ST-170 AIN SUBSTRATES
ALUMINUM NITRIDE

Aluminum nitride (AlN) provides the high performance electrical and thermal properties of beryllia (BeO) at a more economical cost and without BeO's toxicity concerns.

Sienna ST-170 AlN substrates offer:

- High thermal conductivity
- Thermal expansion that closely matches that of Si, SiC, and GaN over a wide temperature range
- No-toxicity - Aluminum Nitride poses no special disposal requirements
- Reliable metallization performance
- Available with as-fired or lapped surfaces that are ideal for thick film application
- Significant cost/performance advantage
- Standard sizes (inch) include:
  - 2x2x0.025
  - 4x4x0.025
  - 4.5x4.5x0.015
  - 4.5x4.5x0.040

These attributes make Sienna ST-170 AlN substrates the best choice for solving thermal management problems in power electronics and microwave applications. ST-170 AlN is the ideal electronic substrate for high power and high frequency applications including:

- Power Transistors and Rectifiers
- Power Supplies
- Chip Carriers
- Heat Spreaders

Sienna's technical team is ready to help you implement Aluminum Nitride in your current and next generation of products. Contact us for applications assistance, and for fast prototyping and production needs.

425-485-7272

www.siennatech.com

11611 49th Place West
Mukilteo, WA 98275

SIENNA TECHNOLOGIES Inc.®
providing solutions through advanced materials

ST-170 AIN SUBSTRATES

AIN PROPERTIES

	ST-170
Color	Light Gray
Density, g/cm^3	>3.30
Thermal Conductivity, W/m•K	170±10
Heat Capacity @ RT, J/g•K	0.736
Thermal Expansion Coefficient, X10^{-6}/°C **25°C - 400°C**	4.4
Dielectric Strength, kV/mm	≥25
Volume Resistivity, Ohm-cm	>10^{13}
Dielectric Constant @1 MHz	8.4
Loss Tangent @1 MHz	0.002
Surface Roughness, Ra, µm As-fired Lapped	 0.6 0.4
Camber, mm/mm	0.003 (typical)
Flexural Strength, MPa	350
Elastic Modulus, GPa	320
Poisson's Ratio	0.24
Hardness, GPa	12
Application	High thermal conductivity, chip carriers/substrates

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