Product overview

Aluminum Nitride Insulators

Product ID / SKU: FWM/ALN-INS-001

Material: Aluminum Nitride Ceramic Family

Product type: Aluminum Nitride Ceramics Component

Thermally conductive aluminum nitride electrical insulators for power and electronic equipment assemblies.

AlN (AN216A) Typical Properties

Property	AN216A typical value	Condition / method
Density	3.4 g/cm³	JIS R 1634
Water absorption	0 %	JIS C 2141
Vickers hardness	10.4 GPa	HV9.807N (9.807 N load); JIS R 1610
Three-point flexural strength	310 MPa	Three-point bending; JIS R 1601
Young’s modulus	320 GPa	JIS R 1602
Poisson’s ratio	0.24	JIS R 1602
Fracture toughness (SEPB)	3.2 MPa·m½	SEPB; JIS R 1607
Linear thermal expansion, 40-400°C	4.6 × 10^{-6}/K	40-400°C; JIS R 1618
Linear thermal expansion, 40-800°C	5.3 × 10^{-6}/K	40-800°C; JIS R 1618
Thermal conductivity	150 W/(m·K)	20°C; JIS R 1611
Specific heat capacity	0.71 J/(g·K)	JIS R 1611
Material thermal-shock temperature difference	250 °C	Water immersion; relative method; JIS R 1648
Dielectric strength	14 kV/mm	JIS C 2141
Volume resistivity, 20°C	>10^{14} Ω·cm	20°C; JIS C 2141
Volume resistivity, 300°C	10^{10} Ω·cm	300°C; JIS C 2141
Volume resistivity, 500°C	10^{8} Ω·cm	500°C; JIS C 2141
Relative permittivity	8.6	1 MHz; JIS C 2141
Dielectric loss tangent	0.0003	1 MHz; JIS C 2141

Product Geometry & Configuration

Product parameter	Configuration	Basis
Material system	Aluminum Nitride Ceramic Family	Material family; grade selected for the application
Component forms	Insulating washers and spacers; Flat insulating plates; Custom mounted components	Drawing-defined configurations
Geometry and dimensions	Custom sizes available	Part drawing and mating interfaces
Functional surfaces	Contact, locating, joining or insulating surfaces as applicable	Surface finish and acceptance criteria on the drawing