




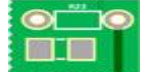




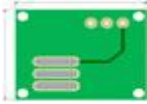


		STANDARD	SPECIAL	TOLERANCE
Type of circuit	-	Single sided, double sided, multilayer (4 to 12 layers), IMS	Multilayer with blind /buried vias IMS double sided + plated holes, Controlled impedance	NA
Materials	-	FR4, IMS, CEM1	FR4 High Tg, CTI > 250, High Frequency	NA
Solder-Mask	-	Green, white, red, blue, black	other colors available upon request	NA
Silkscreen	-	white, yellow, black	other colors available upon request	NA
Base copper thickness (inner & outer)	-	18 – 35 – 70 μ m	105 – 140 – 210 – 400 μ m	NA
Finishings	Immersion tin	1.0 – 1.3 μ m	Other thickness possible upon request	-
	Immersion silver	0.3 – 0.5 μ m		
	HAL Sn/Pb	1.5 – 10 μ m		
	HAL Pb free	1.5 – 10 μ m		
	OSP	-		
	ENiG	Ni 4-7 μ m, Au 0.05-0.15 μ m		
	Plated Au	Ni 4-7 μ m, Au 0.5-1 μ m		
Thickness		0.6 – 3.2 mm	0.2 – 3.2 mm	\pm 10%
Minimum hole drilled Diameter (PTH)		0.25 mm	0.15 mm	\pm 0.05 mm or - 0.0 / + 0.1 mm
Minimum hole finished diameter		0.15 mm	0.05 mm	NA
NPTH		0.6 mm	0.35 mm	\pm 0.05 mm
Layer alignment		\pm 0.1 mm	\pm 0.08 mm	\pm 0.1 mm
Hole-pad alignment		\pm 0.15 mm	\pm 0.10 mm	\pm 0.15 mm
Minimum anular ring (outer layers)		0.18 mm	< 0.15 mm	\pm 15 % (18 μ m)
Minimum anular ring (inner layers)		0.3 mm	< 0.20 mm	\pm 15 % (18 μ m)
Minimum line width (outer layers)- depending on base Cu thickness		18 μ m – 0.12 mm	105 μ m – 0.4 mm	\pm 15 % (18 μ m)
		35 μ m – 0.15 mm	210 μ m – 0.6 mm	\pm 20 % (35 μ m)
		70 μ m – 0.19 mm	400 μ m – 0.8 mm	\pm 25 % (70 μ m)

		STANDARD	SPECIAL	TOLERANCE
Minimum space (outer layer) – depending on base Cu thickness		18 μm – 0.12 mm	105 μm – 0.5 mm	± 15 % (18 μm)
		35 μm – 0.15 mm	210 μm – 0.8 mm	± 20 % (35 μm)
		70 μm – 0.19 mm	400 μm – 1 mm	± 25 % (70 μm)
Minimum line width (inner layers) – depending on base Cu thickness		18 μm – 0.10 mm	105 μm – 0.4 mm	± 15 % (18 μm)
		35 μm – 0.13 mm	210 μm – 0.6 mm	± 20 % (35 μm)
		70 μm – 0.16 mm	400 μm – 0.8 mm	± 25 % (70 μm)
Minimum space (inner layer) – depending on base Cu thickness		18 μm – 0.10 mm	105 μm – 0.5 mm	± 15 % (18 μm)
		35 μm – 0.13 mm	210 μm – 0.8	± 20 % (35 μm)
		70 μm – 0.16 mm	400 μm – 1 mm	± 25 % (70 μm)
Minimum isolation inner layers		250 μm	250 μm	NA
Aspect ratio		8	13	NA
Solder mask thickness		> 20 μm	> 40 μm	NA
Soldermask dam		0.2 mm	0.18 mm	NA
Plugged vias			Available	NA
Silkscreen, minimum line width		0.2 mm	0.1 mm	NA
Carbon		0.45 mm	0.40 mm	NA
Peelable, hole coverage		Ø : 2.5 mm	> 2.5 mm	NA
Peelable, distance		1 mm	0.8 mm	NA
Scoring, core thickness		0.5 mm	0.3 mm	± 0.1 mm
Scoring, positioning		± 0.1 mm	± 0.1 mm	NA
Routing		± 0.2 mm	± 0.1 mm	< 50 mm ± 0.1 > 50 mm / < 200 mm ± 0.15 > 200 mm ± 0.2
Bow & twist		< 0.75 %	< 0.5 %	NA

	MINIMUM HOLE DIAMETER FOR A: thickness 1.6 mm ϕ final (ϕ initial)	MINIMUM PAD SIZE Outer layers mm (mils)	MINIMUM PAD SIZE Inner layers mm (mils)	MINIMUM INSULATION FOR Inner layers power & ground mm (mils)	MINIMUM DISTANCE FROM SOLDERMASK TO COPPER PAD mm (mils)	MINIMUM WIDTH FOR TRACKS Outer layers (Cu base) / mm	MINIMUM WIDTH FOR TRACKS Inner layers (Cu base) / mm	MINIMUM DISTANCE BETWEEN TRACKS Outer layers (Cu base) / mm	MINIMUM DISTANCE BETWEEN TRACKS Inner layers (Cu base) / mm	MINIMUM DISTANCE BETWEEN TRACK AND PCB EDGE mm (mils)	
										Scoring	Routing
CLASS IV	0.40 (0.55)	0.20 (8)	0.30 (12)	0.40 (16)	0.15 (6)	0.20 (8)	0.25 (10)	0.20 (8)	0.25 (10)	0.50 (20)	0.30 (12)
CLASS V	0.25 (0.40)	0.20 (8)	0.25 (10)	0.30 (12)	0.10 (4)	18 μ m 0.15	18 μ m 0.14	18 μ m 0.15	18 μ m 0.14	0.50 (20)	0.30 (12)
						35 μ m 0.18	35 μ m 0.17	35 μ m 0.18	35 μ m 0.17		
						70 μ m 0.21	70 μ m 0.20	70 μ m 0.21	70 μ m 0.20		
CLASS VI	0.15 (0.30)	0.19 (7.6)	0.20 (8)	0.20 (8)	0.075 (3)	18 μ m 0.12	18 μ m 0.11	18 μ m 0.12	18 μ m 0.11	0.45 (18)	0.25 (10)
						35 μ m 0.17	35 μ m 0.16	35 μ m 0.17	35 μ m 0.16		
						70 μ m 0.20	70 μ m 0.18	70 μ m 0.20	70 μ m 0.18		
CLASS VII	0.10 (0.20)	0.18 (7.2)	0.20 (8)	0.20 (8)	0.075 (3)	18 μ m 0.10	18 μ m 0.10	18 μ m 0.11	18 μ m 0.10	0.40 (16)	0.20 (8)
						35 μ m 0.15	35 μ m 0.13	35 μ m 0.15	35 μ m 0.13		
						70 μ m 0.19	70 μ m 0.16	70 μ m 0.19	70 μ m 0.16		
DIAGRAM	