

**WaferPlus** is a leading ISO 9001 certificated manufacturer with advanced production for customized glass, quartz, and silicon products, covering Laser and CNC processing, Sandblasting, Wet etching, Polishing, Anodic and Glue bonding, Optical coating, Cleanroom Class 100 and 1000 environment with Ultrasonic Washing, etc.

Since **1978**, WaferPlus is focusing on SEMI, BIO, MEMS, Optic-electronics, LED, Microfluidic, and Display industries, and has successfully brought many clients' projects to reality based on innovative solutions and unique process know-how.

WaferPlus is providing cutting-edge solutions, offering dimensions from Dia. 50mm to Dia. 300mm, larger or smaller sizes according to customized demands. WaferPlus is already qualified by Industry leaders for supplying products made by customized solutions for DNA sequencing glass and Microfluidic glass reactor in the fast-growing BIO and SEMI applications.

WaferPlus, connecting Future to be Better and Smarter.

## **Glass, Quartz, Silicon, Special Materials**

- ✓ **Silicon wafer**  
SOI wafer, CZ & FZ, P & N type, 100 & 111, Low & High resistance, Prime & Test grade.
- ✓ **Quartz**  
Fused Silica, Fused Quartz, Low OH Quartz.
- ✓ **Borosilicate glass**  
Borofloat 33, Pyrex 7740, D263Teco.
- ✓ **Alkaline-Free glass**  
EXG, AF32, ABC, AN100.
- ✓ **Sodalime glass**  
Electronic grade for 3C product, White glass B270.
- ✓ **Toughening glass**  
Gorilla, Dragontrail.
- ✓ **Optical filters**  
UV filter, VIS filter, NIR, SWIR, LWIR filters, BK7
- ✓ **Others**  
Sapphire (Al<sub>2</sub>O<sub>3</sub>), ALN, Ceramics, Diamond wafer, GaN, GaAs, Germanium, Graphene, LiTaO<sub>3</sub>, LiNbO<sub>3</sub>, SiC, ZrO<sub>2</sub>, etc.



## **Glass Wafer for Substrate, Packaging, Carrier**

- ✓ Applicable to 3D-IC TSV & TGV interposer, Carrier wafer for IGBT, MEMS GOS (Glass on Silicon), SOG (Silicon on Glass), QOS (Quartz on Silicon), SOQ (Silicon on Quartz), SOS (Sapphire on Silicon), customized SOI wafer.
- ✓ Wafer Diameter : 50, 100, 150, 200, 300mm.
- ✓ Round, Square, and Customized shape.
- ✓ Notch and Flat based on SEMI or JEITA Standard.
- ✓ Thickness: 50μm ~ 3000μm.
- ✓ TTV < 3 μm.
- ✓ Roughness (Ra) < 0.5 nm (5A).
- ✓ Surface treatment: Polished or Frosted.
- ✓ Thin glass 50um, 100um, 200um with low edge chipping.
- ✓ Laser marking.



### Micro-structuring for Holes & Cavities

- ✓ Micro-structuring on wafers and substrates with holes and cavities.
- ✓ Hole diameter: Dia. 30  $\mu\text{m}$  (0.03mm).
- ✓ Cavity depth: 5  $\mu\text{m}$  (0.005mm) with Clear or Frosted bottom.
- ✓ Groove: 10  $\mu\text{m}$  (0.01mm).
- ✓ Processing by Sandblasting, Ultrasonic drilling, CNC, Wet etching, Molding, and Laser to produce customized design including cavity, groove, through hole, blind hole.



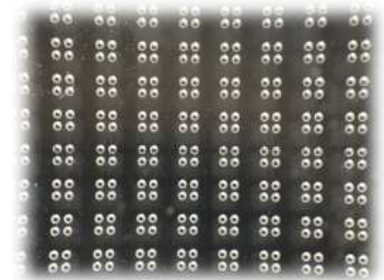
### Optical Coating & Patterning

- ✓ UVAR for UVA and UVC LED @ 260nm ~ 300nm.
- ✓ UVIR-cut with Low Defect Coating for CIS @ 650nm, for Ambient light sensor @ 550nm and 670nm.
- ✓ Motion Defect IR coating @ 850nm.
- ✓ IRAR for NightVision @ 2~12 $\mu\text{m}$ .
- ✓ DAR >99.5% for Automotive Lighting & DLP @ VIS.
- ✓ IR-cut, UV-cut, Cr & Patterning for WL Optics & WL Packaging, LCOS, DLP.
- ✓ Metal Coating: Au, Ag, Ti, Cu, Al, Sn.
- ✓ Narrow band and Customized spectrum upon request.



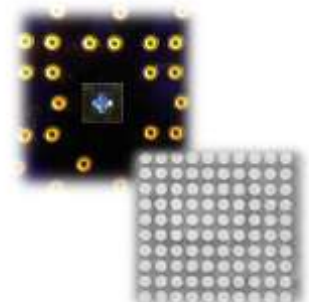
### In-Between Laser Cutting & Dicing

- ✓ Applicable to clear crystal material, including Chemical toughened glass, Borosilicate glass, Alkaline-free glass, Sodalime glass, Silicon wafer, Sapphire ( $\text{Al}_2\text{O}_3$ ), Ceramic, ALN, etc.
- ✓ Feasible for Compound materials (e.g. Glass + ALN).
- ✓ Cutting for extra-thin glass from thickness 50 $\mu\text{m}$ .
- ✓ Through hole, blind hole, Grooving, Pre-cut, Alignment mark, tracking number.
- ✓ Straight cut edge ( $90^\circ$ ) with chipping < 10 $\mu\text{m}$ .
- ✓ Cutting width 10 $\mu\text{m}$  and increase the material usage.
- ✓ Low contamination cutting with high cleanliness.



### TGV (Through Glass Via) & TSV (Through Silicon Via)

- ✓ Wafer size @ 4", 6", 8", and 12".
- ✓ Thin glass 100 $\mu\text{m}$  with fine hole drilling Dia. 30 $\mu\text{m}$ .
- ✓ Low-resistance metal doped in the via or coating with lift-off.
- ✓ Low to High CTE glass wafer available for TGV.
- ✓ TSV insulation trench with  $\text{Al}_2\text{O}_3$  or  $\text{SiO}_2$  barrier coating for Si or Cu vias.
- ✓ Applicable to SEMI and MEMS 3D IC interposer.



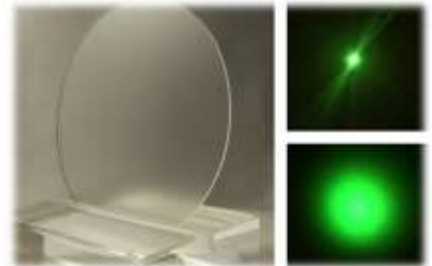
### Glue Bonding Solutions

- ✓ Specialized for industrial applications.
- ✓ Customized glue recipe applicable to LED, SEMI packaging, Optics, Solar, Electronics, Automotive, Biotechnology, Microfluidic device, SIM card, RFID, Glass, Plastic, Metal bonding, etc.
- ✓ Standard and Customized glue composition based on customer's requirements.



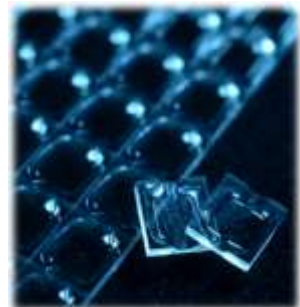
### Laser Diffuser (Glass, Quartz, Sapphire)

- ✓ Wet etching to create permanent micro-structure on glass, quartz, and sapphire for various diffusing angles.
- ✓ Customized diffusing angles for various applications such as Laser, VCSEL, and IR.
- ✓ High Thermal resistance for Quartz Diffuser.
- ✓ Customized shapes by laser and CNC cutting.
- ✓ Chemical toughening as option.
- ✓ Thermal resistance for Quartz Diffuser.



### UVA, UVC, UHB LED, OLED Packaging Caps

- ✓ Glass and Quartz as raw material.
- ✓ Production by Molding, Etching, and Bonding.
- ✓ Packaging cap for UVA, UVC, UHB LEDs used in Automotive, Projection, Stage lighting, IR sensing, OLED lighting, OLED Display etc.
- ✓ 3535 · 5050 · 5060, 7070, 9090 available on stock.
- ✓ Wet etching depth down to 700um.
- ✓ Bonding solution with UV cure Glue or Au coating for Eutectic Bonding.
- ✓ Delivery in Substrate, Array, and Cap size by Dicing.
- ✓ Double side UVAR coating @ 260nm~300nm > 97%.



### DNA, PCR Sequencing Glass + Quartz Chips & Glue Bonding

- ✓ Low-phosphor glass and quartz as substrate.
- ✓ Customized DNA and PCR sequencing solutions based on glass.
- ✓ Structuring for optical cavities, tunnels, blind hole, through holes.
- ✓ Glue bonding for Microfluidic chips
- ✓ In-between laser cutting for high strength of glass.



### Contacts

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