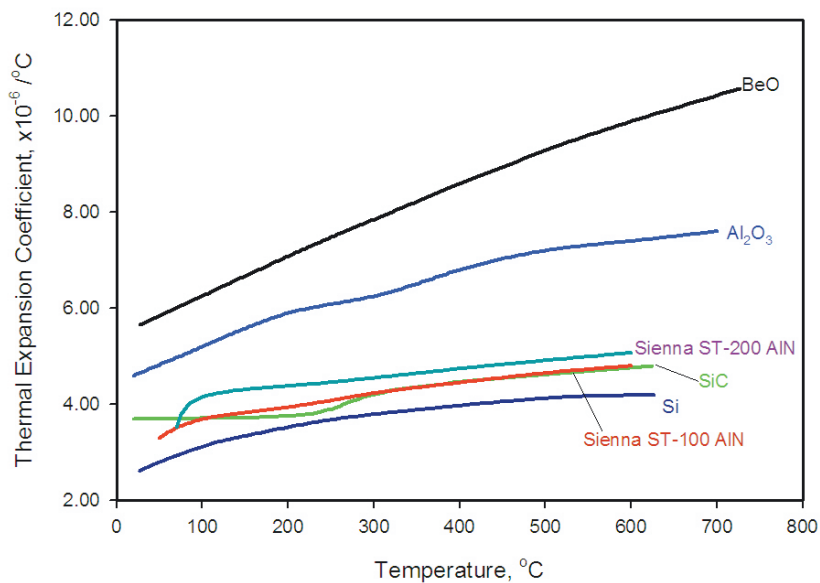
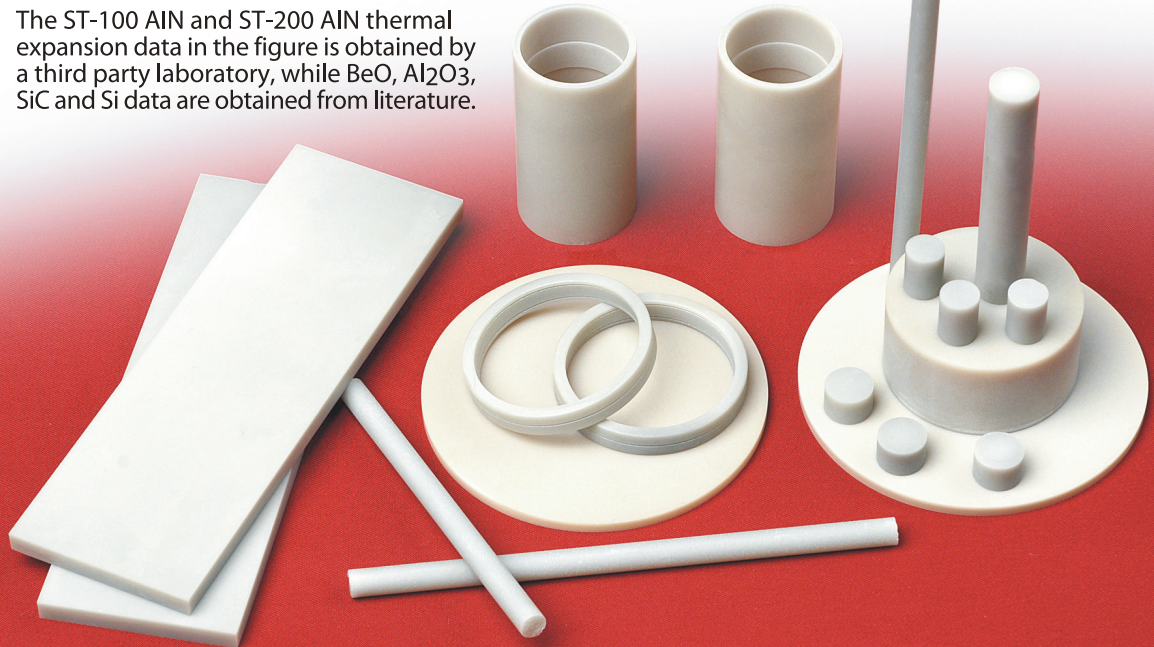


ST-100 and ST-200 THERMAL EXPANSION

Sienna ST-100 AlN and ST-200 AlN offer excellent thermal expansion match to Si, SiC, and GaN, and thus provide more reliable die attachment than alumina and beryllia, and allow mounting of larger devices in power electronics and microwave packaging applications.



The ST-100 AlN and ST-200 AlN thermal expansion data in the figure is obtained by a third party laboratory, while BeO, Al₂O₃, SiC and Si data are obtained from literature.



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

425-485-7272

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 **SIENNA**
TECHNOLOGIES Inc.®
providing solutions through advanced materials

ST-100 and ST-200

AlN PROPERTIES

	ST-100	ST-200
Color	Light Gray	Light Gray
Purity, %wt (min)	99	95
Density, g/cm³	3.20	3.30
Thermal Conductivity, W/m•K	90±10	200±20
Heat Capacity @ RT, J/g•K	0.736	0.736
Thermal Expansion Coefficient, X10⁻⁶/°C 25°C 300°C 600°C	3.38 4.22 4.80	3.53 4.55 5.07
Dielectric Strength, kV/mm	>15	≥70
Volume Resistivity, Ohm-cm	>10 ¹⁴	>10 ¹⁴
Dielectric Constant 1 MHz 2.6 GHz 10 GHz	8.8 8.0 8.0	8.5 8.38 8.35
Loss Tangent 1 MHz 2.6 GHz 10 GHz	0.001 0.01 0.007	0.001 0.007 0.005
Flexural Strength, MPa	275-300	300-350
Elastic Modulus, GPa	320	320
Poisson's Ratio	0.22	0.22
Hardness, GPa	12	12
Fracture Toughness, MPa•m^{1/2}	2.0	2.5
Application	High purity AlN, High temperature insulator, Excellent CTE match to SiC and Si die	High thermal conductivity, thermal management products, good CTE match to SiC and Si die

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