

## Product Bulletin



JDS Uniphase NanoLaser™ produces high peak power, high repetition rate, and short pulses from compact, turnkey packages.

The laser cavity consists of a 2 mm<sup>3</sup> Nd:YAG gain medium bonded to a chromium doped YAG saturable absorber. The cavity's mirrors are vapor deposited directly on each side of the crystal to form a rugged, monolithic oscillator that is end pumped by a CW diode laser.

Combined with integral harmonic generators, the NanoLaser can convert the 1064-nm output to additional wavelengths: 532 nm, 355 nm, and 266 nm.

The NanoPulse™ laser produces 1064-nm output and can be optimized for up to either 50 mW of average power or 6 μJ pulse energy. In either case the output is a pulse train of high peak power, sub-1 nsec, near-diffraction limited pulses.

The NanoGreen™ laser utilizes a KTP frequency doubler at the output of the same microchip that is used for the NanoPulse to produce 532-nm pulses. An IR blocking filter is added to remove the residual 1064 light. The

### NanoLaser™ Solid-state laser

NanoGreen can be specified for up to either 6 mW of average power or 2 μJ of pulse energy. The mode is excellent and specified to have an M<sup>2</sup> better than 1.2.

The NanoUV™ lasers are a logical extension of our proven microchip technology. The UV lasers produce 1 mW of average power at either 355 nm or 266 nm by utilizing harmonic generation stages integrated in the laser head. A harmonic separation stage has been added to reduce the 1064-nm and 532-nm light to greater than 10,000 times below the level of the UV output.

#### Key features

- 266-nm, 355-nm and 1064 Outputs Available
- High Average and Peak Output Powers
- Compact Package Design
- Ideal for Both Laboratory and OEM Applications
- Highly reliable

#### Applications

- Micro machining
- Ranging
- Laser induced fluorescence
- Alignment

#### Compliance

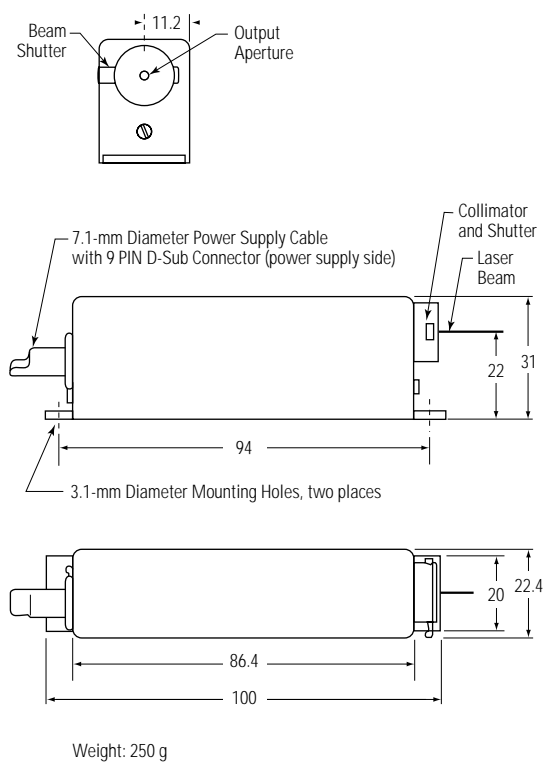
- CDRH

Specifications

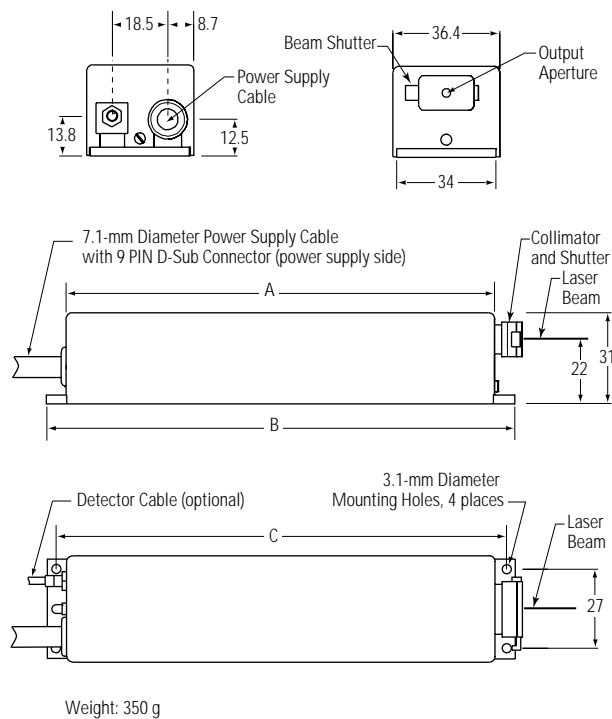
Model Number <sup>1</sup>	Description	Wavelength (nm)	Average Output power (mW)	Energy/Pulse (μJ)	Pulse Width	Repetition Rate (kHz) <sup>2</sup>	Beam Profile	Polarization Ratio
NP-00121-100	NanoPulse	1064	NA	>1	<1 ns	10-20	TEM <sub>00</sub>	>100:1
NP-00321-100	NanoPulse	1064	NA	>3	<1 ns	10-20	TEM <sub>00</sub>	>100:1
NP-00621-100	NanoPulse	1064	NA	>6	<1 ns	2-5	TEM <sub>00</sub>	>100:1
NP-02011-100	NanoPulse	1064	>20	NA	<1 ns	10-20	TEM <sub>00</sub>	>100:1
NP-05011-100	NanoPulse	1064	>50	>1	<1 ns	20-30	TEM <sub>00</sub>	>100:1
NG-00411-100	NanoGreen	532	>4	NA	<1 ns	15-30	TEM <sub>00</sub>	>100:1
NG-00611-100	Nanoreen	532	>6	NA	<1 ns	15-30	TEM <sub>00</sub>	>100:1
NG-00121-100	NanoGreen	532	NA	>1	<1 ns	10-20	TEM <sub>00</sub>	>100:1
NG-00221-100	NanoGreen	532	NA	>2	<1 ns	2-5	TEM <sub>00</sub>	>100:1
NV-00111-100	NanoUV-355	355	>1	NA	<800 ps	10-15	Near Gaussian	>100:1
NU-00111-100	NanoUV-266	266	>1	NA	<800 ps	8-13	Near Gaussian	>100:1

- Notes: 1—OEM certified systems are available;  
 2—Repetition rate is a nominal value only and will vary from laser to laser;  
 3—After 15 minutes warm-up and temperature variations less than 3°C/hour and 3°C range

NanoGreen/NanoPulse Laser Head



NanoUV Laser Head



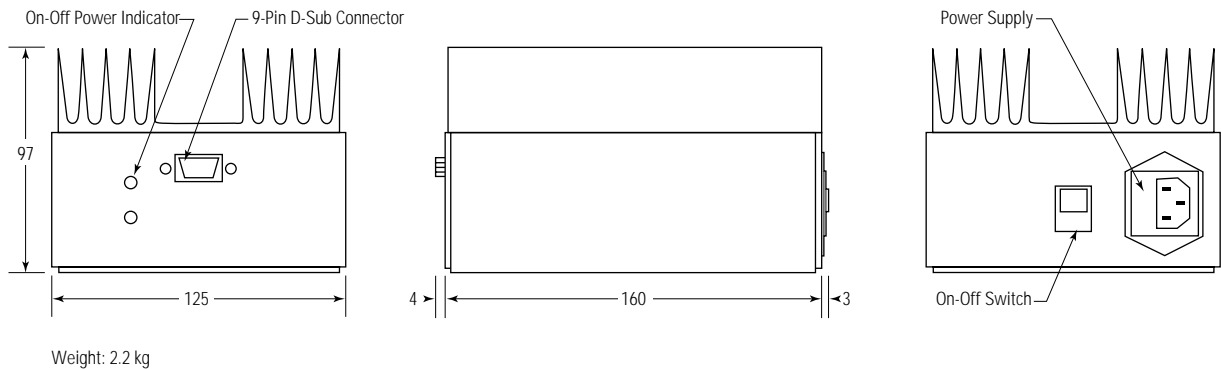
Laser Head Dimensions

	Head Length (A)	Base Length (B)	Mounting Hole-to-Hole (C)
NanoUV-355	146.4	160	154
NanoUV-266	136.4	150	144

**Specifications**

Model Number <sup>1</sup>	Polarization Direction	Output Beam Diameter (1/e <sup>2</sup> points) (mm)	Beam Divergence (full angle) (mrad)	Power Stability <sup>3</sup> (1 hour) (%)	Ellipticity	Warm-up Time (min.)	Heatsink Operating Temperature (° C)
NP-00121-100	unspecified	0.2	± 1	< ± 3	<1.1:1	10	0-50
NP-00321-100	unspecified	0.2	± 1	< ± 3	<1.1:1	10	0-50
NP-00621-100	unspecified	0.2	± 1	< ± 3	<1.1:1	10	0-50
NP-02011-100	unspecified	0.2	± 1	< ± 3	<1.1:1	10	0-50
NP-05011-100	unspecified	0.2	± 1	< ± 3	<1.1:1	10	0-50
NG-00411-100	unspecified	0.2	±2	<±3	<1.1:1	10	0-50
NG-00611-100	unspecified	0.2	±2	<±3	<1.1:1	10	0-50
NG-00121-100	unspecified	0.2	±2	<±3	<1.1:1	10	0-50
NG-00221-100	unspecified	0.2	±2	<±3	<1.1:1	10	0-50
NV-00111-100	vertical	0.5 x 0.5	<3 x < 1	<±5	NA	15	15-35
NU-00111-100	vertical	0.5 x 0.5	<3 x < 1	<±5	NA	15	15-35

**Power Supply**



**Thermal Management.** All JDS Uniphase NanoLasers incorporate a thermoelectric cooler in the laser head to ensure optimum performance over a wide range of ambient conditions. An innovative power supply, designed to meet the rigorous demands of OEM applications, tightly controls the diode laser current and maintains diode temperature within a 2° C window resulting in stable long-term operation.

**Power Requirements.** The Nanolaser system operates directly from 110-Vac outlets. Systems operating at 220-Vac are also available.

**Operation.** For operation of any of the NanoLaser models, simply attach the laser head to a heatsink (customer supplied) capable of dissipating 25 W of heat load of heat load, plug the power supply into any 115-VAC wall outlet, and turn on the key switch. Although OEM versions are shown, CDRH-compatible models with key switch are also available, as well as custom versions.

**Custom Configurations.** NanoLasers can be configured to meet specific customer requirements for specific repetition rates, computer control, and single-shot capability. Custom power supplies and head designs are also available. Please contact factory for details.

### Compliance to Regulatory Agencies

OEM versions of JDS Uniphase solid state lasers are offered as products for incorporation into other equipment. As such, they have not been certified by CDRH and are to be used only as components. The customer is responsible for CDRH certification of the systems incorporating these products. JDS Uniphase solid state lasers are also available in CDRH certified form, please contact JDS Uniphase.

### Warranty

JDS Uniphase solid-state laser products are sold pursuant to a limited sublicense under certain technology owned by ATX Teleom Systems, Inc. The rights that customers of JDS Uniphase receive through purchase of these products are restricted and exclude any right to use the product in the telecommunications field.

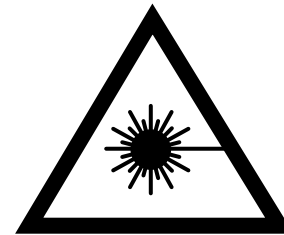
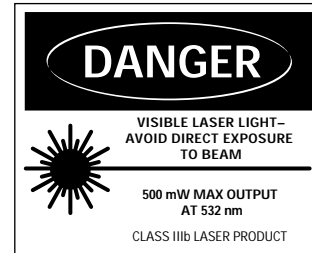
NanoLasers use laser components manufactured by NanoLase under a CEA/LETI license.

### Patent Information

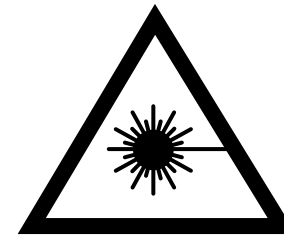
5495,494 Self-aligned, monolithic, solid microlaser with passive switching by a saturable absorber and production process.

### Ordering information

For more information on this or other products and their availability, please contact your local JDS Uniphase sales representative or JDS Uniphase directly at 408 434-1800, or by fax 408 954-1177, or via email at [sales.ca@us.jdsuniphase.com](mailto:sales.ca@us.jdsuniphase.com). Visit our Web site at [www.jdsuniphase.com](http://www.jdsuniphase.com).



US-CDRH



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