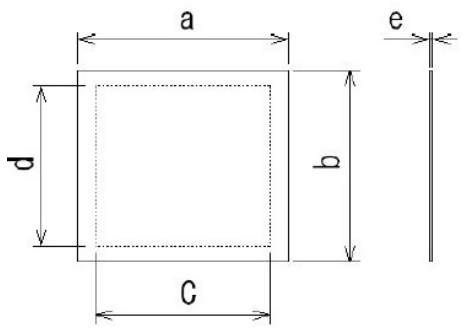
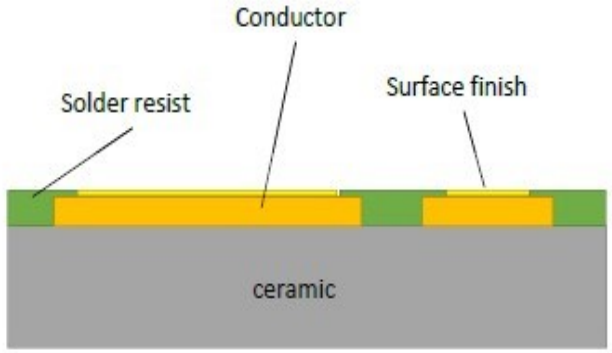
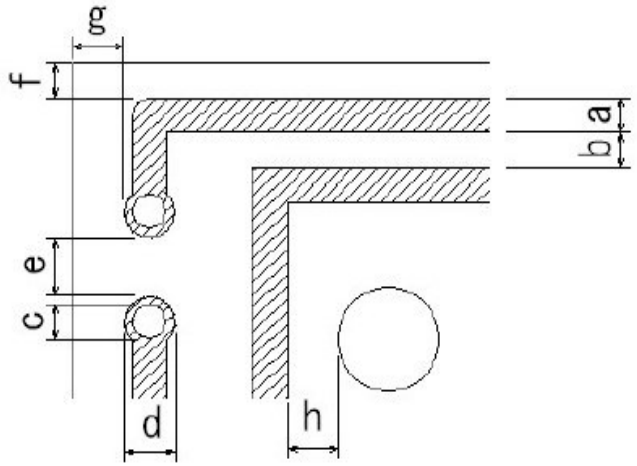
Ceramic Manufacturing Process – 96% Alumina Al2O3/ Aluminium Nitride AlN Dimensions & Thicknesses		Manufacturing Guidelines	Rules & Guidelines
	**Panel Dimensions (a)x(b)**		
	Standard metric Special	115mm x 115mm Up to 170mm x 250mm	Working Area
	Standard imperial Special	4.5” x 4.5” Up to 6.5” x 9.5”	
	Thickness (e)		
	Standard metric Special	0,.25/0.38/0.5/0.635/1.0/1.5mm Available upon request	Most Common / Widely Used
	Standard imperial Special	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 metric Special	35µm - 140µm 18µm / 175um – 350um	Most Common / Widely Used Frequent requirement for – possible via DBC
	Standard imperial Special	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 – 96% Alumina Al203 / Aluminium Nitride AIN Spacing & Vias		Manufacturing Guidelines	Rules & Guidlines
	**Min. Line Width (a)**		
	Standard Special	0.2mm / 8 mil 0.1mm / 4 mil	0.1mm accepted upon DFM approval
	Min Line Width (b)		
	Standard Special	0.2mm / 8 mil 0.1mm / 4 mil	0.1mm accepted upon DFM approval
	Line / Pad to Edge Spacing (f)		
	Standard	0.2mm / 8mil	
	Via Specifications		
	Via diameter (c) Min. via spacing (b) Via/hole to edge spacing Min via diameter (c) (Aspect Ratio) Through hole metallisation holes	0.08mm / 3 mil 0.15mm / 6 mil 3 x via diameter (Al2O3 thickness/5) Must be same weight as copper tracks	Smallest possible hole / Via size. E.g 1.0mm AlN required – divide by 5 = minimum Via diameter of 0.2mm PTH only possible with DPC technology
	Annular Ring Specifications		
	Min. annular ring diameter (d) Min. annular ring spacing (e) Annular ring to edge spacing (g)	Via diameter + 0.20mm / 8 mil 0.20mm / 8 mil 0.20mm / 8 mil	Minimum 0.10mm either side of via
	Line to Hole / via Spacing (h)		
	Standard Special	0.2mm / 8 mil 0.1mm / 4 mil	0.1mm accepted upon DFM approval
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	