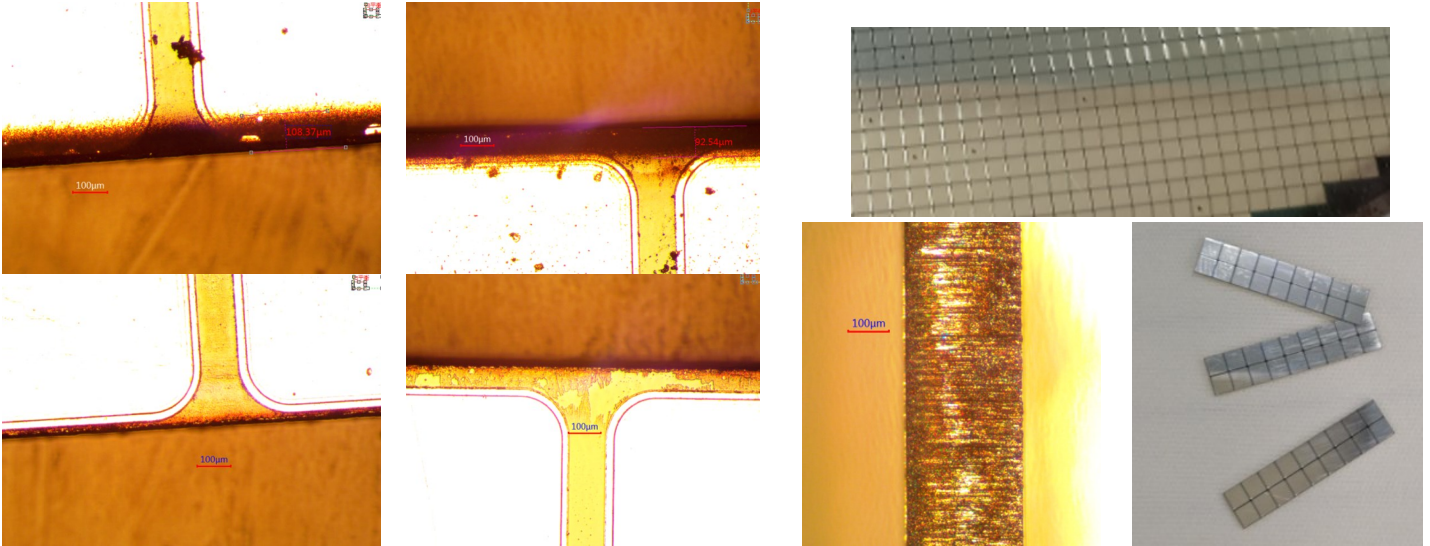


Silicon Wafer Scribing

Utilizing Photonics Industries' DX Series Nanosecond Laser



Sample Information

The material type is silicon. The specific sample depth of cut is 0.3mm by width of 0.03mm. The specific application is silicon wafer scribing.

The nanosecond laser material scribing process shall leave a clear path for subsequent cutting by mechanical processes.

System Information

Laser Source: DX 355-28 Wavelength: 355nm Power: 28W

Processing Equipment: Beam Expander 8x, F-Theta Lens Linos 100mm, Scanning Galvanometer

Test Data

The processing was conducted by scribing to form a clear cut line under both most efficient parameters and best cut quality parameters.

The optimal processing parameters were Duty Control set to 100%, and scanning speed set to 3000mm/s and mirror scanning 400 times in processing.



Photonics Industries
International, Inc.

DX Series Nanosecond Lasers

Available in the Green and Ultraviolet wavelengths.

Industrial Nanosecond Lasers to Fulfill Production Needs...

Photronics Industries' DX Series nanosecond lasers offer high performance, excellent precision, and an industrial form factor for the most demanding manufacturing and production environments. Photronics Industries is proven, with reliable, patented intracavity harmonic technologies and thousands of nanosecond lasers shipped worldwide, to meet and fulfill precision needs in manufacturing and production. As "the pioneer of intracavity harmonic solid-state lasers", Photronics Industries continually meets the demands of modern industrial production needs.

Applications

- Silicon Wafers - Scribing, Singulation, Dicing, Dielectric Grooving
- Printed Circuit Boards (PCB) & Flexible Printed Circuit Boards (FPCB) - De-paneling, Cutting, Drilling
- Metal Foil, Ceramic, & Glass - Scribing, Cutting, Drilling
- Solar Cells & PERC Processing - Scribing, Patterning
- Indium Tin Oxide (ITO) - Removal, Processing
- Via Hole Drilling
- UV reel to reel on the fly converting process
- UV Welding Carbon Fiber (CFRP)



Features

- High power nanosecond laser:
Up to 55 W for UV, and 100 W for Green
- Patented intracavity harmonic generation for UV and Green wavelengths
- Superior form factor as the most compact, rugged, All-in-One nanosecond laser
- Highest wall plug efficiency nanosecond laser:
~10% for UV, and ~17% for Green
- Widest selection of pulse widths, differing from any other commercially available single laser platform:
10 ns to > 200 ns
- Excellent TEM₀₀ beam:
Typical M² < 1.1
- Superior Pulse Stability:
Typical < 2%
- Exceptional Beam Pointing Stability:
< 25 μrad
- Total Pulse Control:
PEC (Power or Pulse Energy Control)
Duty Control for ultimate adaptability to production needs

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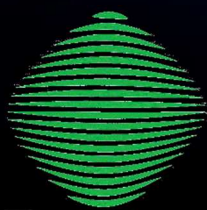
Photronics Industries International is the pioneer of intracavity harmonic lasers and is at the forefront of developing, manufacturing and marketing a wide range of nanosecond, sub-nanosecond, picosecond and femtosecond lasers for industrial, scientific, defense, and medical industries. Check out our [products](#) and see how we can help you apply our lasers to your needs.

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