curamik®
ENABLING POWER EFFICIENCY

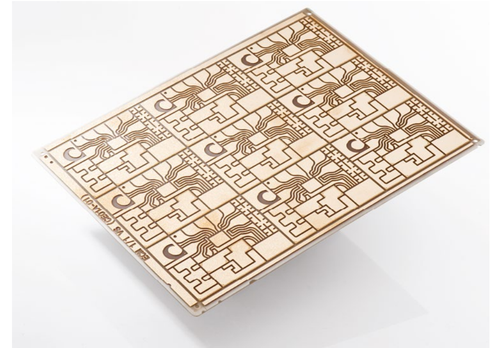
curamik® CERAMIC SUBSTRATES

Technical data sheet

Available materials

Al_2O_3	Alumina	curamik® Power
HPS*	Alumina (9% ZrO_2 doped)	curamik® Power Plus
Si_3N_4	Silicon Nitride	curamik® Performance
AlN	Aluminum Nitride	curamik® Thermal

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

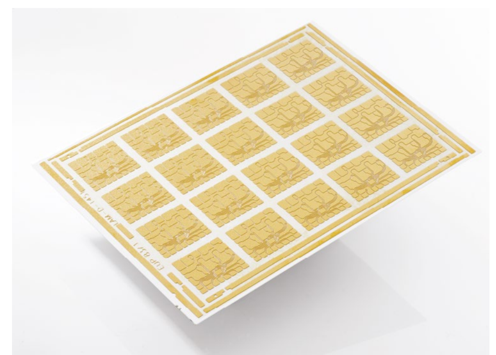


Thermal conductivity

Al_2O_3	24 W/mK @ 20°C
HPS	26 W/mK @ 20°C
Si_3N_4	90 W/mK @ 20°C
AlN	170 W/mK @ 20°C

Available thickness combinations DBC

ceramic thicknesses mm	copper thicknesses mm					
	0.127	**0.2**	**0.25**	**0.3**	**0.4**	**0.5**
0.25		HPS	HPS	HPS		
0.32	Al_2O_3	Al_2O_3 HPS	Al_2O_3 HPS	Al_2O_3 HPS	HPS	HPS
0.38	Al_2O_3	Al_2O_3	Al_2O_3	Al_2O_3		
0.5	Al_2O_3	Al_2O_3	Al_2O_3	Al_2O_3	Al_2O_3	
0.63	Al_2O_3 AlN	Al_2O_3 AlN	Al_2O_3 AlN	Al_2O_3 AlN		
1.00	Al_2O_3 AlN	Al_2O_3 AlN	Al_2O_3 AlN	Al_2O_3 AlN		



Available thickness combinations AMB

ceramic thicknesses mm	copper thicknesses mm		
	0.3	**0.5**	**0.8**
0.25	Si_3N_4	Si_3N_4	Si_3N_4
0.32	Si_3N_4	Si_3N_4	Si_3N_4

Note *other copper thicknesses on request.*

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Coefficient of linear thermal expansion (CTE)

Al_2O_3	6.8 ppm/K @ 20°C - 300°C
HPS	7.1 ppm/K @ 20°C - 300°C
Si_3N_4	2.5 ppm/K @ 20°C - 300°C
AlN	4.7 ppm/K @ 20°C - 300°C

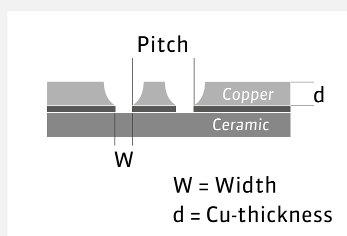
with copper plating 5% to 60% higher (dependent on copper thickness)

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*

designhouse

Rogers Corporation

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