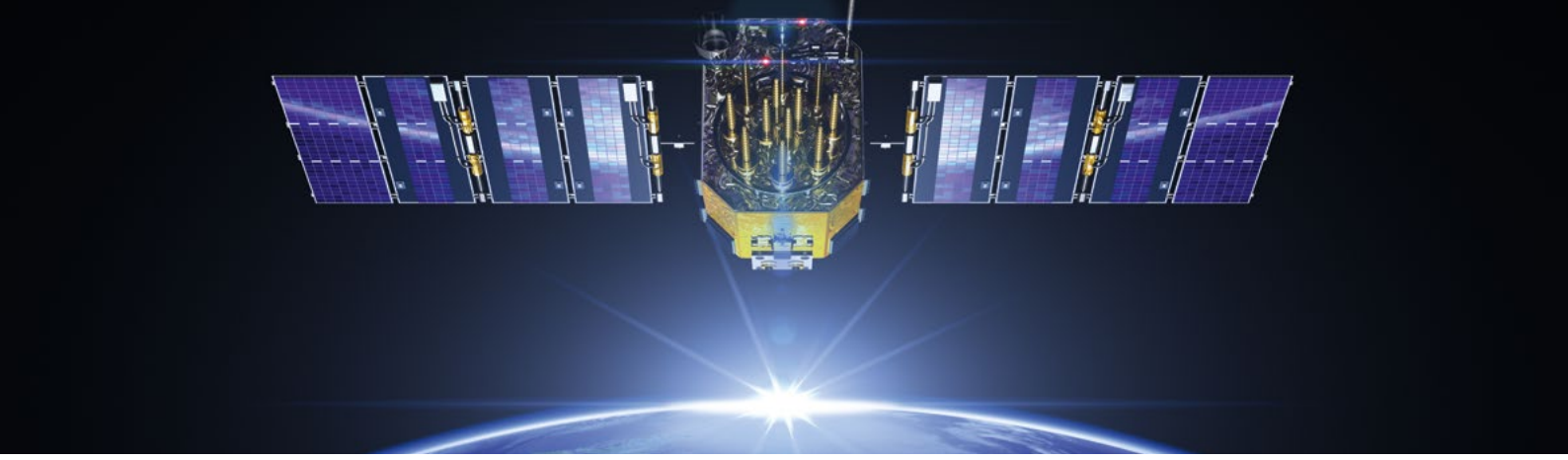


SCHOTT® Solar Cell Cover Glass

One versatile family, tailored solutions for diverse mission requirements

Solar power for an evolving space ecosystem

The global space ecosystem is expanding. Satellites are becoming increasingly important to modern infrastructure and to a growing range of commercial, institutional and scientific services. For most missions, the electrical power required to operate their systems is supplied by photovoltaic arrays. Reliable power generation depends on more than solar cell efficiency alone. The materials protecting the cells are part of the power system architecture and must support photovoltaic performance throughout the entire intended mission.

Different requirements. One versatile portfolio.

Mission profiles, solar array designs and cell technologies place different demands on cover glass. The SCHOTT® Solar Cell Cover Glass family offers a versatile portfolio designed to address a broad range of these requirements.
From cost-sensitive applications and demanding radiation environments to next-generation solar cell architectures, manufacturers can select the appropriate balance of protection, optical performance, weight and cost.

General properties

SCHOTT® Solar Glass family
Maximum energy yield over a mission's entire lifetime.

- Outstanding transmission
- High edge strength
- High absorption of UV radiation
- Fire-polished surface
- Made to withstand UV solarization
- Ultra-thin thicknesses
- Protection against high-energy particle radiation
- Available in large formats

NEW: From ultra-thin glass to ultra-large formats

As satellite platforms, solar arrays and cell architectures evolve, cover glass requirements are evolving with them. SCHOTT® Solar Glass exos extends the portfolio with large-format ultra-thin glass in dimensions up to 2 × 1 m², developed to support next-generation solar cell architectures.

Specific properties

SCHOTT® Solar Glass exos
Ultra-thin glass developed for next-generation solar cell architectures, with ultra-large formats up to 2 × 1 m² and tailored optical and thermal properties.

- Solarization stable against high-energy particle radiation
- UV absorption to protect adhesive
- Design freedom for your cell architecture
- Available in ultra-large formats
- Space-qualified to ECSS-E-ST-20-08C standards pending

SCHOTT® Solar Glass sphere
A commercial off-the-shelf glass for cost-effective solar applications in low-radiation environments.

- Commercial off-the-shelf
- Available in ultra-large formats

SCHOTT® Solar Glass 0787
Designed for special solar applications in high-radiation environments.

- Solarization stable against high-energy particle radiation
- Space-qualified to ECSS-E-ST-20-08C standards

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SCHOTT® Solar Cell Cover Glass

Tailored cover glass for demanding solar applications

Space photovoltaics in the new space era

New space is changing how satellite programs are designed and deployed. Missions range from individual high-performance spacecraft to large satellite constellations, increasing the focus on cost, weight, repeatability and dependable power performance.

In orbit, solar cells are exposed to radiation, atomic oxygen and severe temperature cycles. Cover glass helps protect the cells while maintaining the optical transmission required for efficient power generation.

The priorities vary by mission: some programs focus on cost and weight, while others require increased radiation resistance or compatibility with advanced cell architectures.

The SCHOTT® portfolio addresses this range with SCHOTT® Solar Glass sphere for cost-sensitive applications and constellations in lower-radiation environments, SCHOTT® Solar Glass 0787 for demanding high-radiation applications, and SCHOTT® Solar Glass exos for advanced multijunction cells and large-format ultra-thin glass requirements.

Supporting applications

Beyond photovoltaic power generation in space, SCHOTT® specialty glass solutions support additional space and terrestrial applications.

Optical solar reflectors:
With a reflective coating, SCHOTT® Solar Glass 0787 can serve as a thermo-optical surface for spacecraft thermal control. Its high infrared emittance supports efficient heat exchange in demanding space environments.

Terrestrial photovoltaics:
Specialty cover glass is also relevant for selected terrestrial applications, including vehicle-integrated photovoltaics. SCHOTT® Solar Glass sphere combines low weight, mechanical stability and high optical transmission for these applications.

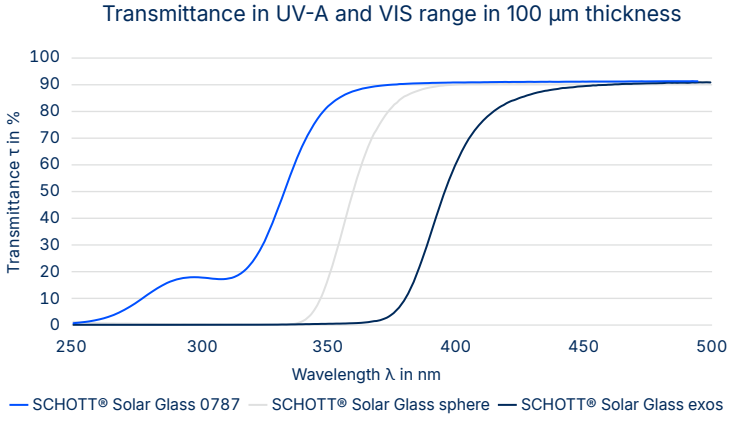
Geometrical properties		SCHOTT® Solar Glass		
		exos	sphere	0787
Thickness portfolio*	in µm	150	145	150
				125
		100	100	100
			70	75
		50	50	
		30	30	

* Other thicknesses on request

Optical properties		SCHOTT® Solar Glass		
		exos	sphere	0787
Refractive index n_d		1.5145	1.5231	1.5080
Edge wavelength λ_c (τ = 46 %) at t = 100 µm	nm	344	308	332

Mechanical properties		SCHOTT® Solar Glass		
		exos	sphere	0787
Density ρ	in g/cm³	2.54	2.51	2.51
Young's modulus E	in kN/mm²	74.5	72.9	70.0
Poisson's ratio µ		0.218	0.21	0.22

Thermal properties		SCHOTT® Solar Glass		
		exos	sphere	0787
Transformation temperature T_g	in °C	557	557	568
Coefficient of thermal expansion – CTE $\alpha_{(20;\,300\,°C)}$	in $10^{-6} \cdot K^{-1}$	6.9	7.2	8.5



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