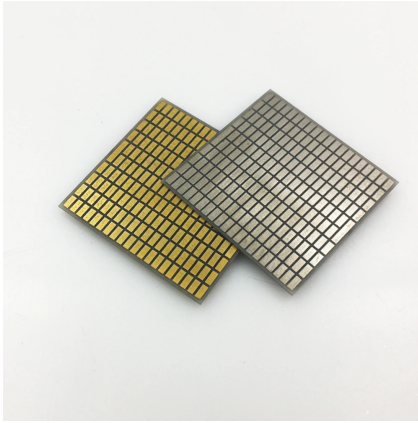




Alumina DBC ceramic substrates with metallized electrode patterns

Double-Sided Copper-Clad DBC Substrates

Product ID / SKU: FWM/CS-DBC-002

Material: Ceramic / Direct-Bonded Copper System

Product type: Ceramic Substrate

Double-sided DBC ceramic substrates for established high-current power layouts and thermal-management assemblies.

96% Alumina Substrate (708 S) Properties

Property	96% Al ₂ O ₃ - 708 S	Test conditions / measurement tolerance ±10%
Density (g/cm ³)	≥3.75	DIN EN 993-1
Bending strength, σ_0 (MPa)	≥500	-
Young's modulus (GPa)	≥300	-
Thermal conductivity (W/(m·K))	24	Room temperature; DIN EN 821-2
Linear thermal expansion coefficient (10 ⁻⁶ /K)	7-9	100-800°C; DIN 51045-1
Specific heat capacity (J/(g·K))	≥0.75	20°C; DIN EN 821-3 method B
Relative permittivity	~9.8	Room temperature, 1 MHz; Ra ≤0.4 μm
Dielectric loss factor	≤0.005	Room temperature; 1 MHz; Ra ≤0.4 μm
Volume resistivity (Ω·cm)	≥10 ¹⁴	Room temperature; IEC 62631-3
Breakdown strength (kV/mm)	AC≥15; DC≥15	20°C; AC / DC
Fracture toughness (MPa·m ^{1/2})	≥3.0	Indentation-fracture (IF)

95% AlN Substrate Properties

Property	95% AlN typical value	Condition / method
AlN content (%)	95	-
Density (g/cm ³)	≥3.3	-
Flexural strength (MPa)	≥400	-
Thermal conductivity (W/(m·K))	≥170	Room temperature

Property	95% AlN typical value	Condition / method
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	96% Al ₂ O ₃ or AlN	Route dependent
Ceramic thickness	Alumina: 0.25-1.00 mm; AlN: 0.25-1.50 mm	Matched ceramic / copper stack
Copper thickness	0.10-0.30 mm	Copper thickness and ceramic stack selected together
Line / space	Etched-pattern dependent	Copper thickness, etch profile and insulation clearance
Surface finish	Bare/protected Cu; selected Ni, Ni/Au or Ag	Assembly-process dependent
Bond / peel testing	Construction-specific test	Peel method, coupon geometry and acceptance criterion