

Manufacturing Facilities in China

(Normal Boards(FR-4,CEM-1,2,3, 1~6Layers))

ITEM	Unit	Qty	ITEM	Unit	Qty
Material Cutting	set	2	Baking	set	4
Grinding	set	2	S/M Developing	set	2
Drilling	set	8	HASL Pre-Treatment	set	1
Scribing	set	5	HASL Post-Treatment	set	1
PTH	set	2	HASL	set	2
Auto-PTH	set	2	Punch	set	4
Auto-Pattern	set	2	Auto V-Cut , Semi V-Cut	set	1, 2
D/F Auto-Laminator	set	2	Routing	set	3
D/F Semi-Exposure	set	6	Warp & Twist Machine	set	1
D/F Auto-Exposure	set	1	Cleaning	set	1
D/F Developing	set	4	Sonic Cleaning	set	1
SES Line	set	2	Testing	set	2
Pre-Baking	set	1	Dedicate Testing	set	8
Post-Baking	set	1	Entek	set	1
Legend Printing	set	4	Packing	set	1
S/M Printing	set	10	S/M Exposure	set	6
CAM (E-CAM; GENUSIS)	set	6	AOI	set	2
2 Dimension	set	1	Microsection	set	1
Copper Foil Measurement	set	1	D.I Water	set	2
Laser Plotter	set	1	Air Pollution Treatment	set	1
Diazo Film Developing	set	1	Waste Water Treatment	set	1
CCD Punch	set	1	Waste Water Re-Cycle Sys.	set	1
Central Air-con & Clean Room Sys.	set	1	Scrubbing-Water Recycle Sys.	set	5

Production Capability in China

Item	Description	Capability
Layers	Layers (Min/Max)	1~10L
	Warp & Twist	0.75%
Material thickness	inner layer Copper Foil Thickness	1/2~2oz
	Copper Foil Thickness	2mil
	Minimum Core Thickness	2mil
	Minimum B-stage Thickness	2mil
Drilling	Hole to hole accuracy (first drill)	+/- 2 mil
	Minimum drill size	9.8 mil
	Minimum slot width	20 mil
	Minimum slot length	50 mil
	PTH hole size tolerance	+/- 3mil
	NPTH hole size tolerance	+/- 2 mil
via hole	Mechanical drill (Through holes)	
	Minimum Via diameter (Drill)	9.8 mil
	Minimum Via Pad diameter (Outer Layer)	18 mil
	Minimum Via Pad diameter (Inner Layer)	20 mil
	Minimum Via Pad to trace Space (Outer Layer)	4 mil
	Minimum Via Pad to trace Space (Inner Layer)	4 mil
	Maximum aspect ratio	6.4:1
	Mechanical drill (Blind vias)	
	Minimum Via diameter (Drill)	9.8 mil
	Minimum Via Pad diameter (Outer Layer)	18 mil
	Minimum Via Pad diameter (Inner Layer)	20 mil
	Minimum Via Pad to trace Space (Outer Layer)	4 mil
	Minimum Via Pad to trace Space (Inner Layer)	4 mil
	Minimum dielectric thickness for the blind core	5 mil
	Blind via protrusion/depression	+/- 1 mil

Item	Description	Capability
Pattern	Line width (for ½ oz base copper)	3mil
	Line to line spacing	3mil
	Line to pad spacing	3mil
	Line to PTH/NPTH drill hole edge	10 mil
	Pad to pad spacing	4 mil
	Line/Copper plane to board edge spacing (Routing)	10 mil
	Line/Copper plane to board edge pacing (Stamping)	25 mil
	Line/Copper plane to vee-cut edge (for 30 degree	15 mil
Etching	Artwork registration tolerance	+/-2mil
	Line width/spacing tolerance	+/-20%
	Copper feature	+/-20%
Electrolytic Nickel/ Gold	Minimum/Maximum Nickel thickness	50uinch / 250uinch
	Minimum/Maximum Gold thickness	2uinch / 8uinch
ENIG	Minimum/Maximum Nickel thickness	50uinch / 250uinch
	Minimum/Maximum Gold thickness	2uinch / 5uinch
Silver	Immersion Silver (over copper)	MacDermid Sterling
	Minimum/Maximum Silver thickness	6uinch / 20uinch
HAL	Minimum/Maximum Solder thickness	50uinch / 1500uinch
OSP	Copper Entek thickness	Entek 106A , Tamura WPF207
	Minimum/Maximum Entek thickness	0.2um / 0.5um
Solder Mask	Solder Mask	
	Minimum solder mask opening	8 mil
	Minimum solder mask annular ring	2 mil
	Solder mask registration tolerance	2 mil
	Minimum solder mask Thickness (Above Trace)	0.4 mil
Legend	Minimum solder dam	3 mil
	Minimum legend line width	6 mil
	Minimum legend height	40 mil
	Minimum legend width	40 mil
	Minimum spacing between legends	10 mil
	Minimum spacing between legends and solder pads	10 mil
Routing	Legend registration tolerance	6 mil
	Datum hole to copper feature	+/- 5 mil
	Routed edge to routed edge	+/- 5 mil
	Routed edge to copper feature spacing	10 mil
	Routed holes/slots dimension	+/- 5 mil
	Minimum hole diameter by router	31 mil
	Minimum routed slot width	31 mil
Punch	Minimum routed slot length	100 mil
	Datum hole to punched edge	+/- 5 mil
	Punched edge to punched edge	+/- 5 mil
	Punched hole/slot to punched hole/slot	+/- 5 mil
	Punched edge to punched hole/slot	+/- 5 mil
	Punched edge to copper feature spacing	+/- 5 mil
V-cut	Minimum/Maximum punched board thickness	12 mil / 64 mil
	Vee-cut angles	30, 45, 60
	Datum hole to vee-cut edge	+/- 4 mil
	Vee-cut edge to Vee-cut edge	+/- 2 mil
Electrical Testing	Vee-cut edge to routed/stamped edge	+/- 5 mil
	Maximum Continuity Voltage	250 V
	Maximum Isolation Resistance	100 Mohm
	Minimum Continuity Resistance	10 ohm
	Minimum board thickness	16 mil
	Minimum QFP pitch	8 mil
Impedance	Minimum BGA pitch	8 mil
	Impedance (single end)	+/- 10%
	Differential Impedance	+/- 10 %