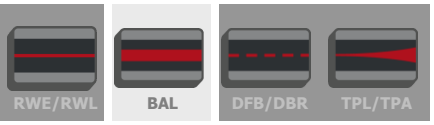
TOPTICA EAGLEYARD

EYP-BAL-1064-16000-4020-CDL02-0000

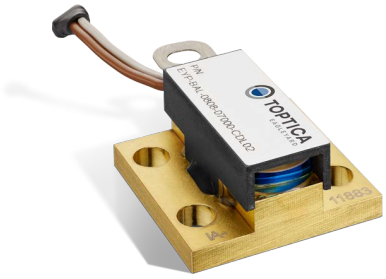
BROAD AREA LASER

GaAs Semiconductor Laser Diode
Single Emitter Structure



General Product Information

Product	Application
1064 nm Broad Area Laser	Medical
with Collimating Double Lens	Material Processing
Thermistor	



Absolute Maximum Ratings

	Symbol	Unit	min	typ	max	
Storage Temperature	T_S	°C	-20		70	non condensing
Operational Temperature at Case	T_C	°C	5		40	non condensing
Forward Current	I_F	A			24	Stress in excess of one of the Absolute Maximum Ratings can cause permanent damage to the device.
Reverse Voltage	V_R	V			2	
Output Power	P_{opt}	W			18	

Recommended Operational Conditions

	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Operational Temperature at Case	T_C	°C	15		30	non condensing
Forward Current	I_F	A			22	
Output Power	P_{opt}	W			16	

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

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Center Wavelength	λ_C	nm	1049	1064	1079	P_{opt} = 16 W
Spectral Width (FWHM)	$\Delta\lambda$	nm		5	8	
Temperature Coefficient of Wavelength	$d\lambda$ / dT	nm / K		0.4		
Output Power @ I_F = 22 A	P_{opt}	W	16			total output measured with integrating sphere
Slope Efficiency	η_d	W / A	0.6	0.9		
Threshold Current	I_{th}	A		1.0	2.5	
Operational Current @ P_{opt} = 16 W	I_{op}	A		18	22	
Voltage at Threshold	U_{th}	V	1.2			$I_F = I_{th}$
Operational Voltage	U	V	1.4	1.6	2.2	P_{opt} = 16 W

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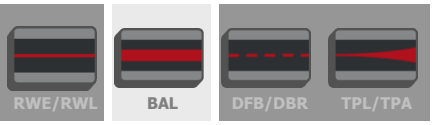
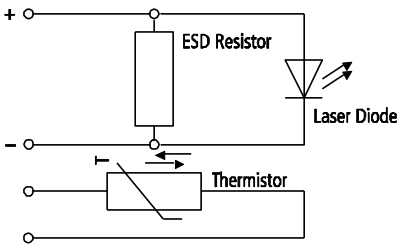


Characteristics at T_{amb} 25 °C at Begin Of Life cont'd

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Differential Serial Resistance	R_S	mΩ	15	20	50	
Stripe Width	W_s	µm		200		
Cavity Length	L	µm		4000		
Divergence parallel	$\Theta_{\parallel}$	°	1.0	1.5	2.0	Second Moment Full Angle
Divergence perpendicular	$\Theta_{\perp}$	°	0.4	0.6	0.8	Second Moment Full Angle
Beam Width parallel	$S_{\parallel}$	mm	2	3	4	
Beam Width perpendicular	$F_{\perp}$	mm	0.2	0.4	0.6	
Spectral Mode (longitudinal)				Multi Mode		
Polarization				TE		Polarization parallel to base plate

ESD-Resistor

Parameter	Symbol	Unit	min	typ	max
Resistance	R_{ESD}	kΩ		1	



Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max	
Resistance	R	kΩ		10		T_c = 25° C
Beta Coefficient	β			4000		

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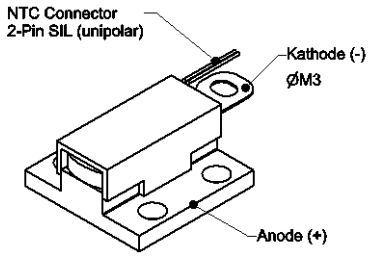
RWE/RWL | BAL | DFB/DBR | TPL/TPA

Package Dimensions

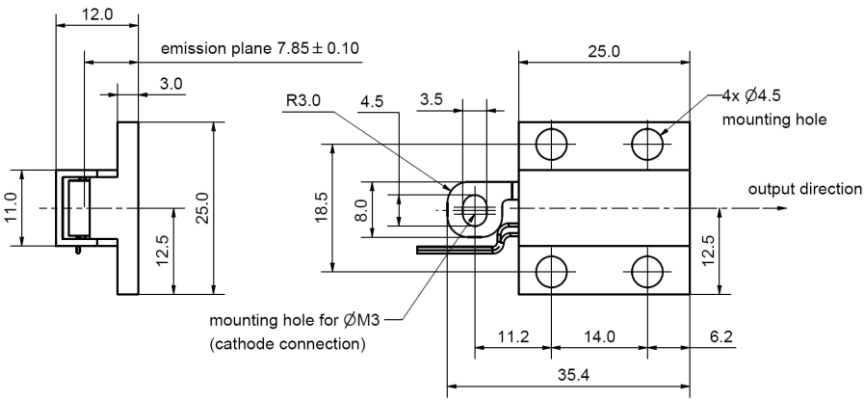
Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Emission Plane	h_{EP}	mm	7.75	7.85	7.95	
CDL Package Footprint	w x l	mm x mm		25 x 25		

Package Pinout

Cathode (-)	Cable
Anode (+)	Housing
NTC	NTC Connector



Package Drawings



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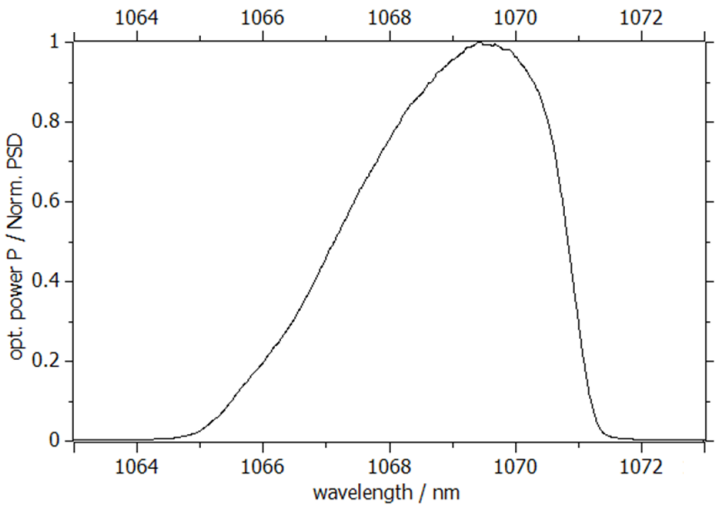
RWE/RWL BAL DFB/DBR TPL/TPA

Typical Measurement Results

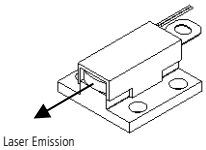
Emission Spectrum:



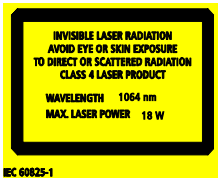
Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement 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.

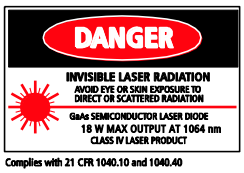


The BAL diode type is known to be sensitive against thermal stress. Operating at moderate temperatures on proper heat sinks willl contribute to a long lifetime of the diode. The chip should be protected against moisture. A water vapor content below 5000 ppm is recommended for applications with high reliability 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.



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