



Aluminum Nitride Ceramics

Aluminum nitride (AlN) has high thermal conductivity and electrical insulation properties and can be used in a variety of electrical equipment. In addition, the thermal expansion coefficient and electrical insulation properties of aluminum nitride ceramics are very close to those of silicon wafers, and they have high thermal conductivity.

Features Of Aluminum Nitride Ceramics

- ◆ High thermal conductivity (> 170W/m.K)
- ◆ Good electrical properties;
- ◆ Good mechanical properties;
- ◆ Good light transmission characteristics;
- ◆ Non-toxic.

Typical Applications

- ◆ Heat sinks & heat spreaders;
- ◆ Electrical insulators;
- ◆ Silicon wafer handling and processing;
- ◆ Substrates & insulators for microelectronic devices;
- ◆ Substrates for electronic packages;
- ◆ Chip carriers for sensors and detectors;
- ◆ Laser heat management components;
- ◆ Molten metal fixtures;
- ◆ Packages for microwave devices;

Great Ceramic are experts in the production of technical ceramics, we offer ceramic processing, ceramic materials, ceramic casting, ceramic metal packaging and surface metallization services.

[Contact us](#) for more information!

Aluminum Nitride Ceramics Properties

- ◆ Aluminum Nitride Ceramics (ALN-170)
- ◆ Aluminum Nitride Ceramics (ALN-200)
- ◆ Aluminum Nitride Ceramics (ALN-230)

MECHANICAL

Properties	Unit	ALN-170	ALN-200	ALN-230
Colour	—	Grey	Beige	Beige
Density	g/cm ³	≥3.3	≥3.3	≥3.3
Hardness	GPa	11	11	11
Compressive Strength	MPa	2100	2100	2100
Flexural Strength	MPa	400	350	300
Fracture Toughness	MPa · m ^{1/2}	3	3	3
Young's Modulus	GPa	320	320	320
Poissons Ratio	—	0.25	0.25	0.25

THERMAL

Properties	Unit	ALN-170	ALN-200	ALN-230
Maximum Use Temperature	°C(No load)	1300	1300	1300
Thermal Conductivity	20°C, W/(M · K)	> 170	> 200	> 230
Thermal Expansion	40 – 400°C, × 10 ⁻⁶ /°C	3	3.1	3
Specific Heat	800°C, x10 times	No cracks	/	/
Thermal Shock Resistance	°C(Put in water)	720	720	720

ELECTRICAL

Properties	Unit	ALN-170	ALN-200	ALN-230
Dielectric Constant	1MHz, 25°C	8~10	8~10	8~10
Dielectric Loss	1MHz, 25°C	≤3	≤3	≤3
Dielectric Strength	ac-kV/mm	20	20	20
Volume Resistivity	25°C, Ω · cm	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴

*The values are typical material properties and may vary according to products configuration and manufacturing process.

Aluminum Nitride Ceramics Product Introduction



Aluminum Nitride Substrate

Aluminum nitride substrates have high thermal conductivity, low dielectric coefficient and dielectric loss, and excellent mechanical properties, making them one of the most ideal choices for electronic applications.

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Aluminum Nitride Disc

Great Ceramic can customize aluminum nitride ceramic discs of different diameters and thicknesses according to customer needs, which have high thermal conductivity and flatness.

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Aluminum Nitride Components

Great Ceramic can use different processing equipment to process aluminum nitride ceramic parts with complex structures according to customer needs, with high dimensional accuracy and efficiency.

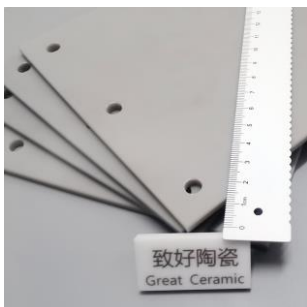
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Aluminum Nitride Washer

Silicon nitride balls have excellent wear resistance, compressive strength and fracture toughness. The self-lubricating properties also provide quiet, smooth performance.

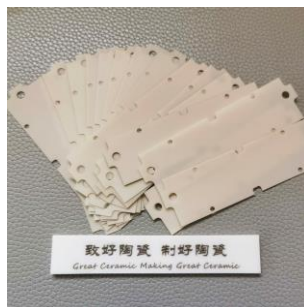
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Aluminum Nitride Plate

Great Ceramic provides aluminum nitride ceramic plates in various specifications and can also be customized according to customer needs. Our ceramic plates offer high thermal conductivity and electrical insulation properties.

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Laser Cutting Processing

By using high-precision laser cutting equipment to process ceramic substrates, Great Ceramic can custom-process complex shapes and tiny micropores with high precision.

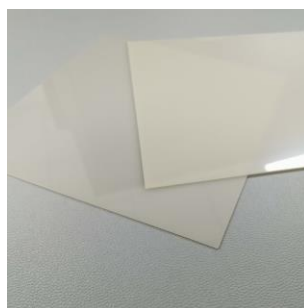
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Custom Machining

Great Ceramic has a wide range of grinding and machining equipment to provide customers with efficient ceramic machining solutions.

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Surface Polished

Great Ceramic can polish the surface of parts to provide high surface quality, with a roughness as low as Ra0.01um.

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Circuit substrate

Used in LED packaging, high-power electronic modules, communications, semiconductors, automobiles and other fields.

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Insulating Backing Board

Great Ceramic customizes and processes insulating pads used in new energy vehicles, charging piles, high-voltage electricity, and high-power electronic equipment.

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