

curamik® CERAMIC SUBSTRATES

Technical data sheet

Available materials

Al ₂ O ₃	Alumina	curamik® Power
HPS*	Alumina (9% ZrO ₂ doped)	curamik® Power Plus
Si ₃ N ₄	Silicon Nitride	curamik® Performance
AlN	Aluminum Nitride	curamik® Thermal

* The HPS products are subject to patent restrictions in some countries.

Thermal conductivity

Al ₂ O ₃	24 W/mK @ 20°C
HPS	26 W/mK @ 20°C
Si ₃ N ₄	90 W/mK @ 20°C
AlN	170 W/mK @ 20°C

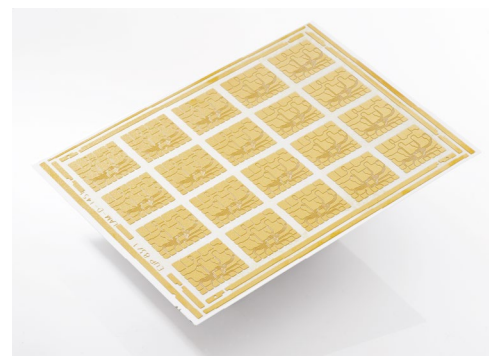
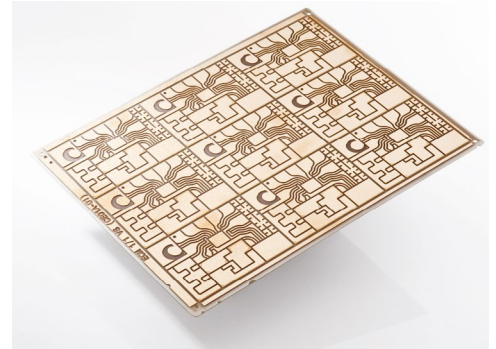
Available thickness combinations DBC

		copper thicknesses mm					
		0.127	0.2	0.25	0.3	0.4	0.5
ceramic thicknesses mm	0.25		HPS	HPS	HPS		
	0.32	Al ₂ O ₃	Al ₂ O ₃ HPS	Al ₂ O ₃ HPS	Al ₂ O ₃ HPS	HPS	HPS
	0.38	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃		
	0.5	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃	
	0.63	Al ₂ O ₃ AlN	Al ₂ O ₃ AlN	Al ₂ O ₃ AlN	Al ₂ O ₃ AlN		
	1.00	Al ₂ O ₃ AlN	Al ₂ O ₃ AlN	Al ₂ O ₃ AlN	Al ₂ O ₃ AlN		

Available thickness combinations AMB

		copper thicknesses mm		
		0.3	0.5	0.8
ceramic thicknesses mm	0.25	Si ₃ N ₄	Si ₃ N ₄	Si ₃ N ₄
	0.32	Si ₃ N ₄	Si ₃ N ₄	Si ₃ N ₄

Note other copper thicknesses on request.



Coefficient of linear thermal expansion (CTE)

Al ₂ O ₃	6.8 ppm/K @ 20°C - 300°C
HPS	7.1 ppm/K @ 20°C - 300°C
Si ₃ N ₄	2.5 ppm/K @ 20°C - 300°C
AlN	4.7 ppm/K @ 20°C - 300°C

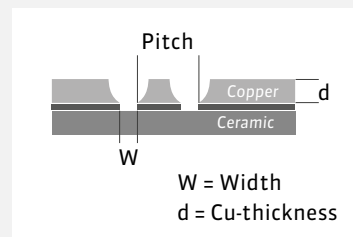
with copper plating 5% to 60% higher (dependent on copper thickness)

General dimensions

Total dimensions master card	138 mm x 190.5 mm ± 1.5%
Max. useable area	127 mm x 178 mm ± 0.05%
Copper peeling strength	≥ 4.0 N/mm @ 50 mm/min for DBC with 0.3 mm Cu-thickness ≥ 10.0 N/mm @ 50 mm/min for AMB with 0.5 mm Cu-thickness

Typ. width of / spacing between conductors

Cu-thickness	width DBC	width AMB
0.127 mm	typ. 0.35 mm	n/a
0.2 mm	typ. 0.4 mm	n/a
0.25 mm	typ. 0.45 mm	n/a
0.3 mm	typ. 0.5 mm	typ. 0.5 mm
0.4 mm	typ. 0.6 mm	n/a
0.5 mm	typ. 0.7 mm	typ. 0.8 mm
0.6 mm	n/a	n/a
0.8 mm	n/a	typ. 1.0 mm



Surface options

Platings	Electroless Ni: 3 μm – 7 μm (8% ± 2% P) all-over
	Electroless Ag: 0.1 μm – 0.6 μm all-over
	Electroless Au Class A: 0.01 - 0.05 μm all-over on Ni
	Electroless Au Class B: 0.03 - 0.13 μm all-over on Ni
Roughness*	R _a ≤ 3 μm; R _z ≤ 16 μm; R _{max} = 50 μm

* Lower roughness on request

Rogers Corporation

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