

curamik® CERAMIC SUBSTRATES

Technical data sheet

Available materials

Al₂O₃	Alumina	curamik® Power
HPS*	Alumina (9% ZrO ₂ doped)	curamik® Power Plus
Si₃N₄	Silicon Nitride	curamik® Performance
AlN	Aluminum Nitride	curamik® Thermal

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

Thermal conductivity

Al₂O₃	24 W/mK @ 20°C
HPS	28 W/mK @ 20°C
Si₃N₄	90 W/mK @ 20°C
AlN	170 W/mK @ 20°C

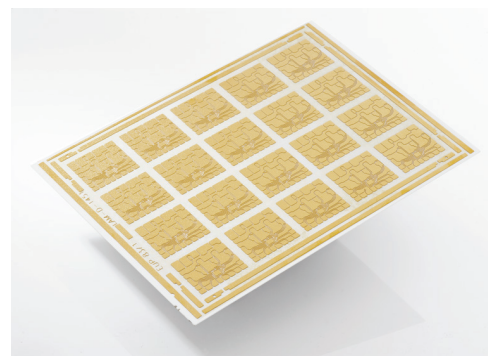
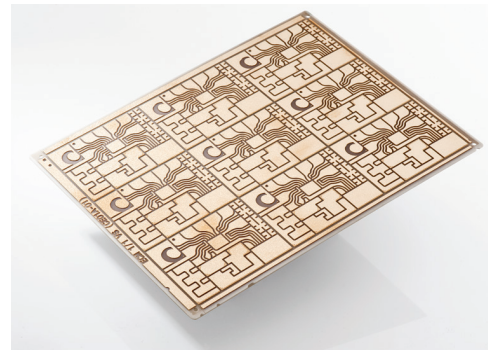
Available thickness combinations DBC

		copper thicknesses mm				
		0.127	0.2	0.25	0.3	0.4
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
	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	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	Al ₂ O ₃

Available thickness combinations AMB

		copper thicknesses mm					
		0.2	0.25	0.3	0.4	0.5	0.6
ceramic thicknesses mm	0.25			Si ₃ N ₄	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	Si ₃ N ₄
	1.00	AlN	AlN	AlN			

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

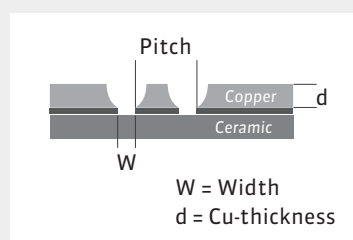
with copper plating 5% to 60% higher (dependent on copper thickness)

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
Copper free perimeter (lasered side)	typ. 0.35 mm ± 0.25 mm

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	typ. 0.7 mm
0.25 mm	typ. 0.45 mm	typ. 0.75 mm
0.3 mm	typ. 0.5 mm	typ. 0.8 mm
0.4 mm	typ. 0.6 mm	typ. 0.9 mm
0.5 mm	typ. 0.7 mm	typ. 1.0 mm
0.6 mm	n/a	typ. 1.1 mm
0.8 mm	n/a	typ. 1.2 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

www.rogerscorp.com/pes
www.curamik.com