



Yantai ZK Optics Co., Ltd
烟台捷冕光电科技有限公司

High purity silicon nitride ceramics for semiconductors Data Sheets

Item	Unit	Silicon Nitride Ceramic
Composition (Si ₃ N ₄)	%	≥99.0
Color	—	Gray
Density	g/cm ³	3.22±0.02
Mechanical Property		
Bending strength	Mpa	720(RT) 400(1200°C)
Young's modulus	Gpa	300
Hardness	Gpa	24
Poisson ratio	—	0.26
Fracture toughness	Mpa·m ^(1/2)	5.5
Thermal Property		
Thermal expansion coefficient (RT - 800°C)	10 ⁽⁻⁶⁾ /K	3.1
Thermal conductivity	W/(m·K)	26
Specific heat capacity	10 ³ J/(kg·K)	700
Maximum use temperature	°C	1000
Electrical property		
Dielectric coefficient (1MHz)	—	8
Dielectric Loss (1MHz)	10 ⁽⁻⁴⁾	4
Volume resistance	Ω·mm ² /m	>10 ¹³
Chemical Resistance		
Hydrofluoric Acid (20%)	μm	—0.1(RT)

With about 20 Years of Manufacture History

Laishan Road No.3,Haihelu Industrial Park,Laiyangshi,Yantai City
Shandong Province,China 265205



Yantai ZK Optics Co., Ltd
烟台捷冕光电科技有限公司

Ceramic Properties Table

Category	Name	Unit	A95 Ceramic	A99 Ceramic	Alumina Ceramic	High - Frequency Ceramic
Physical Property	Main Composition	—	Al ₂ O ₃ ≥95%	Al ₂ O ₃ ≥99%	ZrO ₂ ≥94%	MgO·SiO ₂
	Density (G/CM ³)	—	>3.5	3.85	5.9	2.8
	Water Absorption (%)	—	0	0	0	0
	Sintering Temperature (°C)	—	1670	1690	1650	1350
	Material Property	Hardness (HV)	—	1600	1700	1400
Flexural Strength (4pt)		—	3000	3500	11000	900
Compressive Strength (kgf/cm ²)		—	25000	30000	25000	4000
Thermal Property		Maximum Service Temperature	°C	1400	1500	1600
	Thermal Expansion Coefficient	1/°C	7.8	8	10	6
	Thermal Shock Resistance (ΔT (°C))	—	200	200	350	200
	Thermal Conductivity (W/m·K)	—	31	31	3	2.5
Electrical	Volume	—	>10 ¹²	>10 ¹²	>10 ¹²	>10 ¹²

With about 20 Years of Manufacture History

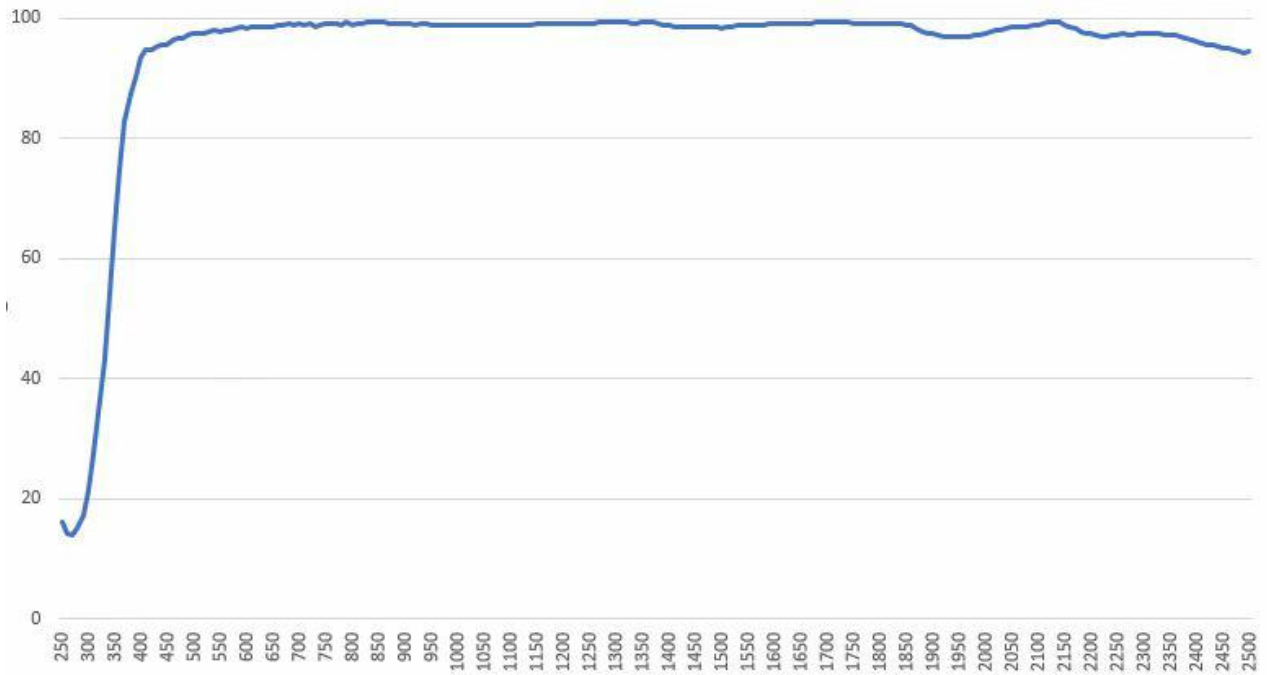
Laishan Road No.3,Haihelu Industrial Park,Laiyangshi,Yantai City
Shandong Province,China 265205



Yantai ZK Optics Co., Ltd
烟台捷冕光电科技有限公司

Property	Resistivity (Ω·cm)					
	Dielectric Strength (KV/mm)	—	16	18	15	10
	Dielectric Constant (1MHz (E))	—	9.0 - 10	9.2 - 10.5	12.2	5.8

Ceramic Cavity Reflectivity



With about 20 Years of Manufacture History

Laishan Road No.3,Haihelu Industrial Park,Laiyangshi,Yantai City
Shandong Province,China 265205