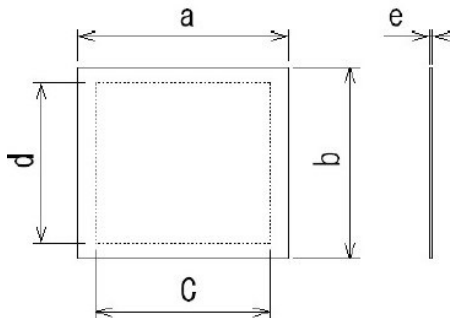
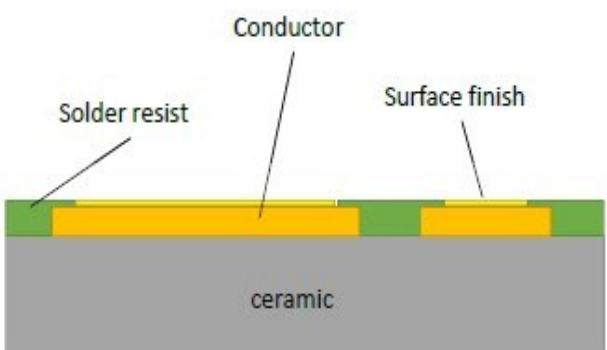


Ceramic Manufacturing Process – 96% Alumina Al ₂ O ₃ / Aluminium Nitride AlN		Manufacturing Guidelines	Rules & Guidelines	
Dimensions & Thicknesses				
	Panel Dimensions (a)x(b)			
	Standard Special	metric	115mm x 115mm Up to 170mm x 250mm	Working Area
	Standard Special	imperial	4.5" x 4.5" Up to 6.5" x 9.5"	
	Thickness (e)			
	Standard Special	metric	0,25/0.38/0.5/0.635/1.0/1.5mm Available upon request	Most Common / Widely Used
	Standard Special	imperial	10 / 15 / 20 / 25 / 39 / 59 mil Available upon request	
Metallisation & Finish				
	Conductor			
	Standard Special		Copper – Cu Available upon request	Most Common / Widely Used
	Standard Special	metric	35µm - 140µm 18µm / 175µm – 350µm	Most Common / Widely Used Frequent requirement for – possible via DBC
	Standard Special	imperial	1oz – 2oz 0.5oz / 5oz – 10oz	
	Surface Finish			
	Standard Special		Immersion Silver, ENGIG, ENEPIG EPIG (no nickel), please enquire	Most Common / Widely Used
	Solder Resist			
	Standard Special		Green, Black, White, Transparent Other – please enquire	Most Common / Widely Used EPIG – non-magnetic finish
	Silk Screen / Legend			
	Standard		Black, White	
	Layers			
Standard		Single – double sided	Please enquire for Multilayer	

Ceramic Manufacturing Process – <u>96% Alumina Al2O3 / Aluminium Nitride AlN</u>		Manufacturing Guidelines	Rules & Guidelines
Spacing & Vias			
	Min. Line Width (a)		
	Standard	0.2mm / 8 mil	0.1mm accepted upon DFM approval
	Special	0.1mm / 4 mil	
	Min Line Width (b)		
	Standard	0.2mm / 8 mil	0.1mm accepted upon DFM approval
	Special	0.1mm / 4 mil	
	Line / Pad to Edge Spacing (f)		
	Standard	0.2mm / 8mil	
	Via Specifications		
	Via diameter (c)	0.08mm / 3 mil	Smallest possible hole / Via size.
Min. via spacing (b)	0.15mm / 6 mil		
Via/hole to edge spacing	3 x via diameter		
Min via diameter (c) (Aspect Ratio)	(Al2O3 thickness/5)	E.g 1.0mm AlN required – divide by 5 = minimum Via diameter of 0.2mm	
Through hole metallisation	Plated through hole (PTH)		
Annular Ring Specifications			
Min. annular ring diameter (d)	Via diameter + 0.20mm / 8 mil	Minimum 0.10mm either side of via	
Min. annular ring spacing (e)	0.20mm / 8 mil		
Annular ring to edge spacing (g)	0.20mm / 8 mil		
Line to Hole / via Spacing (h)			
Standard	0.2mm / 8 mil	0.1mm accepted upon DFM approval	
Special	0.1mm / 4 mil		
Tolerance			
	Dimensional Tolerance		
	Standard	+/- 100µm / 4 mil	
	Thickness Tolerance		
	Standard	+/- 10%	
	Hole Tolerance		
	Standard	+/- 100µm / 4 mil	
	Pad to Hole / via Tolerance		
Standard	+/- 100µm / 4 mil		