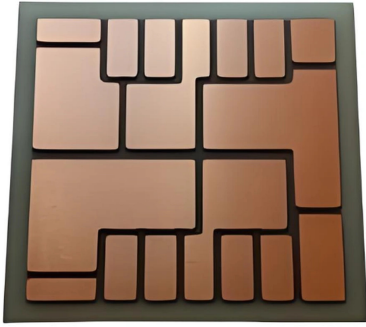




Patterned AMB copper-clad ceramic substrate

AMB Ceramic Substrates for Energy Conversion

Product ID / SKU: FWM/CS-AMB-003

Material: Ceramic / Copper AMB System

Product type: Ceramic Substrate

AMB copper-clad ceramic substrates for drawing-defined power conversion and new-energy module assemblies.

Si₃N₄ Substrate (Sinalit) Properties

Property	Sinalit - bare Si ₃ N ₄ substrate	Conditions / ±10% measurement tolerance (except ref.)
Density (g/cm ³)	≥3.22	DIN EN 993-1
Bending strength (MPa)	≥700	-
Fracture toughness (MPa·m ^{1/2})	≥6.5	Indentation-fracture method
Thermal conductivity (W/(m·K))	90	Room temperature; DIN EN 821-2
Coefficient of thermal expansion (10 ⁻⁶ /K)	3.3 (ref.)	100-800°C; DIN 51045-1
Dielectric strength (kV/mm)	≥25	20°C; AC / DC; DIN EN 60243-1
Volume resistivity (Ω·cm)	≥10 ¹⁴	Room temperature; IEC 62631-3
Young's modulus (GPa)	≥280	ASTM C1259-15
Specific heat capacity (J/(g·K))	≥0.68	25°C; DIN EN 821-3 Method B
Relative permittivity	7.8 (ref.)	Room temperature; 1 MHz; Ra ≤0.4 μm; ASTM D150
Dielectric loss tangent	≤0.003	Room temperature; 1 MHz; Ra ≤0.4 μm; ASTM D150

95% AlN Substrate Properties

Property	95% AlN typical value	Condition / method
AlN content (%)	95	-
Density (g/cm ³)	≥3.3	-
Flexural strength (MPa)	≥400	-

Property	95% AlN typical value	Condition / method
Thermal conductivity (W/(m·K))	≥170	Room temperature
Relative permittivity	8-10	1 MHz; room temperature
Dielectric loss tangent	≤0.0003	1 MHz; room temperature
Dielectric strength (kV/mm)	17	-
Volume resistivity (Ω·cm)	≥10 ¹⁴	-

Typical Construction Parameters

Construction item	Typical configuration	Applicable condition
Ceramic base	Si ₃ N ₄ ; selected AlN	Grade and route dependent
Si ₃ N ₄ thickness	0.25 / 0.32 mm	Si ₃ N ₄ ceramic layer
Copper thickness	0.30 / 0.40 / 0.50 / 0.80 mm	Selected AMB layer combinations
Pattern	Custom power circuit	Drawing review required
Surface finish	Bare Cu and selected plated finishes	Assembly-process dependent