The JDS Uniphase PowerChip NanoLaser is an all solid state laser which produces in excess of 100 kW peak power in the infrared and more than 20 kW in the UV with unparalleled compactness, simplicity and ease of use. Using passive Q-switching with a high power diode bar, it emits short pulses with a repetition rate in excess of 1 kHz.

The high energy of the PowerChip NanoLaser derives from a large microchip cavity consisting of a layer of Cr^{4+} doped YAG saturable absorber embedded monolithically in a YAG crystal, with doped and un-doped regions, and mirrors deposited at both ends. This cavity emits short pulses with high peak power without the costly and complicated electronics needed to drive traditional Q-switched lasers.

The PowerChip NanoLaser features a hermetically sealed laser head that protects optical components from dust, fumes, condensation, shock and vibration. Its inherent stability avoids the need for costly, complex electronic feedback loops. An optimal thermal environment, maintained by integral air-cooled heat sink, allows the laser to work either as a system component or as a standalone unit. The system operates on 24 VDC, supplied by the user.

The standard laser system is triggered internally at the factory-set repetition rate. Optional external TTL triggering allows a user-defined repetition rate. The laser is optimized for a frequency range around the repetition rate specified by the customer.

Key features
- Simple and efficient
- Passive Q-switching
- Hermetically-sealed laser head
- High UV energy
- Compact, rugged, self contained
- TEM_{00} beam
- IR, green and UV models available
- Built-in heat sink
- Easy computer interface

Applications
- MALDI-TOF for Genomics and Proteomics
- Semiconductor manufacturing
- Micro marking
- Nitrogen laser replacement
- Material processing
- Environmental assessment systems
- LIDAR, LIBS
- Fluorescence
**Minimum performance specifications**

<table>
<thead>
<tr>
<th>Models</th>
<th>PNP-005025-000</th>
<th>PNG-002025-000</th>
<th>PNV-001025-000</th>
<th>PNU-001025-000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wavelength</strong></td>
<td>1064 nm</td>
<td>532 nm</td>
<td>355 nm</td>
<td>266 nm</td>
</tr>
<tr>
<td><strong>Energy/pulse</strong></td>
<td>50 µJ</td>
<td>20 µJ</td>
<td>10 µJ</td>
<td>10 µJ</td>
</tr>
<tr>
<td><strong>Average power</strong></td>
<td>100 mW</td>
<td>40 mW</td>
<td>20 mW</td>
<td>20 mW</td>
</tr>
<tr>
<td><strong>Pulse width</strong></td>
<td>&lt; 500 ps</td>
<td>&lt; 500 ps</td>
<td>&lt; 500 ps</td>
<td>&lt; 500 ps</td>
</tr>
<tr>
<td><strong>Repetition rate</strong></td>
<td>100 Hz - 2 kHz</td>
<td>100 Hz - 2 kHz</td>
<td>100 Hz - 2 kHz</td>
<td>100 Hz - 2 kHz</td>
</tr>
<tr>
<td><strong>Beam profile</strong></td>
<td>TEM₀₀</td>
<td>TEM₀₀</td>
<td>Near Gaussian</td>
<td>Near Gaussian</td>
</tr>
<tr>
<td><strong>Beam diameter</strong></td>
<td>1.8 mm</td>
<td>1.5 mm</td>
<td>1.0 mm</td>
<td>1.0 mm</td>
</tr>
<tr>
<td><strong>Beam divergence (full angle)</strong></td>
<td>&lt; 2 mrad</td>
<td>&lt; 2 mrad</td>
<td>&lt; 1 mrad</td>
<td>&lt; 1 mrad</td>
</tr>
<tr>
<td><strong>Power stability (1 hour)</strong></td>
<td>± 3 %</td>
<td>± 3 %</td>
<td>± 5 %</td>
<td>± 5 %</td>
</tr>
<tr>
<td><strong>Heatsink operating temperature</strong></td>
<td>15 ºC - 35 ºC</td>
<td>15 ºC - 35 ºC</td>
<td>15 ºC - 35 ºC</td>
<td>15 ºC - 35 ºC</td>
</tr>
<tr>
<td><strong>Storage temperature without humidity</strong></td>
<td>10 ºC - 50 ºC</td>
<td>10 ºC - 50 ºC</td>
<td>10 ºC - 50 ºC</td>
<td>10 ºC - 50 ºC</td>
</tr>
</tbody>
</table>

**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. Please contact JDS Uniphase for information about CDRH compliant models.

**Warranty**

JDS Uniphase PowerChip lasers are warranted to be free of defects in materials and workmanship for six months from the date of shipment.

**Licensing Information**

This product is sold pursuant to a limited sublicense under certain technology owned by ATX Telecom Systems, Inc. The rights that customers of JDS Uniphase receive through purchase of this product are restricted and exclude any right to use the product in the telecommunications field.

**Patent Information**

5,495,494 Self-aligned, monolithic, solid microlaser with passive switching by a saturable absorber and production process.