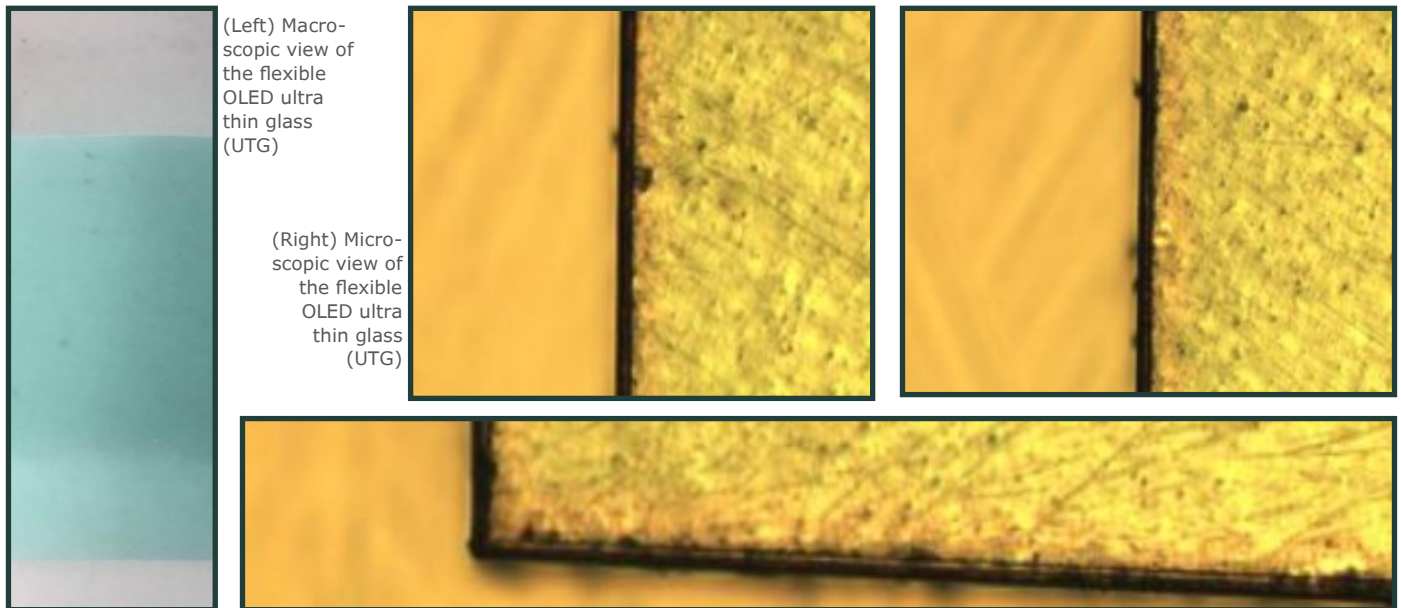


# Flexible OLED Glass Cutting

Utilizing Photonics Industries' RX Series High Power Picosecond Laser



## Sample Information

The material type is flexible OLED ultra thin glass (UTG). The specific sample glass thickness is 0.22mm. The specific application is straight-line cutting.

The picosecond laser cutting process shall cut the glass while maintaining a low heat-affected zone (low HAZ) for optimal edge quality, and also not having adverse thermal affects on the thin film material adhered to the glass.

## System Information

Laser Source: RX-532-30      Wavelength: 532nm      Avg. Power Used: 12W-30W

Processing Equipment: Beam Expander 4x, F-Theta Lens Linos 100mm

## Test Data

The optimal processing parameters set on the laser were 500kHz, Pulse Energy Control (PEC) set to 40%, cutting speed of 1000mm/s, cutting time 60 times over a line of 44mm. The total processing time under these parameters was 5.4s.

Other optimal processing parameters set on the laser were 800kHz, PEC set to 95%, cutting speed of 2000mm/s, cutting time 35 times over a line of 44mm. The total processing time under these parameters was 2.7s.

Under the optimal processing parameters, a low HAZ of  $\sim 17-20\mu\text{m}$  is observed with little to no adverse thermal affects on the adhered material. For no adverse thermal affects on the thin film material, it is optimal to operate the laser at high repetition rates and high cutting speeds.



# RX Series High Power Picosecond Lasers

Available in the Infrared, Green, and Ultraviolet wavelengths.

## Picosecond Lasers for Industry and Science by Photronics Industries...

Photronics Industries' RX Series picosecond lasers offer high performance, high precision, and robust form for the most demanding industrial as well as scientific applications. Photronics Industries is proven, with over a thousand picosecond lasers shipped worldwide, to meet and fulfill precision needs in manufacturing, accurate laser ranging, and new, emerging requirements necessitating ever smaller pulse widths.

### Applications

- Metal, Ceramic, Glass, & Sapphire - Cutting, Drilling, Marking
- Flat Panel Display (FPD) Functional Foils & Display Glass - Cutting, Scribing
- Solar Cells - Scribing, Patterning
- LED - Scribing, Patterning, Dicing
- Medical Device - Cutting, Drilling, Marking
- Glass Reinforced Plastic, & Carbon Fiber - Cutting
- Ink-Jet Nozzle - Drilling
- Printing & Embossing Tools
- ITO Film Removal
- 3D LIDAR
- Nanotexturing



### Features

- High pulse energy picosecond laser:
  - ~1 mJ for IR, >400  $\mu$ J for Green & ~200  $\mu$ J for UV
- High power picosecond laser with short pulse:
  - 100 W for IR, and short pulses ~7 ps for Green & UV, <10 ps for IR
- Wide range of wavelengths:
  - 1064 nm, 532 nm, 355 nm
- Superior form factor as the most compact, rugged, All-in-One picosecond laser
- High efficiency picosecond laser with low power consumption:
  - < 600 W typical
- High repetition rates:
  - Single shot up to 8 MHz
- Excellent TEM<sub>00</sub> beam:
  - Typical  $M^2 \leq 1.2$
- Exceptional Beam Pointing Stability:
  - < 20  $\mu$ rad
- Exceptional and Versatile Pulse Control:
  - PEC (Power or Pulse Energy Control)
  - Burst Mode with programmable amplitude capability
  - PSO (Position Synchronized Output) support for constant pulse energy regardless of trigger rate

Copyright © 2021 by Photronics Industries International, Inc.

Main Headquarters: 1800 Ocean Ave, Ronkonkoma, New York 11779, United States

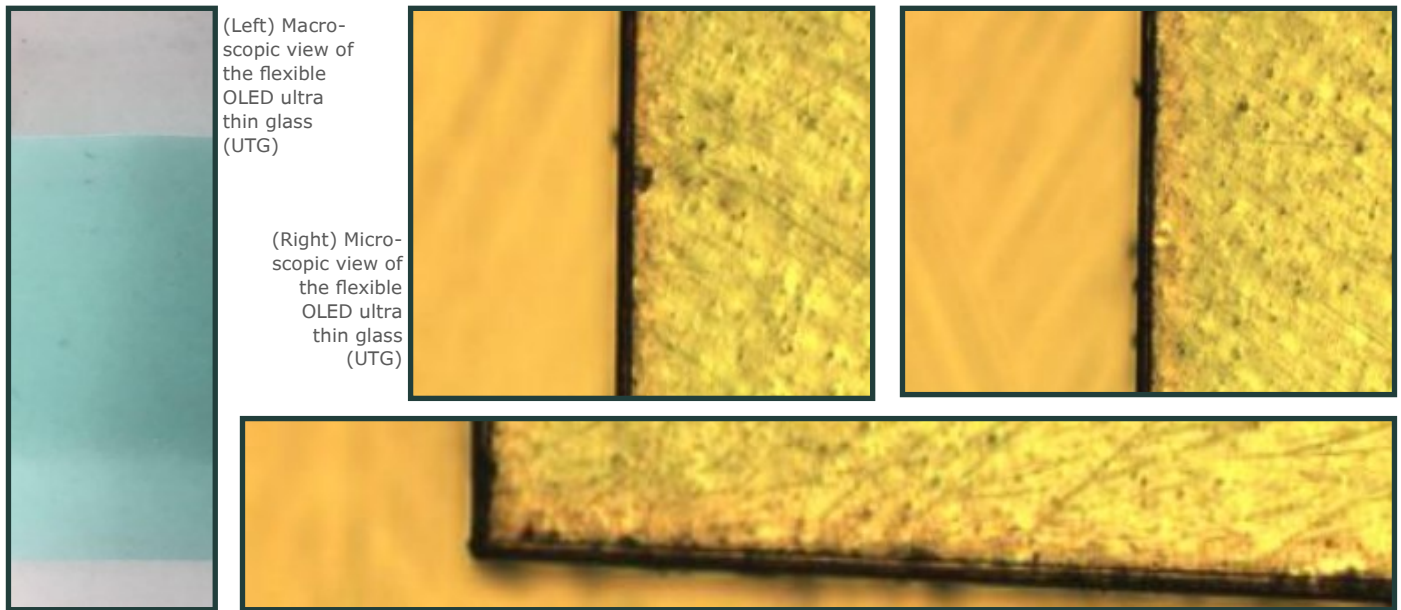
Photronics Industries International is the pioneer of intracavity harmonic lasers and is at the forefront of developing, manufacturing and marketing a wide range of nanosecond, sub-nanosecond, picosecond and femtosecond lasers for industrial, scientific, defense, and medical industries. Check out our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

[Website](#) - [Products](#) - [Applications](#) - [Company](#) - [Contact](#) - [International Network](#)



# Flexible OLED Glass Cutting

Utilizing Photonics Industries' RX Series High Power Picosecond Laser



## Sample Information

The material type is flexible OLED ultra thin glass (UTG). The specific sample glass thickness is 0.22mm. The specific application is straight-line cutting.

The picosecond laser cutting process shall cut the glass while maintaining a low heat-affected zone (low HAZ) for optimal edge quality, and also not having adverse thermal affects on the thin film material adhered to the glass.

## System Information

Laser Source: RX-532-30      Wavelength: 532nm      Avg. Power Used: 12W-30W

Processing Equipment: Beam Expander 4x, F-Theta Lens Linos 100mm

## Test Data

The optimal processing parameters set on the laser were 500kHz, Pulse Energy Control (PEC) set to 40%, cutting speed of 1000mm/s, cutting time 60 times over a line of 44mm. The total processing time under these parameters was 5.4s.

Other optimal processing parameters set on the laser were 800kHz, PEC set to 95%, cutting speed of 2000mm/s, cutting time 35 times over a line of 44mm. The total processing time under these parameters was 2.7s.

Under the optimal processing parameters, a low HAZ of  $\sim 17\text{-}20\mu\text{m}$  is observed with little to no adverse thermal affects on the adhered material. For no adverse thermal affects on the thin film material, it is optimal to operate the laser at high repetition rates and high cutting speeds.



# RX Series High Power Picosecond Lasers

Available in the Infrared, Green, and Ultraviolet wavelengths.

## Picosecond Lasers for Industry and Science by Photronics Industries...

Photronics Industries' RX Series picosecond lasers offer high performance, high precision, and robust form for the most demanding industrial as well as scientific applications. Photronics Industries is proven, with over a thousand picosecond lasers shipped worldwide, to meet and fulfill precision needs in manufacturing, accurate laser ranging, and new, emerging requirements necessitating ever smaller pulse widths.



## Features

- High pulse energy picosecond laser:  
~1 mJ for IR, >400  $\mu$ J for Green & ~200  $\mu$ J for UV
- High power picosecond laser with short pulse:  
100 W for IR, and short pulses ~7 ps for Green & UV, <10 ps for IR
- Wide range of wavelengths:  
1064 nm, 532 nm, 355 nm
- Superior form factor as the most compact, rugged, All-in-One picosecond laser
- High efficiency picosecond laser with low power consumption:  
< 600 W typical
- High repetition rates:  
Single shot up to 8 MHz
- Excellent TEM<sub>00</sub> beam:  
Typical  $M^2 \leq 1.2$
- Exceptional Beam Pointing Stability:  
< 20  $\mu$ rad
- Exceptional and Versatile Pulse Control:  
PEC (Power or Pulse Energy Control)  
Burst Mode with programmable amplitude capability  
PSO (Position Synchronized Output) support for constant pulse energy regardless of trigger rate

## Applications

- Metal, Ceramic, Glass, & Sapphire - Cutting, Drilling, Marking
- Flat Panel Display (FPD) Functional Foils & Display Glass - Cutting, Scribing
- Solar Cells - Scribing, Patterning
- LED - Scribing, Patterning, Dicing
- Medical Device - Cutting, Drilling, Marking
- Glass Reinforced Plastic, & Carbon Fiber - Cutting
- Ink-Jet Nozzle - Drilling
- Printing & Embossing Tools
- ITO Film Removal
- 3D LIDAR
- Nanotexturing

**Copyright © 2021 by Photronics Industries International, Inc.**

Main Headquarters: 1800 Ocean Ave, Ronkonkoma, New York 11779, United States

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.

[Website](#) - [Products](#) - [Applications](#) - [Company](#) - [Contact](#) - [International Network](#)





光と人をつなぐ

# Rayture Systems



レイチャーシステムズ株式会社

〒160-0006 東京都新宿区舟町7 ロクサンビル7F

TEL : 03-3351-0717 FAX : 03-3351-6771

URL : <http://www.rayture-sys.co.jp>

E-mail : [laser@rayture-sys.co.jp](mailto:laser@rayture-sys.co.jp)