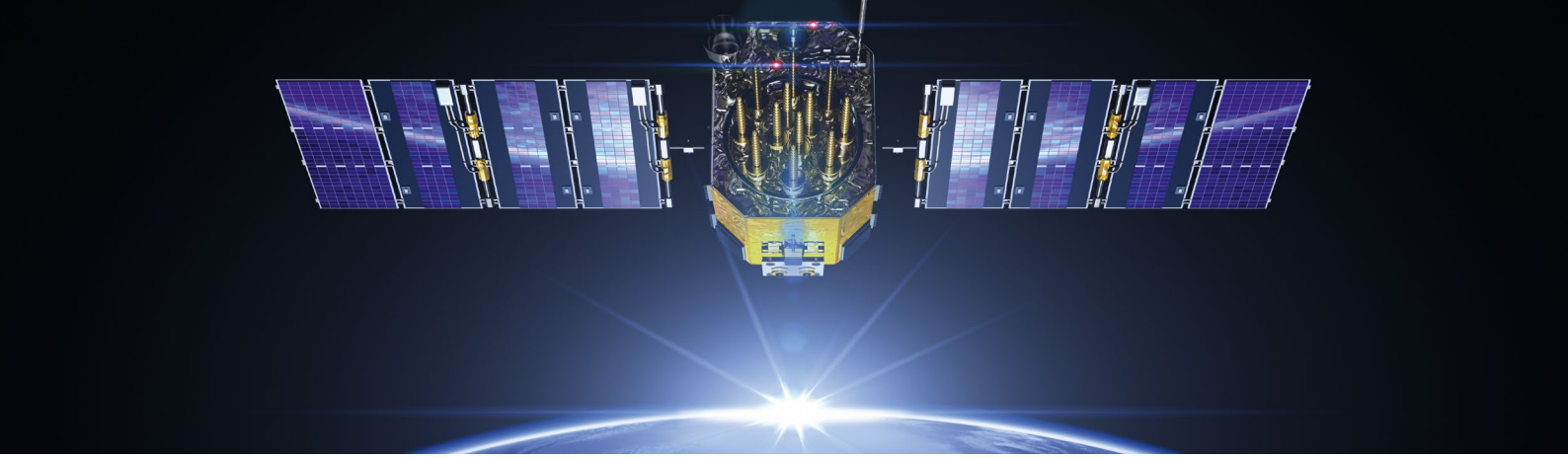

SCHOTT® Solar Cell Cover Glass

One versatile family, tailored solutions for every mission

Effective protection for space and terrestrial photovoltaics

Solar power drives progress both in space and on earth.

Satellites depend on photovoltaic arrays as their main energy source, yet in orbit these cells endure radiation, atomic oxygen, and severe thermal cycling that degrade performance without protection. On earth, the push for sustainable energy fuels demand for specialized solar solutions – lightweight, durable, and highly transparent over decades of use.

To meet these needs, SCHOTT® offers a tailored portfolio of solar cell cover glass combining high optical transmission with long-term stability, each optimized for specific mission conditions. This versatility lets manufacturers balance protection, efficiency, and weight for any application. By shielding cells from environmental stress and maintaining optical clarity, the SCHOTT® Solar Cell Cover Glass family ensures reliable, enduring solar power for satellites, spacecraft, and advanced terrestrial systems alike.

General properties

SCHOTT® Solar Glass
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

Specific properties

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

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

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

SCHOTT® Solar Glass exos
Developed for next-generation solar cells with tailored optical and thermal properties.

- Solarization stable against high-energy particle radiation
- UV absorption to protect adhesive
- CTE tailored for III-V-multijunction cells

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SCHOTT® Solar Cell Cover Glass

Tailored cover glass for demanding solar applications

Applications

Space photovoltaic
In orbit, solar cells are exposed to a harsh environment that steadily reduces efficiency. SCHOTT® Solar Cell Cover Glass provides effective protection while maintaining high transmission across the solar spectrum. The SCHOTT® Solar Glass portfolio offers tailored solutions for different mission needs, from lightweight, cost-critical constellations (sphere), through long-duration satellites in high-radiation environments (0787), to next-generation multijunction cell technologies (exos).

Optical solar reflectors
Thermal management in spacecraft is vital, where precise temperature control and efficient heat dissipation are essential. When applied with a reflective coating, SCHOTT® Solar Glass 0787 serves as a highly effective thermo-optical surface, protecting against harmful solar radiation while enabling efficient heat exchange thanks to its high emittance in the infrared range. This makes it a proven choice for thermal control systems in demanding space environments.

Terrestrial photovoltaics
The transition from fossil-based energy to sustainable solutions is creating new applications for specialty solar cells. One example is the automotive industry, where vehicle-integrated photovoltaics support the shift from internal combustion engines to electric powertrains. For such applications, cover glass must be lightweight, strong, and highly transparent over many years of use. SCHOTT® Solar Glass Sphere provides exactly these qualities, enabling robust, long-term performance for mobility and other terrestrial energy systems.

Geometrical properties		SCHOTT® Solar Glass sphere	SCHOTT® Solar Glass exos	SCHOTT® Solar Glass 0787
Thickness*	mm	0.150	0.150	0.150
		0.100	0.100	0.125
		0.070	0.050	0.100
		0.050		0.075
		0.030		

* Other thicknesses on request

Optical properties		SCHOTT® Solar Glass sphere	SCHOTT® Solar Glass exos	SCHOTT® Solar Glass 0787
Refractive index n_d		1.5231	1.5145	1.5080
Edge wavelength λ_c (τ = 46 %) at t = 0.100 mm	nm	308	344	332

Mechanical properties		SCHOTT® Solar Glass sphere	SCHOTT® Solar Glass exos	SCHOTT® Solar Glass 0787
Density ρ	g/cm³	2.51	2.54	2.51
Young's modulus E	kN/mm²	72.9	74.5	70.0
Poisson's ratio μ		0.21	0.218	0.216

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

Reference values of typical production quality

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