



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, non-porous, 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.



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.



Outstanding transmission



High absorption of UV radiation



Made to withstand solarization



High edge strength



Fire-polished surface



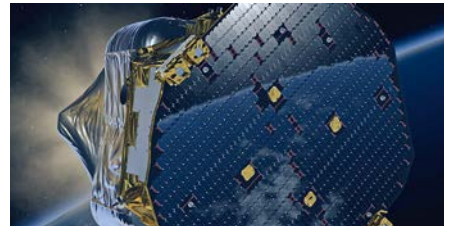
Protection against particle radiation

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.



SCHOTT® Solar Glass 0787



Geometrical properties

Thickness	Thickness tolerance	Thickness variation (TTV)
0.075 mm	± 0.015 mm	≤ 0.030 mm
0.100 mm	± 0.015 mm	≤ 0.030 mm
0.125 mm	± 0.015 mm	≤ 0.030 mm
0.150 mm	± 0.015 mm	≤ 0.030 mm

Other thickness on request

Optical properties

Refractive index n_d for cover glass (as drawn)	1.5080 ± 0.003
Total normal emittance ϵ_n of cover glass top surface at 25 °C	≤ 0.86

Thermal properties

Transformation temperature T_g	568 °C
CTE (coefficient of thermal expansion) α	8.5 · 10 ⁻⁶ /K (20 °C; 300 °C) 7.9 · 10 ⁻⁶ /K (20 °C; 150 °C)

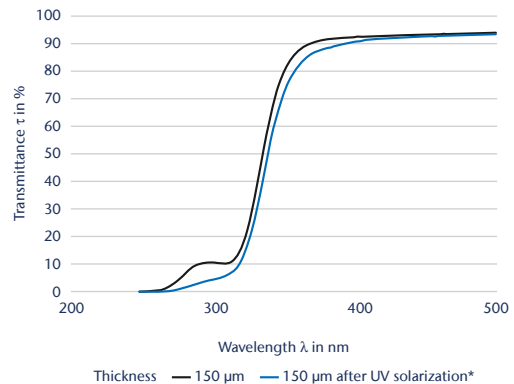
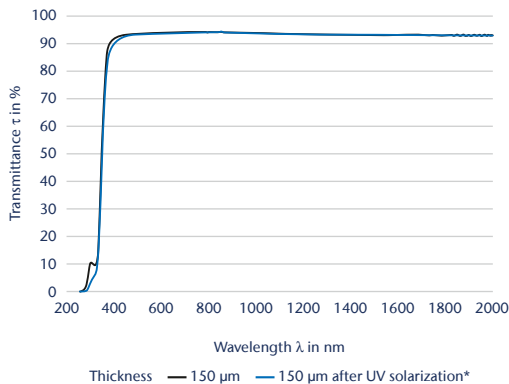
Mechanical properties

Density ρ (annealed at 40 °C)	2.51 ± 0.05 g/cm ³
Young's modulus E	70.0 kN/mm ²
Poisson's ratio μ	0.216
Breaking strength	Strength-optimized cutting process, details available on request

Electrical properties

Bulk resistivity ρ_D	> 1 · 10 ¹¹ Ω m ($v = 20$ °C)
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Spectral transmittance of glass with single side anti-reflex coating



* 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 for glass thickness 150 μm

	τ (λ) – individual values in %				τ in % arithmetic mean for the given λ range				
	τ_{400}	τ_{450}	τ_{500}	τ_{600}	$\tau_{300-320}$	$\tau_{400-450}$	$\tau_{600-800}$	$\tau_{450-1100}$	$\tau_{900-1800}$
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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SCHOTT
glass made of ideas

carbon neutral
print production

MIX
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FSC® C008655

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