with proper injection from a seed laser

## EYP-TPA-0765-02000-4006-CMT04-0000

Revision 0.89

2014-08-29

page 2 from 4

## TAPERED AMPLIFIER

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RWE/RWL

BAL

DFB/DBR

TPL/TPA

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

cont'd

Parameter	Symbol	Unit	min	typ	max
Input Aperture (at rear side)	$d_{input}$	$\mu m$		3	
Output Aperture (at front side)	$d_{output}$	$\mu m$		280	
Astigmatism	A	$\mu m$	500	600	700
Divergence parallel (FWHM)	$\Theta_{  }$	°		14	
Divergence perpendicular (FWHM)	$\Theta_{\perp}$	°		28	
Polarization				TM	

## Measurement Conditions / Comments

depending on operating conditions

E field perpendicular to junction plane

# EYP-TPA-0765-02000-4006-CMT04-0000

Revision 0.89

2014-08-29

page 3 from 4

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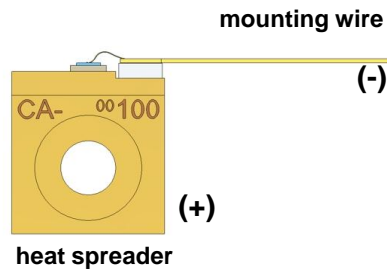
### Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	h	mm	7.05	7.20	7.35
C-Mount Thickness	t	mm		4.15	

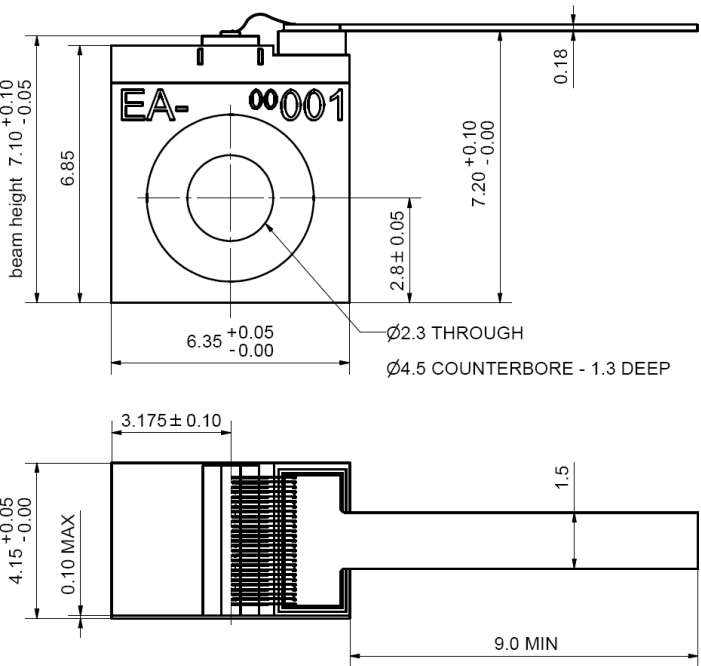
Measurement Conditions / Comments

### Package Pinout

Cathode (-)	Mounting Wire
Anode (+)	Housing



### Package Drawings



Z11-SPEC-CMT04-0000

## EYP-TPA-0765-02000-4006-CMT04-0000

Revision 0.89

2014-08-29

page 4 from 4

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RWE/RWL



BAL



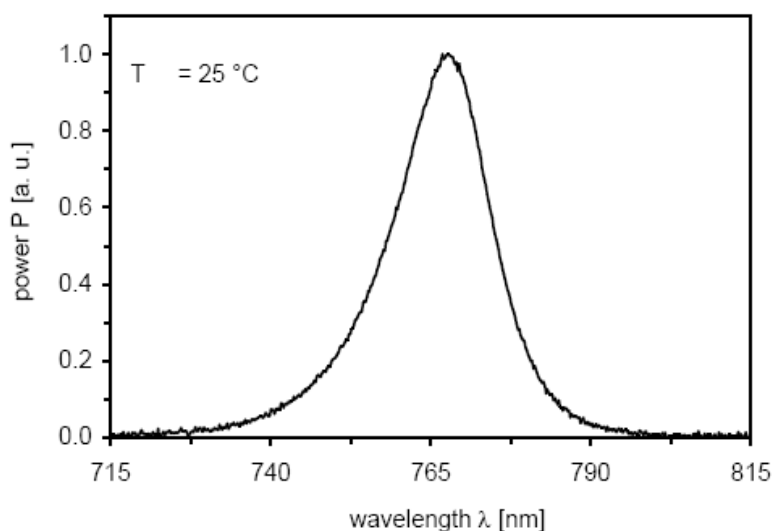
DFB/DBR



TPL/TPA

## 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.

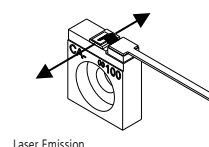
## Unpacking, Installation and Laser Safety

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 proper heat sinks will 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

