

# EYP-BAL-0980-10000-4020-CDL02-0000

Revision 1.04

05.06.2014

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## BROAD AREA LASER

GaAs Semiconductor Laser Diode  
Single Emitter Structure



### General Product Information

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

### Absolute Maximum Ratings

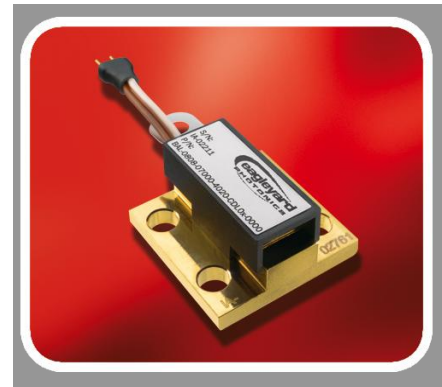
	Symbol	Unit	min	typ	max
Storage Temperature	$T_S$	°C	-20		70
Operational Temperature at Case	$T_C$	°C	5		40
Forward Current	$I_F$	A			20
Reverse Voltage	$V_R$	V			2
Output Power	$P_{opt}$	W			12

### Recommended Operational Conditions

	Symbol	Unit	min	typ	max
Operational Temperature at Case	$T_C$	°C	15		30
Forward Current	$I_F$	A			18
Output Power	$P_{opt}$	W			10

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

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	$\lambda_C$	nm	975	980	995
Spectral Width (FWHM)	$\Delta\lambda$	nm			6
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.4	
Output Power @ $I_F = 18\text{ A}$	$P_{opt}$	W	10		
Slope Efficiency	$\eta_d$	W / A	0.6	0.8	
Threshold Current	$I_{th}$	A		2.0	2.5
Voltage at Threshold	$U_{th}$	V	1.2		
Operational Current @ $P_{opt} = 10\text{ W}$	$I_{op}$	A			18
Operational Voltage	$U_{op}$	V	1.5	1.8	2.2



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

Measurement Conditions / Comments  
non condensing

Measurement Conditions / Comments  
 $P_{opt} = 10\text{ W}$

total output measured with integrating sphere

$I_F = I_{th}$

$P_{opt} = 10\text{ W}$

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

Parameter	Symbol	Unit	min	typ	max
Differential Serial Resistance	$R_s$	m $\Omega$	20	40	60
Stripe Width	$W_s$	$\mu$ m		200	
Cavity Length	L	$\mu$ m		4000	
Divergence parallel	$\Theta_{  }$	°	1.0	1.5	2.0
Divergence perpendicular	$\Theta_{\perp}$	°	0.4	0.6	0.8
Beam Width parallel	$S_{  }$	mm	2	3	4
Beam Width perpendicular	$F_{\perp}$	mm	0.2	0.4	0.6
Spectral Mode (longitudinal)				Multi Mode	
Polarization				TE	

### Measurement Conditions / Comments

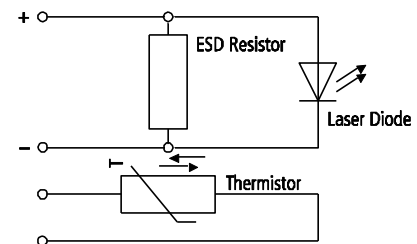
Second Moment Full Angle

Second Moment Full Angle

Polarization in parallel to base plate

### ESD-Resistor

Parameter	Symbol	Unit	min	typ	max
Resistance	$R_{ESD}$	k $\Omega$		1	



### Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	k $\Omega$		10	
Beta Coefficient	$\beta$			4000	

$T_c = 25^\circ C$

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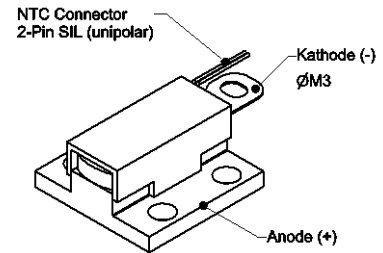
### Package Dimensions

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

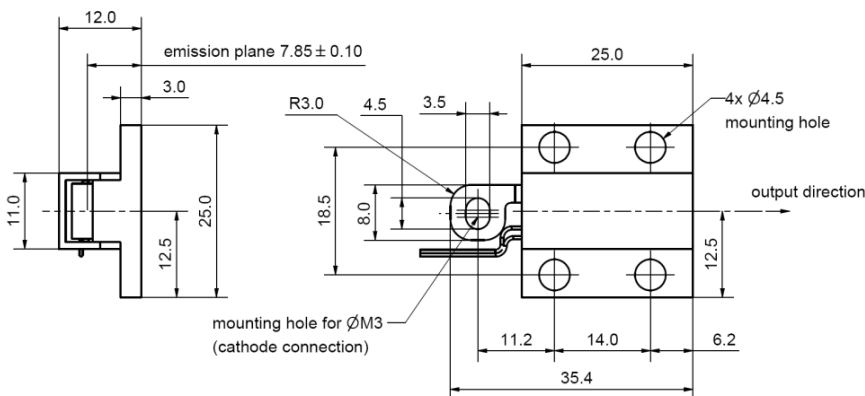
Measurement Conditions / Comments

### Package Pinout

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



### Package Drawings



Z11-SPEC-CDL02-BAL-0000

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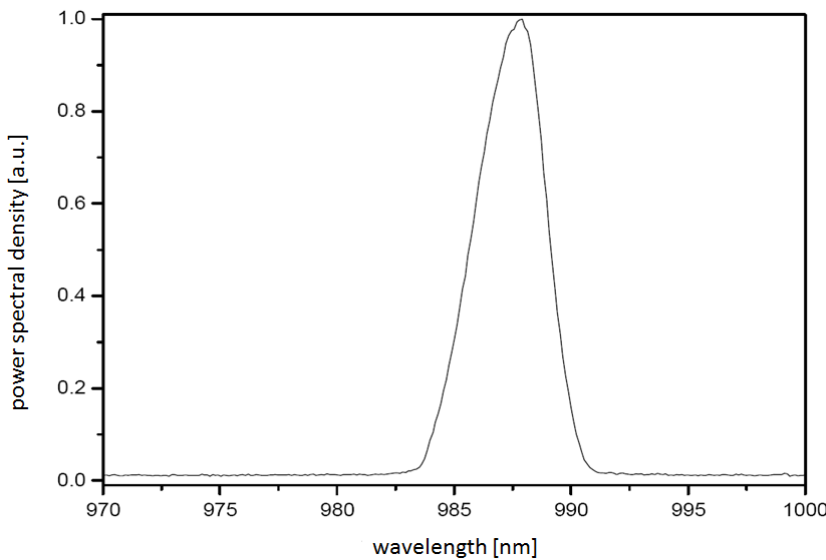
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### Typical Measurement Results

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 will contribute to a long lifetime of the diode.

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.

