SCHOTT® Solar Glass 0787

Developed to explore space – and beyond

SCHOTT® Solar Glass 0787 is a technical glass designed to be a highly transparent and ultra-thin protective cover for photovoltaic cells and optical solar reflectors (OSR) in space. Cerium doping provides enhanced solarization stability, maintaining a high optical transmission rate even after submission to hard UV, proton, or electron radiation.

Manufactured using SCHOTT's exclusive down-draw process, SCHOTT® Solar Glass 0787 provides a high quality, ultra-flat fire-polished surface on both sides without polishing or slimming. Standard thicknesses range between 0.075 and 0.15 mm, but can be as low as 0.03 mm and as high as 1.0 mm. SCHOTT® Solar Glass 0787 is a toughenable glass with high mechanical strength and can be supplied with a range of coatings, such as the space-qualified anti-reflective coating, on request.

Application

SCHOTT developed Solar Glass 0787 to meet the demands of space exploration and research, combining protection and function to enable a range of applications. With the option of additional coatings plus a range of sizes and thicknesses, SCHOTT® Solar Glass 0787 is versatile, reliable, and highly effective.

Features and benefits

SCHOTT® Solar Glass 0787 is available in sheet format or cut-to-size substrates for customers' individual designs, and can be manufactured according to ECSS qualification on request.

General properties

- 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

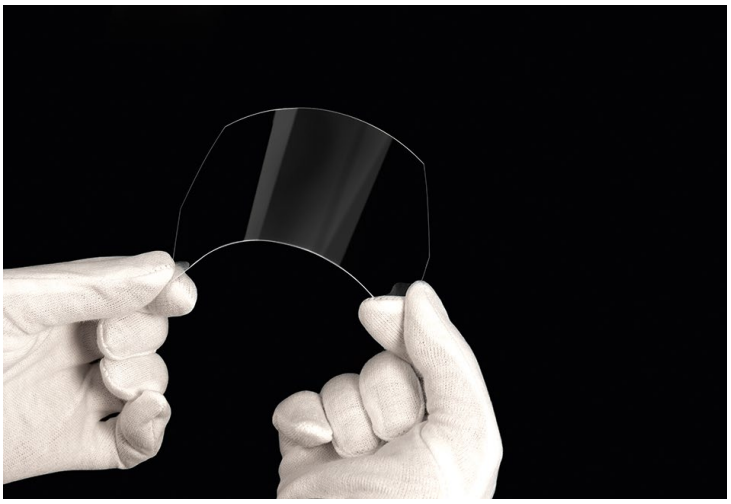
Specific properties

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

SCHOTT® Solar Glass 0787

Geometrical properties		
Thickness*	mm	0.150
		0.125
		0.100
		0.075

* Other thicknesses on request

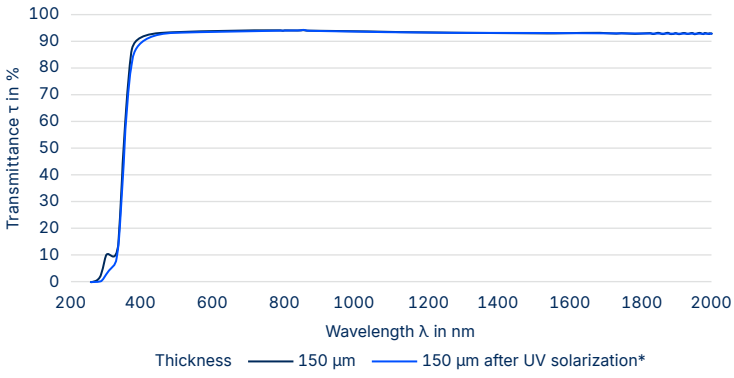


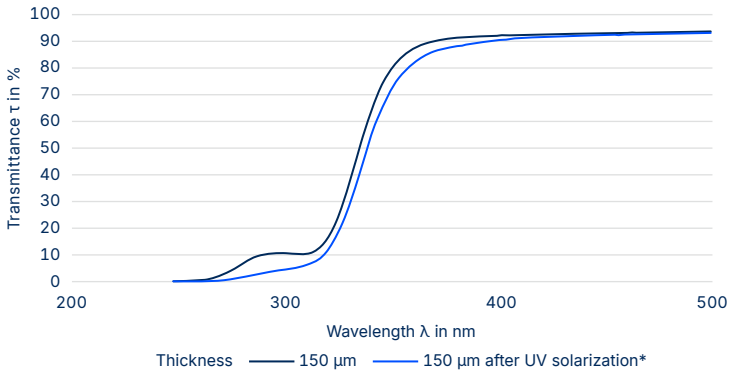
Optical properties		
Refractive index n_d		1.5080
Edge wavelength λ_c (τ = 46 %) at t = 0.100 mm	nm	332

Mechanical properties		
Density ρ	g/cm³	2.51
Young's modulus E	kN/mm²	70.0
Poisson's ratio μ		0.216

Thermal properties		
Coefficient of thermal expansion – CTE $\alpha_{(20;\,300\,°C)}$	10^{-6}/K	8.5
Transformation temperature T_g	°C	568

Spectral transmittance of SCHOTT® Solar Glass 0787





* Exposure to a UV light source with an integrated intensity equal to 2000 sun-hours in vacuum ($1 \cdot 10^{-3}$ Pa), solarization properties after high-energy particle radiation on request.

Transmittance values of SCHOTT® Solar Glass 0787 at t = 0.100 mm

	τ(λ) – individual values in %				τ – in % arithmetic mean for the given λ range				
	τ_{400}	τ_{450}	τ_{500}	τ_{600}	$\tau_{300-315}$	$\tau_{400-450}$	$\tau_{600-800}$	$\tau_{450-1100}$	$\tau_{900-1800}$
Uncoated glass	91.3	91.7	91.8	92.0	11.4	91.5	92.2	92.2	92.3
Coated glass, single side anti-reflex	92.3	93.4	94.0	94.4	11.5	92.9	94.3	94.0	93.3
Coated glass, single side anti-reflex, τ into adhesive	95.8	97.0	97.5	98.0	–	96.5	97.9	97.7	96.7

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