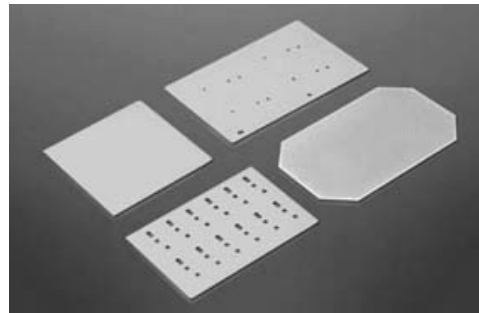


4) AlN ceramic substrates

AlN ceramic substrates are used in Thick Film Hybrid ICs, High Density Electronic Packages, Heavy Power Modules and High Efficiency Resistors.



Benefits:

- High Thermal Conductivity.
- High Electrical Performances.
- Coefficient of Liner Expansion close to the Si Substrates.
- Without toxicity. It can be used substitute the BeO ceramic .

AlN CERAMIC SUBSTRATES MATERIAL PROPERTIES

PROPERTY	TESTING CONDITIONS	UNITS	VALUE
COLOR			MEDIUM GRAY TRANSLUCENT
APPEARANCE			COMPACT
DENSITY		g/cm ³	3.3
WATER ABSORPTION		%	0
MEDIUM GRAIN SIZE		μm	4~5
BENDING STRENGTH		MPa	≥320
COEFFICIENT OF LINER EXPANSION	20~300°C	1 × 10 ⁻⁶ mm/K	4.7
	20~600°C		5.2
	20~1000°C		5.6
THERMAL CONDUCTIVITY	20°C	W/(m · K)	180
VOLUME RESISTIVITY		Ω.cm	≥10 ¹³
DIELECTRIC CONSTANT	1MHz		9.0±0.5%