EXPRESS ELECTRONICS

MATERIAL DATASHEET

ALUMINUM NITRIDE EE-AN1

DESCRIPTION

Aluminum nitride ceramics, also called as AIN ceramics, have the advantages of high thermal conductivity, good electrical resistance and low density, the coefficient of aluminum nitride ceramics is similar to that of silicon. The excellent properties make aluminum nitride ceramics become an ideal material for applications where good heat spreading capability and good electrical insulation are required. Aluminum nitride ceramics have good temperature resistance, they are stable to very high temperatures in inert atmospheres. In air, oxidation will occur on the surface when temperature exceeds 700° the oxide layer will protect the material up to 1370°

MAIN PROPERTIES:

- High mechanical strength
- Good electrical insulation
- Low dielectric constant and dielectric loss
- Similar thermal expansion with Silicon
- High thermal conductivity
- Excellent corrosion resistance
- Non-toxic

TYPICAL APPLICATIONS:

- Optical communication device application
- Special refrigerator
- LED industry
- Automotive electronic modules
- High efficiency power module
- High frequency microwave application
- Power electronic components

PHYSICAL PROPERTIES:

*Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in anyway whatsoever and should only be treated as indicative and for guidance only.

Property	Unit		Value
Color	----		White
Density	g/cm^3		≥ 3.33
Thermal Conductivity	20℃ $W/(m \cdot K)$		≥ 170
Dielectric Constant	$1MHz$		8~10
Dielectric Loss	$1MHz$		$< 3 \times 10^{-4}$
Dielectric Strength	Kv/mm		≥ 17
Flexural Strength	MPa		≥ 450
Camber	Length‰		$\leq 2‰$
Surface Roughness (Ra)	μm		0.3~0.6
Electrical Resistivity	$\Omega \cdot cm$		$\geq 10^{13}$
Water Absorption	%		≤ 0.001
Thermal Expansivity	$10^{-6}/℃$	20~300℃	2~3
		300~800℃	2.5~3.5