

## High-performance glass carriers

### for advanced semiconductor packaging

For decades, SCHOTT has built a leading reputation for high-quality glass carrier wafers and panels, serving advanced industries like semiconductors, optoelectronics, automotive, science, and biotechnology. Our experts help develop tailored solutions to meet specific customer needs.

Our glass carriers are essential in semiconductor applications as temporary bonding and debonding substrates for silicon wafers and dies. SCHOTT glass's high optical transmission – from UV to IR – enables efficient laser-assisted debonding and advanced packaging solutions.

With increasingly complex semiconductor architectures, demand for mechanically and chemically stable, ultra-flat carrier materials continues to grow. Glass wafers and panels are widely used in applications such as:

- 2.5D/3D IC (2.5- and 3-dimensional integrated circuits)
- FOWLP (fan-out wafer-level packaging) & FOPLP (panel-level packaging)
- Wafer thinning

#### Why choose SCHOTT glass carriers?



#### High raw glass quality

High reproducibility of our melting processes ensures high and consistent quality of raw glass.



#### **Broad CTE range**

Wide selection of materials to ensure optimal thermal expansion matching with different device substrates.



#### **Excellent surface quality and flatness**

High-level glass quality and a surface with very low roughness values removes the nees for further surface refinement.



#### Unmatched precision

Ultra-low total thickness variation (TTV) and minimal warpage ensure maximum process stability.



#### Outstanding optical properties

Superior transmission from UV to IR, enabling advanced laser and optical processing.



#### Exceptional chemical resistance

High resistance to acids, alkalis, and hydrolytic degradation for enhanced durability



#### Multiple product geometries

Glass is an ideal carrier substrate with minimal size limitations and, as a wafer, offers silicon-compatible notch and chamfer geometries plus glass's benefits.



#### Designed for semiconductor processes

Ideal for temporary bonding, silicon thinning, and fan-out packaging



#### Versatile processing options

State of the art processing capabilities available to meet diverse semiconductor requirements for carrier wafers and panels.



### Glass carriers produced according to industry standards like (example for wafers)

- Flat/Notch: SEMI-standard compliant
- Laser marking: SEMI-standard compliant
- Cleaning: Ultra-/Megasonic cleaning usually in ISO 5 cleanroom
- Packaging: Inspection & packaging usually under ISO 5 conditions in FOSB, RTU wafer boxes



#### Process-ready design

Laser-marked, cleanroom-packaged traceable wafers and panels for seamless integration into high-tech manufacturing



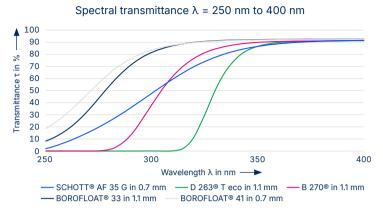
#### **Technical expertise**

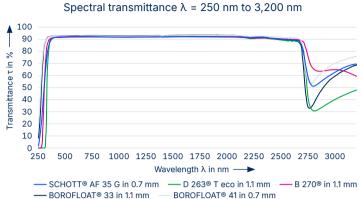
Our specialists offer tailored support to help customers find the best carrier material for their application.



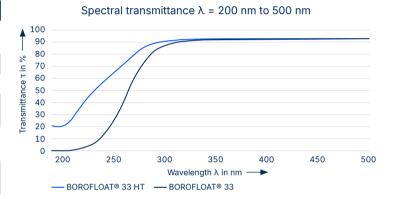
## Glass carriers

# Our glass carrier wafer and panels convince through high-quality processing

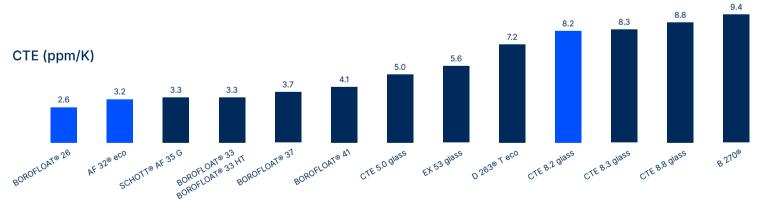




Item	Wafer <sup>(1)</sup>	Panel <sup>(1)</sup>
Format	6", 8", 12" [150 – 300 mm]	max. 650 x 650 mm <sup>(2)</sup>
Thickness <sup>(3)</sup>	0.40 – 2.75 mm	0.50 – 2.75 mm
Thickness tolerance(4)	± 2.5 – 5.0 μm	± 15 – 20 μm
Total thickness variation (TTV) <sup>(4)</sup>	≤ 0.5 – 2.0 µm	≤ 15 – 20 µm
Warp <sup>(4)</sup>	12″: ≤ 50 μm 8″: ≤ 30 μm	≤ 100 − 200 µm
Cosmetic quality Scratch/Dig	40/20 - 20/10	40/20 - 20/10



- (1) Tighter specifications upon request
- (2) Typically 600 x 600 mm
- (3) Typical values, other thicknesses on demand possible
- (4) Typical values, depending on glass type and thickness



Available as wafer and panel

Available as wafer only





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