



Manufacturing

Capability

Specification

ADDITIVE CIRCUITS (S) PTE LTD




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MANUFACTURING CAPABILITY SPECIFICATION

	Volume Products	Engineering		
TERM	SPECIFICATION	SPECIFICATION	Unit	REMARKS
Material				
Base material	FR4,FR402,FR406,FR408, 370HR, IS415, BT-Resin, Polyimide,Nelco 4000 series, Roger 4000 series,			
Minimum dielectric thickness	0.0762	0.0762	mm	
Minimum core thickness	0.0762	0.0762	mm	
Minimum copper foil weight	0.5	0.5	oz	
Maximum copper foil weight	2	2	oz	
Inner layer copper weight	0.5 - 4.0	0.5 - 4.0	oz	
Outer layer copper weight	0.5 - 3.0	0.5 - 3.0	oz	
Board Size				
Minimum Board Dimension	1 x 1	1 x 1	inch	
Maximum Board Dimension	20 x 25	23 x 31	inch	
Board Thickness & MLB Layer count				
Maximum Board Layers (62 mils thick)	12 Layer	12 Layer		
Maximum Board Layers (236 mils thick)	22 Layer	30 Layer		
Maximum Board Thickness	200	236	mils	
Minimum Board Thickness	0.3	0.25	mm	Subjected to desgin
Board Thickness Tolerance(62mils and above)	8	5	%	
Board Thickness Tolerance(Less than 62mils)	+/-5	5	mils	
Mixed Dielectric Board	Roger material + FR4 / FR408 / N-13			Subjected to desgin
Aspect Ratio (Thickness to Drill ratio)				
Through Hole (max)	15 : 1	25 : 1	-	Subjected to desgin & DMSE
Blind via	1 : 1	6 : 1	-	Subjected to desgin
Buried via	6.4 : 1	6.4 : 1	-	Subjected to desgin
Drilling (Mechanical drill)				
Minimum drilled hole size	0.2	0.15	mm	Subjected to desgin
Maximum drilled hole size (drill bit size)	6.5	6.5	mm	
Minimum finished (PTH) holesize (62mils board thick)	0.15	0.10	mm	subjected to board finishing
Minimum finished (PTH) holesize (120mils board thick)	0.30	0.30	mm	subjected to board finishing
PTH Size Tolerance	(+)/(-) 3	(+)/(-) 2	mils	
NPTH Size Tolerance	(+)/(-) 2	(+)/(-) 2	mils	
X,Y Tolerance (Drilling machine)	(+)/(-) 2	(+)/(-) 1	mils	
Hole to hole location tolerance (NPTH)	4	4	mils	
Drill hole edge to Trace/pad	4.7	4	mils	subjected to desgin
Plugging hole with paste				
Board thickness	0.3 - 6.3		mm	
Minimum hole size	0.15		mm	
Maximum hole size	equal to board thickness			
Plugging hole aspect ratio with non - conductive paste(max)	25 : 1			machine spect
Plugging hole aspect ratio with conductive paste(max)	20 : 1			machine spect
Trace width & Spacing				
Inner layer minimum trace width	3.5	2.5	mils	subjected to desgin
External layer minimum trace width	3.5	3.5	mils	Copper weight dependant
Inner layer minimum trace spacing	3.5	3	mils	
External layer minimum trace spacing	3.5	3	mils	
Line width tolerance	(+)/(-) 20	(+)/(-) 20	%	

Copper ring ,Isolation & Imaging				
Copper ring (per side) with respect to drill hole	outer 5 / inner 5	outer 4 / inner 4	mils	
Clearance Pad (Inner Plane)(per side)	8	5	mils	subjected to desgin
Thermal connection (Inner Plane)	8	8	mils	
Imaging Accuracy (Outer)	2	2	mils	
Pad over via (plug hole) Min pad size 	DHS + 8mil	DHS + 6mil		DHS - drill hole size

Soldermask & Legend (Silk screen)				
Soldermask Clearance Pad	Conventional Mask 8	Conventional Mask 5	mils	
	Photo Imagable Mask 4	Photo Imagable Mask 2	mils	
Soldermask Clearance Pad to Trace edge	Conventional Mask 8	Conventional Mask 5	mils	
	Photo Imagable Mask 4	Photo Imagable Mask 3	mils	
Minimum soldermask dam	4	3	mils	subjected to type of SMK
Soldermask Thickness (minimum)	0.4	0.4	mils	
Visible Legend Line Width	7	7 	mils	
Visible Legend thickness	0.3	0.3	mils	
Visible Legend Height (minimum)	31	31	mils	
Visible Legend Gap	8	8	mils	

Board Profiling				
Hole to board edge tolerance (NPTH)	5	5	mils	
Pattern to board edge tolerance	5	5	mils	
Routing Tolerance	(+)/(-) 5	(+)/(-) 5	mils	
V-cut (end to end only)	30	30	degree	Min Bd thickness 0.60mm
V-cut tolerance	(+)/(-) 10	(+)/(-) 10	mils	Due to burr after breaking

Hole Wall Thickness				
Minimum Hole Wall Thickness (Through Hole)	0.8	1.3	mils	
Minimum Hole Wall Thickness (Blind/Buried Hole)	0.5	0.8	mils	subjected to desgin

Type of Finishing				
OSP(Entek)	8min-23max	8min-23max	u'Inch	
Electrolytic Nickel Plat'n Thick	350 (max)	350 (max)	u'Inch	
Electroless Nickel Plat'n Thick	120(min)-200(max)	120(min)-200(max)	u'Inch	
Electrolytic Gold Plat'n Thick (Selective)	80(max)	80(max)	u'Inch	
Electrolytic Gold Plat'n Thick (Full board)	5 (min.)(max.) 60	5 (min.)(max.) 60	u'Inch	
Electroless Gold Plat'n Thick (Full board)	2(min)-6(max)	2(min)-6(max)	u'Inch	
HASL	100(min)	100(min)	u'Inch	

Impedance				
Impedance Measurement	Yes	Yes	-	Printed reports provided
Impedance Tolerance for 50 Ohms & above	(+)/(-) 10	(+)/(-) 10	%	
Impedance Tolerance for below 50 ohms	(+)/(-) 5	(+)/(-) 5	Ohms	

Warpage				
Warp & Twist	0.75	0.5	%	

ROHS & Reach Compliance				