

## Material Data Sheet

MS 1 00 69 81 - 00

## SCHOTT Resistan® Transparent / Non Transparent Ceramics

Material: 712 - 8

**Optical Characteristics**

Appearance		
Appearance	Opaque	
Colour	Grey	
Transmission <sup>1)</sup>		
$\lambda$ [nm]	T (t <sub>Sample</sub> = 4 mm)	
600	[%]	0
700		0
1000		4
1600		42
Refractive Index <sup>1)</sup>		
n <sub>g</sub>	(435.8 nm)	n/a
n <sub>F</sub>	(480.0 nm)	n/a
n <sub>F</sub>	(486.1 nm)	n/a
n <sub>e</sub>	(546.1 nm)	n/a
n <sub>d</sub>	(587.6 nm)	n/a
n <sub>C</sub>	(643.8 nm)	n/a
n <sub>C</sub>	(656.3 nm)	n/a
Abbé Value <sup>1)</sup>		
v <sub>e</sub>	(546.1 nm)	n/a
v <sub>d</sub>	(587.6 nm)	n/a

**Mechanical Characteristics**

Density $\rho$	[g/cm <sup>3</sup> ]	2.52
Young Modulus E	[10 <sup>3</sup> MPa]	84
Poisson Ratio $\mu$	-	0.26
Knoop Hardness	HK 0.1 / 20	636
Bending Strength $\sigma_{bB}$	[MPa]	125

**Chemical Resistance**

Acid	S	1
Alkali	A	2
Hydrolytic	HGB	1

<sup>1)</sup> The values are typical averages. In case the material must fulfil optical requirements, individual analysis of each batch is possible

**All technical data presented on this sheet are to be understood as typical averages**

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**Thermal Characteristics**

Heat Capacity $c_p$ (20-100°C)	[J/(g·K)]	0.83	
Thermal Conductivity $\lambda$ (90°C)	[W/(m·K)]	1.5	
Max. Temp. Gradient (MTG)	[K]	500	
Thermal Shock (TSR)	[°C]	700	
Linear Expansion Coefficient			
$\alpha$ (-50, 100°C)	[10 <sup>-6</sup> /K]	on request	
$\alpha$ (0, 50°C)		on request	
$\alpha$ (20, 300°C)		0.84	
$\alpha$ (300, 700°C)		1.60	
Temp. Time Load Capacity (TTLC)		Hom.	Inhom.
Short Heating (1h)	[°C]	950	520
Continuous Heating (5000h)		850	470

**Electrical Characteristics**

log $\rho$ (250°C)	[ $\Omega \cdot \text{cm}$ ]	7.1
log $\rho$ (350°C)		5.6
t <sub>k100</sub>	[°C]	202
$\epsilon$ (1MHz, 25°C)	-	7.3
tan $\delta$ (1MHz, 25°C)	-	0.004

**Acoustical Characteristics**

V <sub>long.</sub>	[m/s]	6520
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**Remarks**

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# Material Data Sheet

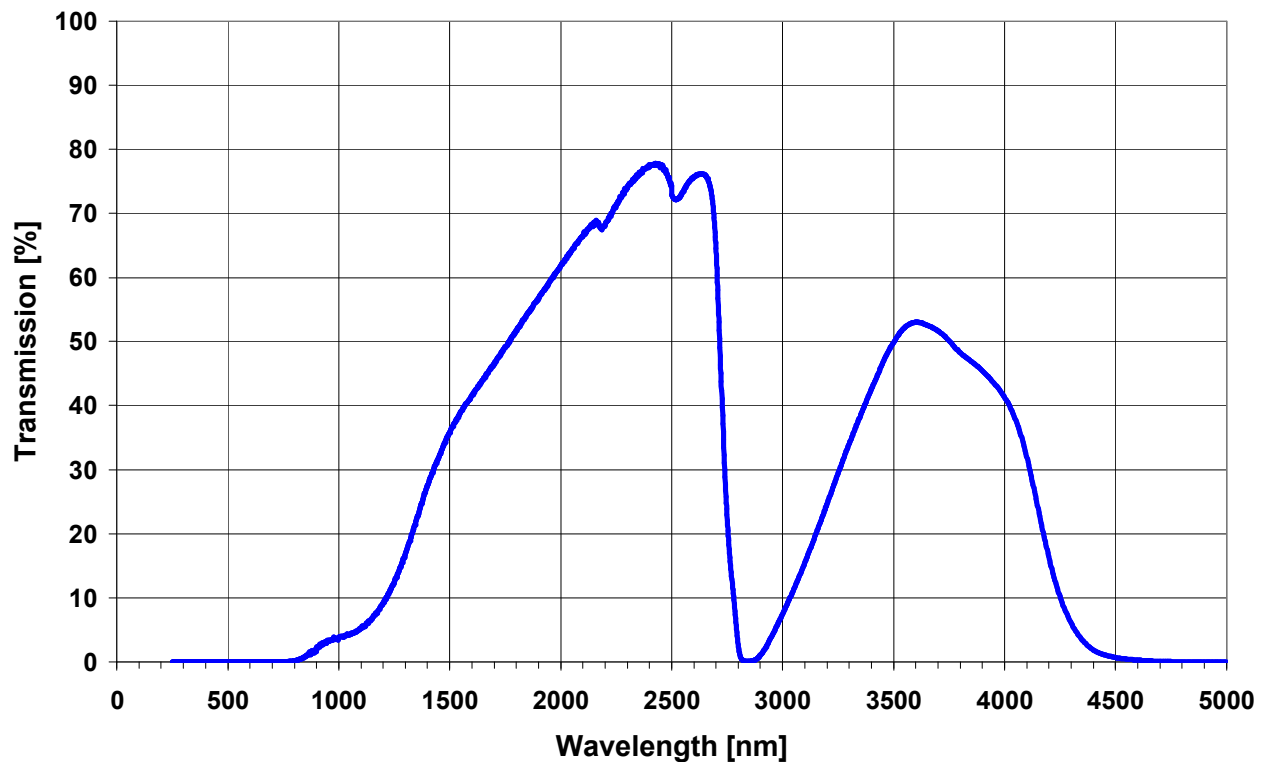
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## SCHOTT *Resistan*® Transparent / Non Transparent Ceramics

Material:	712 - 8
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### Transmission

The transmission values are measured for a polished sample of a specific thickness. A typical transmission graph with sample thickness of approximately 4 mm is shown below.



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