

SCHOTT RESISTAN™

The Multi-Talented Material Family for Extreme Conditions

Material:
701 - 3

MS1005481-00

Product information

RESISTAN™ is a family of high performance ceramics featuring outstanding technical properties suitable for a wide range of applications.

Optical Characteristics

Appearance

Appearance	Body-tinted transparent
Colour	Black

Transmission

T (t_{sample} = 4 mm)

T (λ 400 nm)	[%]	0
T (λ 600 nm)		2
T (λ 700 nm)		22
T (λ 1600 nm)		82

Refractive Index

n _g (λ 435.8 nm)	n/a
n _{F'} (λ 480.0 nm)	n/a
n _F (λ 486.1 nm)	n/a
n _e (λ 546.1 nm)	n/a
n _d (λ 587.6 nm)	1.545
n _{LED-Laser} (λ 632.8 nm)	1.541
n _{LED-Laser} (λ 780.0 nm)	1.537

Abbé Number

v _e (λ 546.1 nm)	n/a
v _d (λ 587.6 nm)	n/a

Mechanical Characteristics

Density ρ	[g/cm ³]	2.53
Young's Modulus E	[10 ³ MPa]	94
Poisson's Ratio μ		0.25
Knoop Hardness	HK 0.1/20	575
Bending Strength σ _{bb}	[MPa]	160

Chemical Resistance

Acid	S	2
Alkali	A	1
Hydrolytic	HGB	1

Thermal Characteristics

Specific Heat Capacity c _p (20–100 °C)	[J/(g·K)]	0.8
Thermal Conductivity λ (90 °C)	[W/(m·K)]	1.7
Maximum Temperature Gradient	[K]	800
Thermal Shock Resistance	[°C]	820

Linear Expansion Coefficient

α (-50 °C, 100 °C)	[10 ⁻⁶ /K]	on request
α (0 °C, 50 °C)		on request
α (20 °C, 300 °C)		-0.43
α (300 °C, 700 °C)		0.46

Temperature/Time Load Capacity

		Hom.	Inhom.
Short Heating (1 h)	[°C]	950	750
Continuous Heating (5000 h)		780	580

Electrical Characteristics

log ρ (250 °C)	[Ω·cm]	6.6
log ρ (350 °C)		5.3
t _{k100}	[°C]	173
ε _r (1 MHz, 25 °C)		7.4
tan δ (1 MHz, 25 °C)		0.022

Acoustical Characteristics

v _{long.}	[m/s]	6700
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Remarks

All technical data are to be understood as typical averages.

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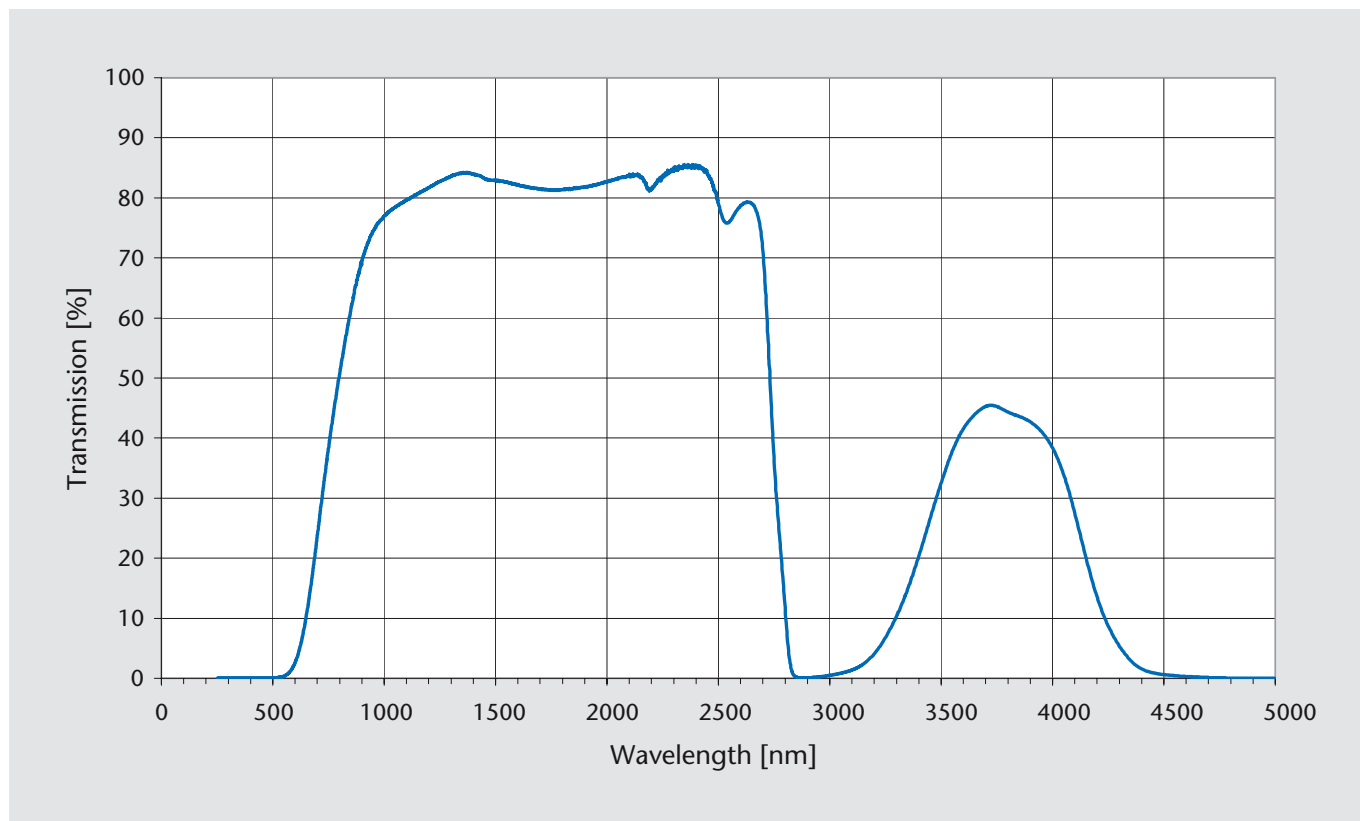
Body-Tinted Transparent Ceramic

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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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SCHOTT
glass made of ideas