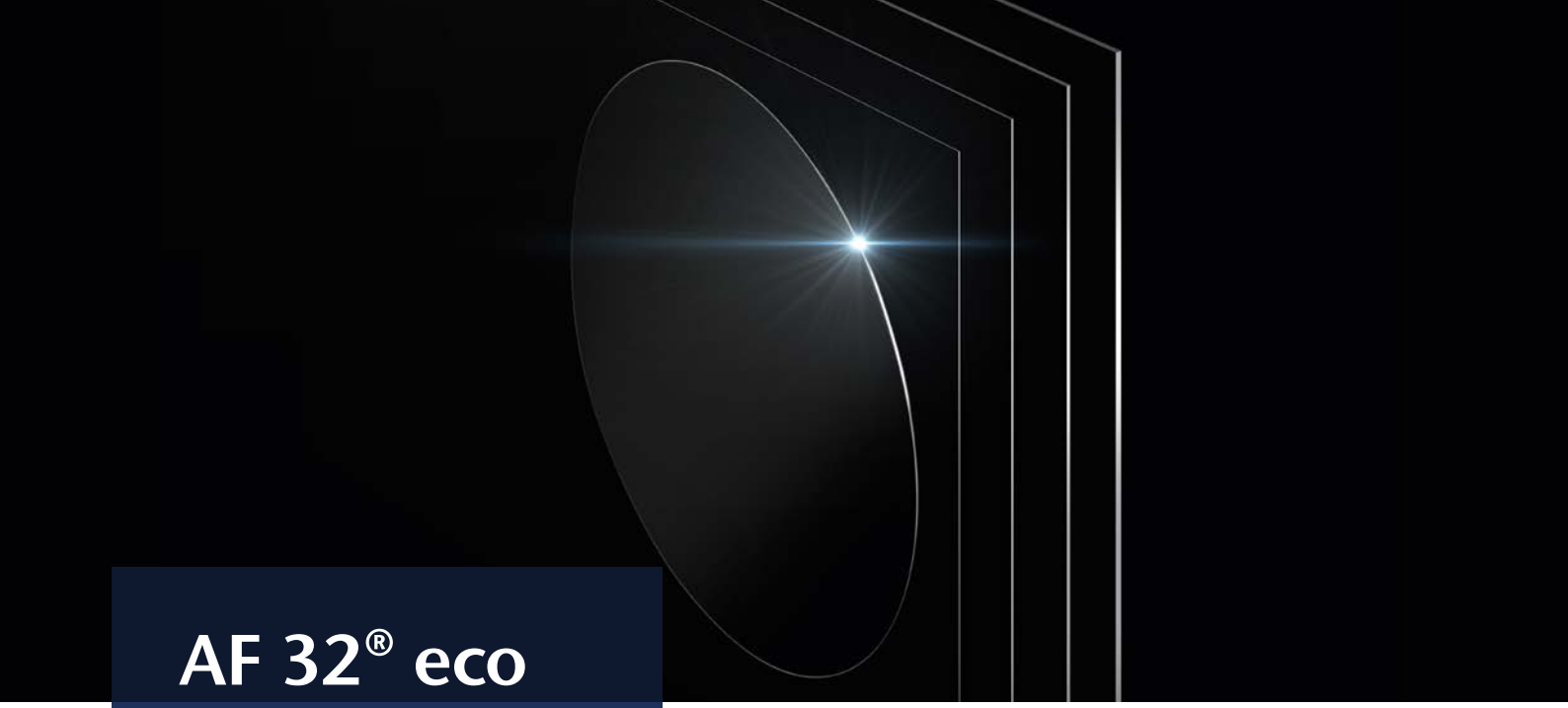


AF 32® eco

The alkali free answer to high technical demands

The alkali-free alumino-borosilicate glass AF 32® eco is both environmentally friendly and technically impressive. The material is produced using SCHOTT's unique down-draw process, which results in a broad thickness range, with high transmission levels, a superior surface quality and excellent dielectric properties.

Various thicknesses available

High transmittance

Low CTE

Excellent dielectric properties

High temperature resistance

Excellent surface quality and flatness

Applications

AF 32® eco provides solutions across a wide range of applications. With a coefficient of thermal expansion matching that of a silicon wafer, AF 32® eco is an adaptable and reliable choice for many areas ranging from consumer electronics and automotive through to industry.

AF 32® eco can be used as a substrate or cover for:

- Wafer-level packaging
- Wafer-level optics
- Carrier wafers
- Near-infrared narrow band filters
- Substrates in RF & HF devices
- Microdisplays

Automotive

Consumer electronics

Smart home

Optics

Semiconductors

Industry

SCHOTT
glass made of ideas

SCHOTT AF 32® eco

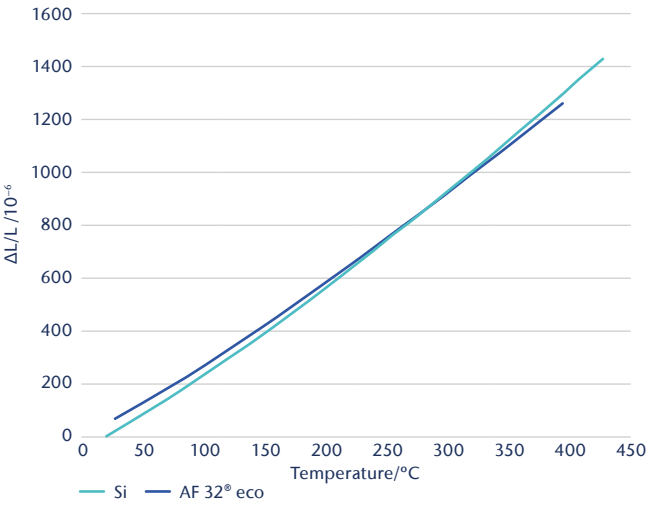
The alkali free answer to high technical demands

A wide range of tightly controlled thicknesses

AF 32® eco is available in a wide variety of thicknesses, from 0.03 mm up to 0.5 mm. The total thickness variation (TTV) factor remains tightly controlled, at just ≤ 5 µm to 15 µm.

Alkali-free with a low CTE

Alkali-free composition and a similar CTE to silicon makes it highly suitable for semiconductor systems.

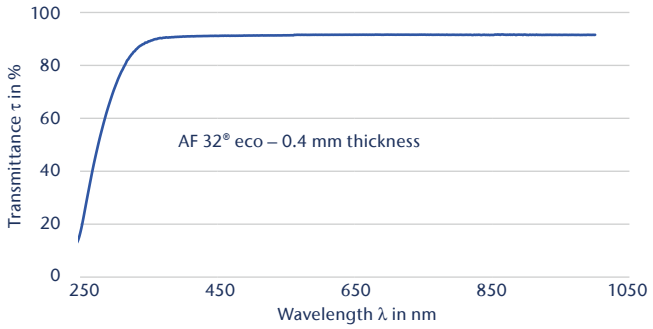


High temperature resistance

AF 32® eco has a temperature resistance of up to 717 °C and can be used for high temperature applications.

Outstanding transmission levels

Light transmission achieved by AF 32® eco glass is consistently strong both in the visible range and at higher wavelengths up to near-infrared.



Optical properties	
Refractive index n_D	1.5099
Luminous transmittance τ_{vD65} (d = 0.4 mm)	92.1 %

Geometrical properties	
Rectangular min. [mm]*	50 x 50
Rectangular max. [mm]*	300 x 300
Round min.*	50 (2 inch)
Round max.*	300 (12 inch)
Thickness min. [mm]	0.03
Thickness max. [mm]	0.5
Surface roughness	< 1 nm RMS

* Customized formats are available upon request.

Excellent dielectric properties

The low dielectric loss of AF 32® eco allows applications at very high frequencies. For example, SAW and BAW filter in the GHz range can be achieved with low insertion loss.

Frequency in GHz	1	2	5	24	77
Dielectric constant (permittivity) ε_r	5.1	5.1	5.1	5.1	5.0
Loss tangent tan(δ) in 10^{-4}	35	39	49	69	110

Mechanical properties		
Density ρ	g/cm³	2.43
Young's modulus E	kN/mm²	74.8
Poisson's ratio µ		0.24
Knoop hardness	HK 0.1/20	490
Vickers hardness	HV 0.2/25	540

Thermal properties	
Coefficient of thermal expansion α (20 °C; 300 °C)	$3.2 \cdot 10^{-6}$ K^{-1}
Transformation temperature T_g	717 °C

Chemical properties		
Hydrolytic resistance	DIN ISO 719	HGB 1
Acid resistance	DIN 12116	S 4
Alkali resistance	DIN ISO 695	A 3

ENGLISH 12/2022 kn/nino Printed in Germany

schott.com

SCHOTT AG, Hattenbergstrasse 10, 55122 Mainz, Germany
Phone +49 (0)6131/66-3589, info.special-glass-wafer@schott.com

SCHOTT
glass made of ideas