

TAPERED AMPLIFIER

GaAs Semiconductor Laser Diode



RWE/RWL



BAL



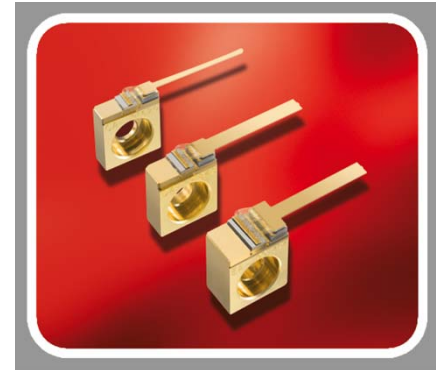
DFB/DBR



TPL/TPA

General Product Information

Product	Application
690 nm Tapered Amplifier	Spectroscopy
C-Mount Package	

**Absolute Maximum Ratings**

	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	0		30
Forward Current	I_F	A			1.2
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			600

non condensing

non condensing

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

Recommended Operational Conditions

	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_C	°C	15		45
Forward Current	I_F	A			1.0
Input Power	P_{input}	mW	10		50
Output Power	P_{opt}	mW			500

Measurement Conditions / Comments

non condensing

see instructions on p.4

with proper injection from a seed laser

Characteristics at $T_{LD} = 15$ °C at Begin Of Life

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	680	690	695
Gain Width (FWHM)	$\Delta\lambda$	nm		10	
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.25	
Amplification	P_{opt}	dB		10	
Operational Current @ $P_{opt} = 500$ mW	$I_{op, Gain}$	A			1.0
Output Power @ $I_F : 1.0$ A	P_{opt}	mW	500		
Cavity Length	L	μ m		2000	

Measurement Conditions / Comments

see images on page 4

with proper injection from a seed laser

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We focus on power.

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Characteristics at T_{amb} 15 °C at Begin Of Life cont'd

Parameter	Symbol	Unit	min	typ	max
Input Aperture (at rear side)	d_{input}	μm		3	
Output Aperture (at front side)	d_{output}	μm		70	
Astigmatism	A	μm	600	700	800
Divergence parallel ($1/e^2$)	$\Theta_{ }$	$^\circ$		14	
Divergence perpendicular ($1/e^2$)	Θ_{\perp}	$^\circ$		28	
Polarization				TE	

Measurement Conditions / Comments

depending on operating conditions
 full angle
 full angle
 E field parallel to junction plane

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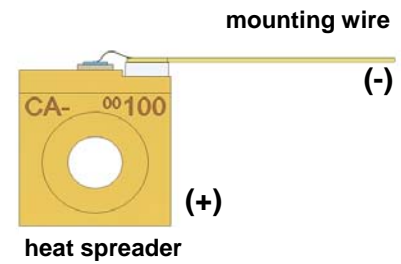
Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	h	mm	7.05	7.20	7.35
C-Mount Thickness	t	mm		2.18	

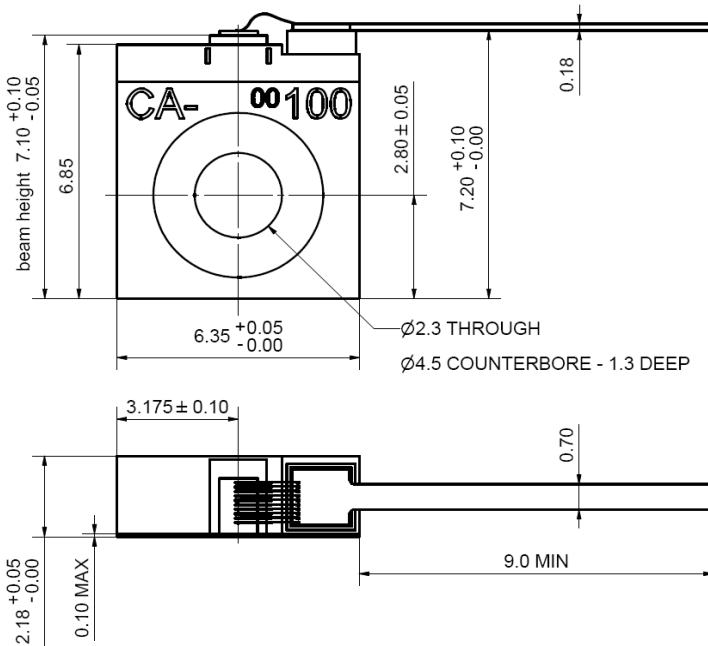
Measurement Conditions / Comments

Package Pinout

Cathode (-)	Mounting Wire
Anode (+)	Housing



Package Drawings



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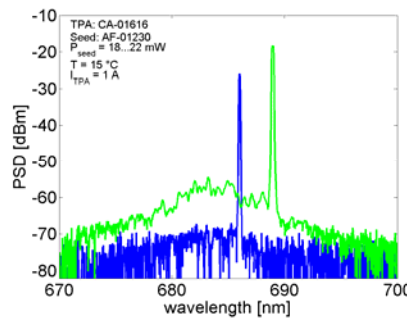
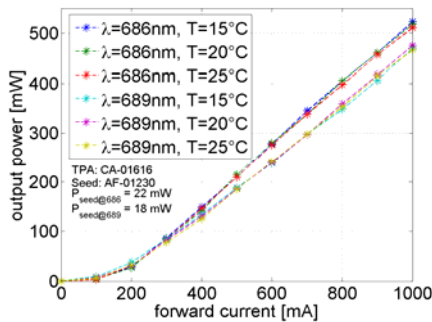
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Typical Measurement Results

Spectrum measured with injection at different 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.

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.

