YLPP-25-1-50-R
Ytterbium Picosecond Fiber Laser

50 W, 1-5 ps

Pulse Energy as a Function of Rep Rate

Energy / Pulse μJ

0 5 10 15 20 25 30
50 100 200 500 1000 1200 1500 2000
Repetition Rate, kHz

Applications
- Precision Micromachining
- Black Marking of Stainless Steel or Aluminum
- Surface Microstructuring and Texturing
- Multilayer Polymer Film Cutting
- Sattery and Thin Metal Foil Cutting
- Sapphire LED Wafer Scribing
- Thin Film Ablation for Solar/ PV/ Flat Panel Display
- Cutting & Drilling Glass/ Sapphire
- Precise Marking of Metals/ Polymers/Glass
- Micromachining of Ceramics

Features
- Ultra-compact, 1.5 kg Laser Head
- Broad Frequency of Operation 50 kHz – 2 MHz
- Pulse Duration Options 1-5 ps
- Pulse Energy 25 μJ
- Warm Start in Seconds
- Power up to 50 W, 25 MW Peak
- Cold Start in Seconds
- Integrated Delivery Fiber to Remote Head
- Integrated Scanner Option Available

IPG Photonics NEW YLPP-25-1-50-R ultrashort pulse fiber laser provides pulses with 25 μJ pulse energy with scalable average output power of 50 W and customer selected pulse durations in the range of 1 to 5 ps at full operational repetition rate range of 50-2000 kHz. Our monolithic-all-spliced-fiber design is “beyond state-of-the-art,” enabling an incredibly compact laser that is inherently more power efficient, reliable and robust than conventional bulk-rod or disk based DPSS USP lasers yet priced significantly lower than the industries legacy products. The novel design architecture together with our flexible control electronics provides conveniently short warm-up times and allows adjustment of both pulse energy and repetition rate without affecting the output beam parameters. Laser pulses with durations of just a few picoseconds create peak intensities so high that non-linear/multiphoton absorption takes place, resulting in an ultra-precise “cold” process with very small heat affect.
YLPP-25-1-50-R
Ytterbium Picosecond Fiber Laser

Optical Characteristics*

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<table>
<thead>
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<tbody>
<tr>
<td>Wavelength, nm</td>
<td>1030</td>
</tr>
<tr>
<td>Mode of Operation</td>
<td>Pulsed</td>
</tr>
<tr>
<td>Average Power, W</td>
<td>50</td>
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<tr>
<td>Pulse Energy, µJ</td>
<td>25</td>
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<tr>
<td>Pulse Duration*, ps</td>
<td>1-5</td>
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<tr>
<td>Peak Power, MW</td>
<td>up to 25</td>
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<tr>
<td>Repetition Rate, kHz</td>
<td>50-2000</td>
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<tr>
<td>Beam Quality, M²</td>
<td>&lt;1.4 (1.2 Typ.)</td>
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</tbody>
</table>

*Customer can select models within specified maximum power, maximum pulse energy and pulse durations in 1 to 5 ps range. Shorter pulsed durations and higher pulse energies are available upon request.

General Characteristics

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<tr>
<td>Control Unit Dimensions (W × D × H), mm</td>
<td>448 × 580 × 132</td>
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<tr>
<td>Optical Head Dimensions (W × D × H), mm</td>
<td>65 × 216 × 70</td>
</tr>
<tr>
<td>Cooling</td>
<td>Water</td>
</tr>
<tr>
<td>Supply Voltage, VAC</td>
<td>100-240, 50/60 Hz</td>
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<tr>
<td>Power Consumption, W</td>
<td>&lt;300</td>
</tr>
</tbody>
</table>

Cooling System Dimensions:

- Water inlet and outlet
- Exit beam dimensions
- Measurements in mm and in.

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