

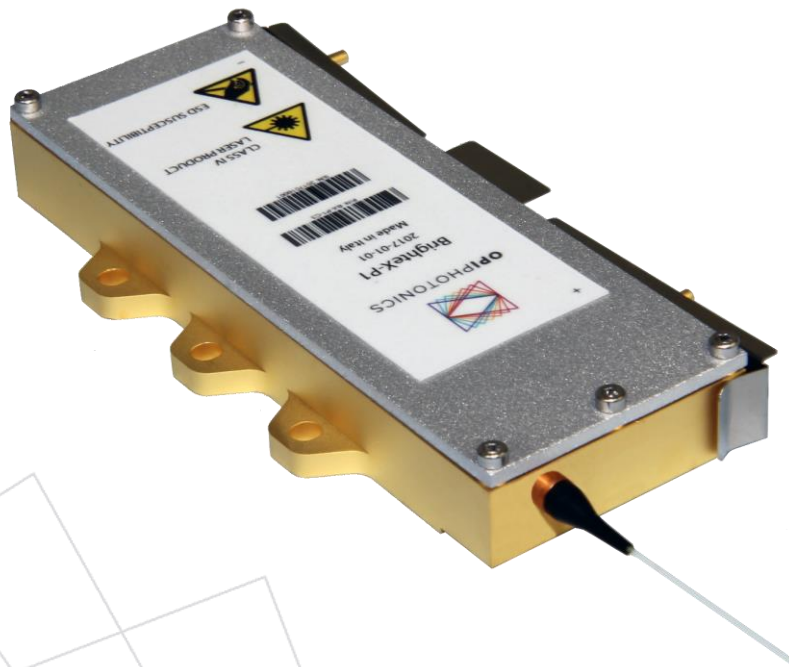
**OPIPHOTONICS**

# BRIGHTEX IR

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HIGH-POWER LASER DIODES

*emitting in the near infrared spectrum*



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## 1 Bx-9xx-100-105:

### Applications

- Fiber laser pumping
- Material processing

### Features

- 100W output power
- 105um/0.22NA delivery fiber
- 1050nm feedback protection
- 95% of power within 0.15 beam NA

### 1.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
<b>Electro-optical characteristics (1)</b>	CW output power	W	100		
	Operating current	A		10	11
	Operating voltage	V		16.5	18.2
	Wall plug efficiency	%	50	56	
	Beam NA at 95% of power	-			0.15
	Central wavelength (2)	nm	9xx-10	9xx	9xx+10
	Wavelength temperature gradient	nm/°C		0.3	
	Back-reflection isolation at 1050-1100nm	dB	30		
<b>Fiber characteristics (3)</b>	Fiber core diameter	um		105	
	Fiber cladding diameter	um		125	
	Fiber coating diameter	um		245	
	Fiber NA	-	0.20	0.22	0.24
	Fiber loose tubing diameter	mm	0.7		1.1
	Pigtail length	m	1.5		2
	Loose tubing length	mm	150		160
	Fiber bend radius	mm	42		
	Pigtail termination	-	None		
<b>Maximum ratings (4)</b>	Operating temperature	°C	15		30
	Relative humidity	%	35		60
	Storage temperature	°C	-20		85
	Lead soldering time	S			10
	Lead soldering temperature	°C			270

### Notes

- (1) Values at 20°C device base temperature
- (2) Standard wavelengths 915, 940 and 975 nm, other wavelengths available upon request
- (3) Other options (fiber type, length, jackets, termination etc....) available upon request
- (4) Exceeding absolute maximum ratings may lead to device degraded performance, shorter lifetime or sudden failure

## 2 Bx-9xx-150-200:

### Applications

- Fiber laser pumping
- Material processing

### Features

- 150W output power
- 200um/0.22NA delivery fiber
- 1050nm feedback protection
- 95% of power within 0.15 beam NA

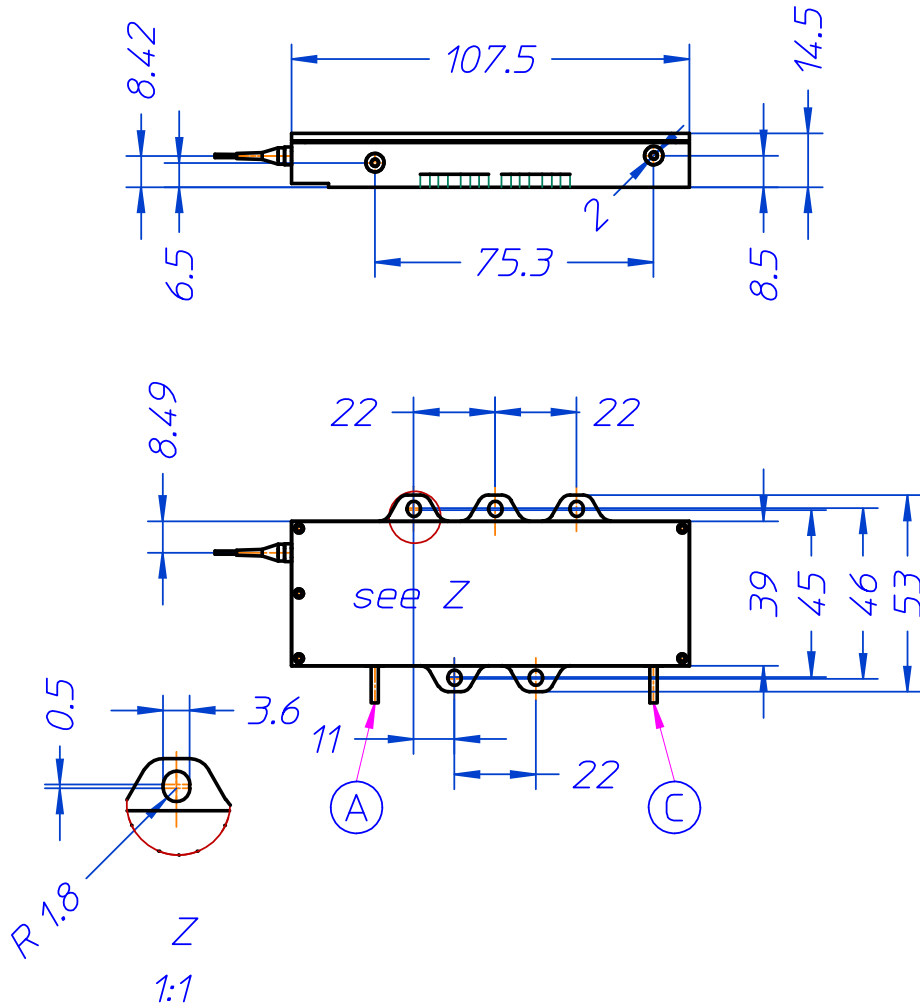
### 2.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
Electro-optical characteristics (1)	CW output power	W	150		
	Operating current	A		18	20
	Operating voltage	V		18.5	21
	Wall plug efficiency	%	49	55	
	Beam NA at 95% of power	-			0.15
	Central wavelength (2)	nm	9xx-10	9xx	9xx+10
	Wavelength temperature gradient	nm/°C		0.3	
	Back-reflection isolation at 1050-1100nm	dB	30		
Fiber characteristics (3)	Fiber core diameter	um		200	
	Fiber cladding diameter	um		220	
	Fiber coating diameter	um		320	
	Fiber NA	-	0.20	0.22	0.24
	Fiber loose tubing diameter	mm	0.7		1.1
	Pigtail length	m	1.5		2
	Loose tubing length	mm	150		160
	Fiber bend radius	mm	31		
	Pigtail termination	-	None		
Maximum ratings (4)	Operating temperature	°C	15		30
	Relative humidity	%	35		60
	Storage temperature	°C	-20		85
	Lead soldering time	S			10
	Lead soldering temperature	°C			270

### Notes

- (1) Values at 20°C device base temperature
- (2) Standard wavelengths 915, 940 and 975 nm, other wavelengths available upon request
- (3) Other options (fiber type, length, jackets, termination etc....) available upon request
- (4) Exceeding absolute maximum ratings may lead to device degraded performance, shorter lifetime or sudden failure

3 Technical drawings Bx-9xx-100-105 and Bx-9xx-150-200



All dimensions are in millimetres.

<b>Pinout</b>	A – Laser anode (+)	C – Laser cathode (-)
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#### 4 Bx-9xx-200-200:

##### Applications

- Fiber laser pumping
- Material processing

##### Features

- 200W output power
- 200um/0.22NA delivery fiber
- 1050nm feedback protection
- 95% of power within 0.15 beam NA

#### 4.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
Electro-optical characteristics (1)	CW output power	W	200		
	Operating current	A		13	16
	Operating voltage	V		35	40
	Wall plug efficiency	%	47	50	
	Beam NA at 95% of power	-			0.15
	Central wavelength (2)	nm	9xx-10	9xx	9xx+10
	Wavelength temperature gradient	nm/°C		0.3	
	Back-reflection isolation at 1050-1100nm	dB	30		
Fiber characteristics (3)	Fiber core diameter	um		200	
	Fiber cladding diameter	um		220	
	Fiber coating diameter	um		320	
	Fiber NA	-	0.20	0.22	0.24
	Fiber loose tubing diameter	mm	0.7		1.1
	Pigtail length	m	1.5		2
	Loose tubing length	mm	150		160
	Fiber bend radius	mm	31		
	Pigtail termination	-	None		
Maximum ratings (4)	Operating temperature	°C	15		30
	Relative humidity	%	35		60
	Storage temperature	°C	-20		85
	Lead soldering time	S			10
	Lead soldering temperature	°C			270

##### Notes

- (1) Values at 20°C device base temperature
- (2) Standard wavelengths 915, 940 and 975 nm, other wavelengths available upon request
- (3) Other options (fiber type, length, jackets, termination etc....) available upon request
- (4) Exceeding absolute maximum ratings may lead to device degraded performance, shorter lifetime or sudden failure

## 5 Bx-9xx-300-200:

### Applications

- Fiber laser pumping
- Material processing

### Features

- 300W output power
- 200um/0.22NA delivery fiber
- 1050nm feedback protection
- 95% of power within 0.18 beam NA

### 5.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
Electro-optical characteristics (1)	CW output power	W	300		
	Operating current	A		18	20
	Operating voltage	V		35	40
	Wall plug efficiency	%	49	55	
	Beam NA at 95% of power	-			0.18
	Central wavelength (2)	nm	9xx-10	9xx	9xx+10
	Wavelength temperature gradient	nm/°C		0.3	
	Back-reflection isolation at 1050-1100nm	dB	30		
Fiber characteristics (3)	Fiber core diameter	um		200	
	Fiber cladding diameter	um		220	
	Fiber coating diameter	um		320	
	Fiber NA	-	0.20	0.22	0.24
	Fiber loose tubing diameter	mm	0.7		1.1
	Pigtail length	m	1.5		2
	Loose tubing length	mm	150		160
	Fiber bend radius	mm	31		
	Pigtail termination	-	None		
Maximum ratings (4)	Operating temperature	°C	15		30
	Relative humidity	%	35		60
	Storage temperature	°C	-20		85
	Lead soldering time	S			10
	Lead soldering temperature	°C			270

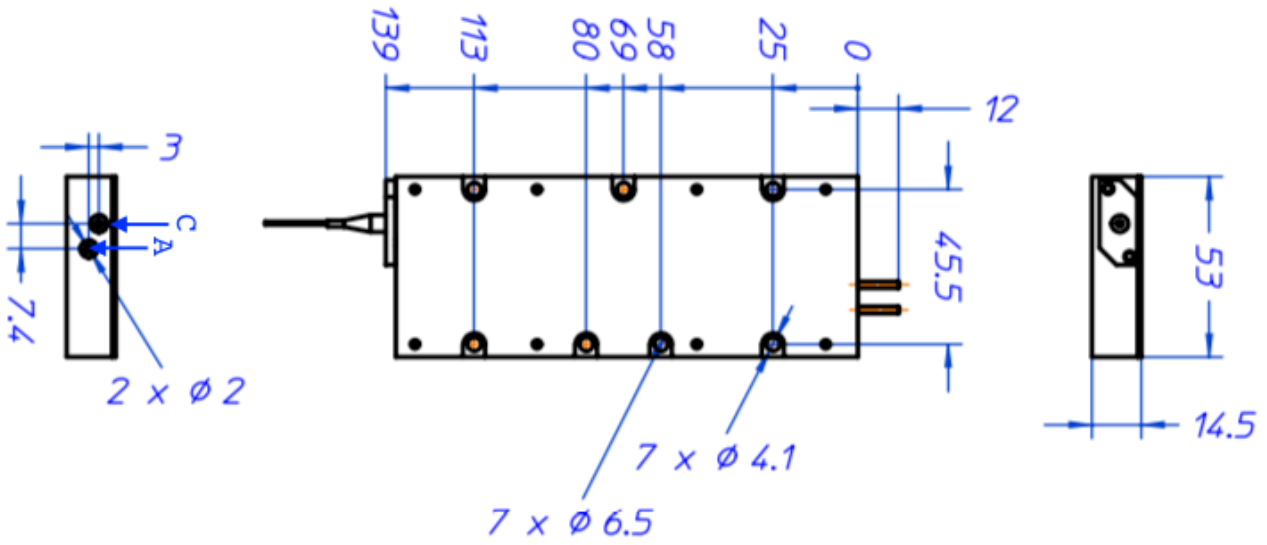
### Notes

- (1) Values at 20°C device base temperature
- (2) Standard wavelengths 915, 940 and 975 nm, other wavelengths available upon request
- (3) Other options (fiber type, length, jackets, termination etc....) available upon request
- (4) Exceeding absolute maximum ratings may lead to device degraded performance, shorter lifetime or sudden failure





6 Technical drawings Bx-9xx-200-200 and Bx-9xx-300-200



All dimensions are in millimetres.

<b>Pinout</b>	A – Laser anode (+)	C – Laser cathode (-)
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## 7 Customization

The BrighteX line of high power laser diode is conceived as a platform, so customisations are easily implemented. Both minor and major changes are possible.

Minor customisations are available also on the standard part numbers and involve the following items and are tracked by the “CC” suffix in the extended part number:

- Fiber pigtail length
- Fiber pigtail termination (SMA or other connectors)
- Loose tubing length
- Package temperature sensor

Major customisations will apply to the components used inside the module and will change:

- Emission wavelength (“XXX” field of the extended part number)
- Output power (“YYY” field of the extended part number)
- Delivery fiber (“ZZZ” field of the extended part number)

## 8 Ordering information

Extended part number: Bx-XXX-YYY-ZZZ-CC

<b>Model</b>	-	<b>Wavelength</b>	-	<b>Power</b>	-	<b>Fiber Core</b>	-	<b>Customization</b>
Bx-915-100-105-00		915 nm		100 W		105 um		00 (standard) or 01-99
Bx-915-150-200-00		915 nm		150 W		200 um		00 (standard) or 01-99
Bx-915-200-200-00		915 nm		200 W		200 um		00 (standard) or 01-99
Bx-915-300-200-00		915 nm		300 W		200 um		00 (standard) or 01-99

## 9 Safety and operating precautions

### 9.1 Electrostatic discharge (ESD)

ESD is the primary cause of device sudden failure. Use good ESD practice (wrist straps, dissipative working surfaces, air ionizers etc...) whenever handling the device.

### 9.2 Operating instructions

Laser diodes may be damaged by excessive bias current or transient current spikes. Use proper electronics to drive the device.

Contact OPI Photonics for driving electronics recommendation and reference design solutions.

### 9.3 Laser safety

Extremely **dangerous invisible laser radiation** is emitted by this laser diode when in operation. Laser radiation can be emitted by the laser only when connected to a power supply and current is flowing through the connecting pins.

Wear the proper protecting devices selected for the laser beam power and wavelength.

Apply all safety measures in the area where the device is operated (warning signals, controlled access, safety interlocks).

This device is not certified for 21CFR 1040.10 or IEC 60825-1:2014, since it is meant for system integration. Certification is to be performed at system level.

