

Revision 0.91

TAPERED AMPLIFIERS Semiconductor Optical Amplifier



General Product Information

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



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	Α			2.0
Reverse Voltage	V_R	V			0
Output Power	P _{opt}	W			0.6

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

Symbol	Unit	min	typ	max
T _C	°C	5		40
I _F	А			1.8
P _{input}	mW	10		50
P _{opt}	W			0.5
	T _C I _F P _{input}	T _C °C I _F A P _{input} mW	T_{C} °C 5 I_{F} A P_{input} mW 10	T _C °C 5 I _F A P _{input} mW 10

Measurement Conditions / Comments
non condensing
with proper injection from a seed laser

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

Parameter	Symbol	Unit	min	typ	max
Design Wavelength	λ_{C}	nm		980	
Gain Width (FWHM)	Δλ	nm		30	
Temperature Coefficient of Wavelength	$d\lambda$ / dT	nm / K		0.3	
Operational Current @ P _{opt} = 0.5 W	I _{op Gain}	А			1.8
Output Power	P _{opt}	W	0.5		
Amplification	G	dB			
Cavity Length	L _C	μm		2750	

Measu	rement (Condition	ons / C	omme	nts	 _
with pr	oper inje	ction fr	om a s	eed las	ser	
with pr	oper inje	ction fr	om a s	eed las	ser	



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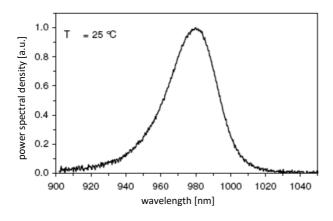


Characteristics at I _{LD} = 25 °C at BOL					cont'd		
Parameter	Symbol	Unit	min	typ	max	Measurement	
Reflectivity at Front Facet	R _{ff}			3·10-4	1.10-3		
Reflectivity at Rear Facet	R _{rf}			3-10-4	1.10-3		
Input Aperture (at rear side)	d _{in}	μm		3			
Output Aperture (at front side)	d_out	μm		190			
Astigmatism	А	μm		625		estimated at r	
Input Divergence parallel (1/e²)	$\Theta_{in }$	0					
Input Divergence perpendicular (1/e²)	$\Theta_{in\perp}$	0					
Output Divergence parallel (1/e²)	$\Theta_{out }$	0					
Output Divergence perpendicular (1/e²)	$\Theta_{out\perp}$	0					
Beam quality factor	M^2						
Polarization				TE		E field parallel	

Measurement Conditions / Comments
$estimated \ at \ recommended \ maximum \ forward \ current$
E field parallel to junction plane

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.



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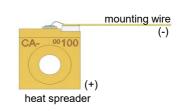
Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	h	mm	7.05	7.10	7.20
C-Mount Thickness	t	mm		2.80	

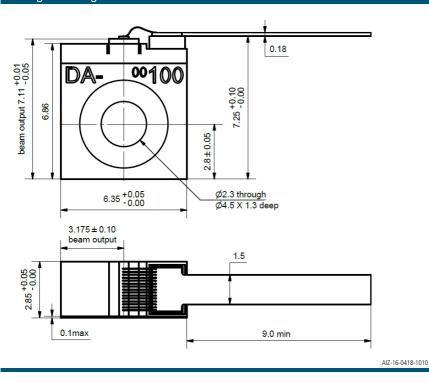
Measurement Conditions / Comments

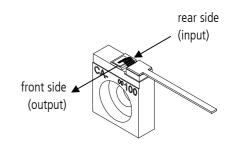
Package Pinout

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.







INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE
TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT
WAVELENGTH 980 nm
MAX. OUTPUT POWER 0.6 W

IEC-60825-0



