

## High Power Multimode Laser Diodes

Leveraging Proven Fiber Laser Reliability with Single Emitter Technology

### Main Features:

- High Brightness:  $< .12\text{NA}$
- High Efficiency 20 Degrees C: up to 60%
- High Reliability
- High Power
- Low cost per Watt
- Robust Compact Package



The future is here today with IPG's revolutionary technology incorporating high power laser diodes for industrial, fiber laser pumping, graphic arts, medical life and health sciences, solar, semiconductors and custom applications. Together we have the Power to Transform™ through reduced risk, an accelerated time to market and lower cost of ownership.

### Applications:

Dental  
Diode Pumping  
Direct Diode Lasers & Fiber Lasers  
Graphic Arts/ Printing  
Life and Health Sciences  
Materials Processing  
Medical  
Microwelding  
Photovoltaic  
And Custom Applications

IPG Photonics leverages its proven telecom and fiber laser reliability with single emitter technology from 10w, 20w, 30w, 60w, 90w up to 100 w modules out of single core fiber from 105 $\mu$  core up to 400 $\mu$  core. IPG takes advantage of technologies and vast experiences from the mature telecommunications industry. Our single emitter pumps are manufactured with telecom materials, technology and quality. The high reliability of IPG's single emitter pumps is proven by their excellent in-field reliability record.

### Custom Business Solutions

IPG's experienced team will work with you to customize your configurations to assure you have the optimal solution matched to your requirements.



# TYPICAL SPECIFICATIONS

## iPLD-9-9XX Specification

Parameter	Symbol	Minimum	Typical	Maximum
<b>Laser Characteristics</b>				
Nominal CW Output Power	P <sub>o</sub>	8 W	8 W	9 W
Mean Wavelength (other WLs in 9xx nm range are available)	$\lambda$	915 nm		980 nm
Spectral Width (FWHM)	$\Delta\lambda$		4nm	
Slope Efficiency (at operating point)	$\eta$	0.68 W/A	0.78 W/A	0.78 W/A
In-fiber Electro-Optical Efficiency (at operating point)	PE	45%	47%	47%
Threshold Current	I <sub>th</sub>	0.33 A	0.33 A	0.33 A
Nominal Operating Current, A	I <sub>op</sub>	< 9.5 A	< 9.5 A	< 11 A
Forward Voltage, V	V <sub>f</sub>	< 1.81 V	< 1.81 V	< 1.9 V
Series Resistance	R <sub>s</sub>	< 0.06W	< 0.06W	< 0.07W
Recommended Case Temperature	T <sub>HS</sub>	10°C	25°C	50°C
Wavelength Shift with Output Power (at operating point)	$\Delta\lambda / \Delta P$	< 1.5 nm/W	< 1.5 nm/W	< 2.1 nm/W
Wavelength Shift with Temperature	$\Delta\lambda / \Delta T$		0.35nm/°C	
Lifetime		> 5,000 hours	> 10,000 hours	> 50,000 hours
<b>Fiber Characteristics</b>				
Fiber Core Diameter	d <sub>core</sub>		110 $\mu$ m	
Fiber Cladding Diameter	d <sub>clad</sub>		125 $\mu$ m	
Fiber Buffer Diameter	d <sub>buf</sub>		250 $\mu$ m	
Radiation Confined into Numerical Aperture	NA		< 0.12	< 0.15
Fiber Length	L <sub>f</sub>	0.75 m	1.2 m	tbd
<b>Maximum Ratings</b>				
Operating Current	I <sub>op</sub>			12A
Reverse Voltage	V <sub>RVS</sub>			2.5V
Case Temperature	T <sub>HS</sub>	5°C		70°C
Storage Temperature	T <sub>STG</sub>	-30°C		80°C
Lead Soldering Temperature, 15 s max	T <sub>sold</sub>			300°C
Relative Humidity, none-condensing, ambient <45°C	RH			85%
Fiber Bend Radius		30 mm		

All performance data measured beginning of life at 10 Watts at 25 degrees C.

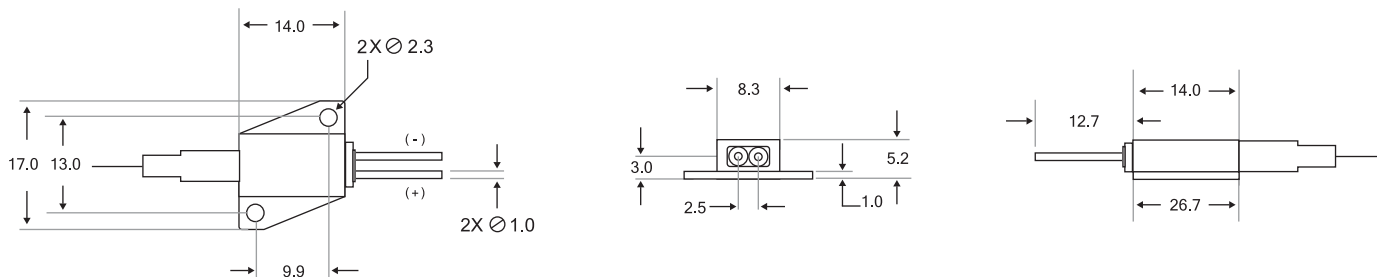
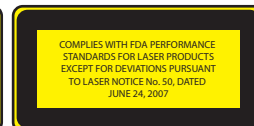
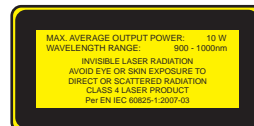


Diagram measurements in millimeters.

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