

### 86PCB Capacity Specification

ITEM		Sample Capacity (S<5m <sup>2</sup> )	Small MediumBatch (S≥5m <sup>2</sup> )
<b>Material</b>	FR4	Shengyi S1141(lead free is not recommended)	Shengyi S1141(lead free is not recommended)
	FR4 (Halogen-free)	Shengyi S1155	Shengyi S1155
	High Tg FR4(Halogen-free)	Shengyi S1165	Shengyi S1165
	HDI	LDPP(IT-180A 1037,1086), Ordinary 106 and 1080	LDPP(IT-180A 1037,1086),Ordinary 106 and 1080
	High CTI	Shengyi S1600	Shengyi S1600
	High Tg FR4	Isola:FR408, FR408HR, IS410,FR406, GETEK, PCL-370HR, Lianmao:IT-180A IT-150DA, Nelco:N4000-13, N4000-13EP, N4000-13SI, N4000-13EP SI Panasonic:R-5775K(Megtron6), R-5725(Megtron4), Taiguang:EM-827 Hongren:GA-170, Nanya:NP-180, Taiyao:TU-752,TU-662 Hitachi:MCL-BE-67G(H), MCL-E-679F(J), Tenghui:BT-47	IT180A,GETEK,PCL-370HR,N4000-13, N4000-13EP,N4000-13SI,N4000-13EPSI
	Porcelain Powder Filling High Frequency Material	Rogers:Rogers4350,Rogers4003;Arlon:25FR,25N;	Rogers:Rogers4350,Rogers4003;Arlon:25FR,25N;
	Teflon High Frequency Material	Rogers Series,Taconic Series, Arlon Series, Nelco Series, TzswIF4B, TP Series	Arlon:Di clad,AD series;Taconic:TLX,TLF,TLY,RF,TLC,TLGSeries
	PTFE Prepreg	Taconic:TP series,TPG series,TPN series, HT1.5(1.5MIL), Fastrise Series	/
	Materials Mixed Pressure	Rogers,Taconic,Arlon,Nelcoand FR-4	Rogers,Taconic,Arlon,Nelcoand FR-4
<b>Type</b>	Rigid Board	Backplane, HDI, Multi-layer Blind Via Hole, Buried Capacitor, Buried Resistance, Thick Copper Plate, Thick Copper Board, Thick Copper Power, Semiconductor Test Board	Backplane,HDI,Multilayer Blind Via Hole, Thick Copper Power, Drill Back
<b>Stack-up</b>	Blind Via Board	Same Side Laminations≤3	Same Side Laminations≤2
	HDI board	1+n+1,1+1+n+1+1,2+n+2,3+n+3(nvia holes≤0.3mm), Laser Blind Hole Can Be Plated Filling Hole	1+n+1,1+1+n+1+1,2+n+2,3+n+3(nvia holes≤0.3mm), Laser Blind Hole Can Be Plated Filling Hole
<b>Surface finishing</b>	Lead Free	Copper Nickel Gold Plating, ENIG, Hard Gold Plating(Nickel Free or Not), Gold Finger, Lead Free HASL, OSP, Chemical Nickel Palladium, Soft Gold (Nickel Free or Not), Immertion Silver, Immertion Tin, ENIG+OSP, ENIG+G/F, Full Board Gold-Plated+G/F, Immertion Tin+G/F	Copper Nickel Gold Plating, ENIG, Hard Gold Plating(Nickel Free or Not), Gold Finger, Lead Free HASL, OSP, Chemical Nickel Palladium, Soft Gold (Nickel Free or Not), Immertion Silver, Immertion Tin, ENIG+OSP, ENIG+G/F, Full Board Gold-Plated+G/F, Immertion Tin+G/F
	With Lead	HASL( with lead)	HASL( with lead)
	Board Thickness: Aperture	10:1(HASL,Lead Free HASL, Chemical Immertion Nickel Gold, Immertion Silver, Immertion Tin, Chemical Nickel Palladium), 8:1(OSP)	10:1(HASL,Lead Free HASL, Chemical Immertion Nickel Gold, Immertion Silver, Immertion Tin, Chemical Nickel Palladium), 8:1(OSP)
	Size (MAX)	HASL 22"*39", HASL Lead Free 22"*24", Gold finger24"*24", Hard Gold Palte24"*28", Chemical immertion gold 21"*27", Copper Nickel Gold Plating21"*48", Immertion Tin 16"*21", Immertion Silver16"*18", OSP24"*40"	HASL 22"*39", HASL Lead Free 22"*24", Gold finger24"*24", Hard Gold Palte24"*28", Chemical immertion gold 21"*27", Copper Nickel Gold Plating21"*48", Immertion Tin 16"*21", Immertion Silver16"*18", OSP24"*40"
	Size (Min)	HASL5"*6", Lead Free HASL10"*10", Gold Finger 12"*16", Hard Gold Plating3"*3", Copper Nickel Gold Plating8"*10", Immertion Tin2"*4", Immertion Silver2"*4", OSP2"*2"	HASL5"*6", Lead Free HASL10"*10", Gold Finger 12"*16", Hard Gold Plating3"*3", Copper Nickel Gold Plating8"*10", Immertion Tin2"*4", Immertion Silver2"*4", OSP2"*2"
	Increase Thickness of Board	HASL:0.6-4.0mm, LF HASL: 0.6-4.0mm, Gold Finger Plating :1.0-3.2mm, Hard Gold Plating: 0.1-5.0mm, ENIG:0.2-7.0mm, Copper Plated Nickel Gold: 0.15-5.0mm, Immersion Tin: 0.4-5.0mm, Immersion Silver:0.4-5.0mm, OSP:0.2-6.0mm	HASL:0.6-4.0mm, LF HASL: 0.6-4.0mm, Gold Finger Plating :1.0-3.2mm, Hard Gold Plating: 0.1-5.0mm, ENIG:0.2-7.0mm, Copper Plated Nickel Gold: 0.15-5.0mm, Immersion Tin: 0.4-5.0mm, Immersion Silver:0.4-5.0mm, OSP:0.2-6.0mm

	Gold Finger Maximum Height	1.5inch	1.5inch
	Gold Finger Minimum Spacing	6mil	8mil
	Segmented Gold Finger with Minimum Segmental Spacing.	7.5mil	7.5mil
<b>Surface coating (covering layer) thickness.</b>	Tin-plating	2-40μm(For HASL, the Thinnest Thickness of the Large Tin 0.4μm, For LF HASL, The Thinnest Thickness of The Large Tin 1.5μm)	2-40μm(For HASL, the Thinnest Thickness of the Large Tin 0.4μm, For LF HASL, The Thinnest Thickness of The Large Tin 1.5μm)
	OSP	Thickness of Membrane: 0.2-0.6μm	Thickness of Membrane: 0.2-0.6μm
	ENIG	Gold Thickness:0.05-0.10μm, Nickel Thickness:3-8μm	Gold Thickness:0.05-0.10μm, Nickel Thickness:3-8μm
	Immersion Silver	Silver Thickness:0.2μm-0.4μm	Silver Thickness:0.2μm-0.4μm
	Immersion Tin	Tin Thickness≥1.0	Tin Thickness≥1.0
	Hard Gold-plating	Gold Thickness:0.10-1.5μm(Dry film plating process) Gold Thickness:0.10-4.0μm(Non - dry film plating process)	Gold Thickness:0.10-1.5μm(Dry film plating process) Gold Thickness:0.10-4.0μm(Non - dry film plating process)
	Soft Gold Plating	Gold Thickness: 0.10-1.5μm(Dry film plating process) Gold Thickness: 0.10-4.0μm(Non - dry film plating process)	Gold Thickness: 0.10-1.5μm(Dry film plating process) Gold Thickness: 0.10-4.0μm(Non - dry film plating process)
	Palladium Nickel Plating	Gold Thickness:0.05-0.10μm, Nickel Thickness:3-8μm, Palladium Thickness:0.05-0.15μm	Gold Thickness:0.05-0.10μm, Nickel Thickness:3-8μm, Palladium Thickness:0.05-0.15μm
	Copper Nickel Plating	Gold thickness:0.025-0.10μm, Nickel Thickness: ≥3μm, Cooper Board Maximum Thickness:1OZ	Gold thickness:0.025-0.10μm, Nickel Thickness: ≥3μm, Cooper Board Maximum Thickness:1OZ
	Gold Finger Nickel-plated Gold.	Gold Thickness: 0.025-1.5μm(Required Value Refers To The Thinnest Point), Nickel Thickness≥3μm	Gold Thickness: 0.025-1.5μm(Required Value Refers To The Thinnest Point), Nickel Thickness≥3μm
	Carbon	10-50μm	10-50μm
	Green Oil	Copper Cover Oil(10-18μm), A Hole Cover Oil(5-8μm), Line Corner≥5μm (First Printing, Copper Thickness ≤48μm)	Copper Cover Oil(10-18μm), A Hole Cover Oil(5-8μm), Line Corner≥5μm (First Printing, Copper Thickness ≤48μm)
	Blue-gel	0.20-0.80mm	0.20-0.80mm
	<b>Drill Hole</b>	0.1/0.15/0.2mm Maximum Thickness of Mechanical	0.8mm/1.5mm/2.5mm
Laser Drilling The Smallest Aperture		0.1mm	0.1mm
Laser Drilling The Smallest Aperture		0.15mm	0.15mm
Mechanical Hole Diameter(ready product)		0.1-6.2mm(using drill 0.15-6.3mm)	0.15-6.2mm( using drill 0.2-6.3mm)
		PTFE material , Min dill dia 0.25mm( using drill 0.35mm)	PTFE material , Min dill dia 0.3mm( using drill 0.4mm)
		Mechanical blind buried hole diameters≤0.3mm(using 0.4mm)	Mechanical blind buried hole diameters≤0.3mm(using 0.4mm)
		Hole in the hole green hole diameter hole drilling diameters≤0.45mm(using 0.4mm)	Hole in the hole green hole diameter hole drilling diameters≤0.3mm(using 0.4mm)
		Even Min hole diameter0.35mm(using0.4mm)	Even Min hole diameter 0.35mm(using 0.45mm)
Metallized semi-empty aperture Min 0.3mm(using 0.4mm)		Metallized semi-empty aperture Min 0.3mm(using 0.4mm)	
Through-hole Plate Thickness Ratio of The Largest		20:1(no incude ≤0.2mm knife dia, >12:1 need Evaluate)	10:01
Max Laser Drilling Depth Aperture Ratio		1:01	0.9:1
Max Deep Hole Drilling Mechanical Control Depth Aperture Ratio		1.3:1(dia ≤0.20mm),1.15:1(dia≥0.25mm)	0.8:1,Drill dia≥0.25mm
Mechanical Deep Drilling (Backdrilling) Depth Min		0.2mm	0.2mm
Drilling - Minimum Distance Drilled To The Conductor (No Blind Hole and First-order Laser Blind Hole)	5.5mil (≤8layer),6.5mil(10-14)7mil(>14layer)	7mil (≤8layer),9mil(10-14)10mil(>14layer)	

	Drilling - Minimum Distance Drilled To The Conductor(Mechanical Blind Buried Hole and Second-order Laser Blind Buried Hole)	7mil(Press one time),8mil(press twice)12mil(press three times)	8mil(Press one time),10mil(press twice)12mil(press three times)
	Drilling - Minimum Distance Drilled To The Conductor(Laser blind buried)	7mi(1+N+1);8mil(1+1+N+1+1 Or 2+N+2)	7mi(1+N+1);8mil(1+1+N+1+1 Or 2+N+2)
	Drilling - Minimum Distance Drilled To The Conductor (1,2 HDI PCB)	5mil	6mil
	Drilling - The Smallest Distance Between Holes in Different Networks(After Compensation)	10mil	10mil
	Drilling - The Smallest Distance Between Holes In The Same	6mil(Through hole, laser blind hole), 10mil(Mechanical blind buried hole)	6mil(Through hole, laser blind hole), 10mil(Mechanical blind buried hole)
	Drill-The Min Distance Nonmetal Between The Wall of The Hole (After Compensation)	8mil	8mil
	Drill-Hole Position Tolerance(Compare)	±2mil	±2mil
	Drill-NPTH Minimum Aperture	±2mil	±2mil
	Drill-NO Mouting Aperture Precision	±2mil	±2mil
	Drill-Depth Tolerance of Conical Hole	±0.15mil	±0.15mil
	Drill-Diameter Tolerance of Conical	±0.15mil	±0.15mil
<b>Pad</b>	Laser Hole MIN Pad Size of Inner Layer Outer Layer	10mil (4mil laser hole), 11 mil (5mil laser hole)	10mil (4mil laser hole), 11 mil (5mil laser hole)
	Mechanical Hole MIN Pad Size of Inner Layer Outer Layer	16mil (8mil hole aperture)	16mil (8mil hole aperture)
	BGA MIN Pad conical	hasl 10mil, lead free hasl 12mil, other 7mil	hasl 10mil, lead free hasl 12mil, other 7mil
	Pad Tolerance(BGA)	+/-1.2mil (pad< 12mil): +/-10% (pad>12mil)	+/-1.5mil (pad< 10mil): +/-15% (pad>10mil)
<b>Track Width/Length/Distance</b>	Inner layer	1/20Z:3/3mil	
		10Z: 3/4mil	
		20Z: 4/5mil	
		30Z: 5/8mil	
		40Z: 6/11mil	
		50Z: 7/13.5mil	
		60Z: 8/15mil	
		70Z: 9/18mil	
		80Z: 10/21mil	
		90Z: 11/24mil	
	100Z: 12/27mil		
	Outer Layer	1/30Z base copper: 3/3mil	
		1/20Z base copper: 3.5/3.5mil	
		10Z base copper : 4.5/5mil	
1.430Z base copper (Positive): 4.5/6			
1.430Z base copper (Negative): 5/7			
20Z base copper: 6/7mil			
30Z base copper: 6/10mil			
40Z base copper: 7.5/13mil			
50Z base copper: 9/16mil			
60Z base copper: 10/19mil			
70Z base copper: 11/22mil			

		80Z base copper: 12/26mil	
		90Z base copper: 13/30mil	
		100Z base copper: 14/35mil	
	Track Width Tolerance	≤10mil±1.0mil >10mil:±1.5mil	
<b>Soder Mask and Silk Print</b>	Solder Character	Resistance welding maximum borehole diamete	0.9mm
	Solder Mask Color	Green, blue, black, red ,white ,purple, matt green	Green, blue, black, red ,white ,purple, matt green
	Character Mask Color	white yellow black	white yellow black
	Blue Aluminum Sheet Plug Hole Maximum Borehole Diamete	5mm	4.5mm
	Plugging Resin Drill Aperture Range	0.1-1.0m	0.1-1.0mm
	Plugging Resin Maximum Rear Diamete	12:01	8:01
	Solder Character-min Length of Solder	Base copper ≤0.5oz surface finishing: Immersion Tin: 7.5 black, 5.5 other, 8.0 solder bridge on the copper Base copper ≤0.5oz surface finishing except Immersion Tin: 5.5 black (MAX 5), 4 other color (MAX 3.5), 8.0 solder bridge on the copper Base copper 1oz: 4 (green) 5 (other color), 5.5 (black MAX 5), 8.0 solder bridge on the copper Base copper 1.43OZ :4(Green),5.5(other color),6(black), 8.0(Resistance welding bridge on large copper surface. Base copper 2-4OZ:6, 8 (Resistance welding bridge on large copper surface)	Base copper ≤0.5oz surface finishing: Immersion Tin:7.5 black, 5.5 other, 8.0 solder bridge on the copper Base copper ≤0.5oz surface finishing except Immersion Tin: 5.5 black (MAX 5), 5), Base copper 1oz: 4 (green) 5 (other color), 5.5 (black MAX 5), 8.0 solder bridge on the copper Base copper 1.43OZ :4(Green),5.5(other color),6(black), 8.0(Resistance welding bridge on large copper surface. Base copper 2-4OZ:6, 8 (Resistance welding bridge on large copper surface)
<b>Outline</b>	Disatance From Centerline to Graphic For V-CUT Not Leak Copper	H≤1.0mm :0.3mm (20°V-CUT angle)、0.33mm(30°)、0.37mm(45°) 1.0<H≤1.6mm :0.36mm (20°)、0.4mm(30°)、0.5mm(45°) 1.6<H≤2.4mm :0.42mm (20°)、0.51mm(30°)、0.64mm(45°) 2.4<H≤3.2mm :0.47mm (20°)、0.59mm(30°)、0.77mm(45°)	H≤1.0mm :0.3mm (20°V-CUT angle)、0.33mm(30°)、0.37mm(45°) 1.0<H≤1.6mm :0.36mm (20°)、0.4mm(30°)、0.5mm(45°) 1.6<H≤2.4mm :0.42mm (20°)、0.51mm(30°)、0.64mm(45°) 2.4<H≤3.2mm :0.47mm (20°)、0.59mm(30°)、0.77mm(45°)
	V-CUT symmetry tolerance	±4mil	±4mil
	V-CUT maximum line quantity	100	100
	V-CUT angle tolerance	±5°	±5°
	V-CUT angles	20°、30°、45°	20°、30°、45°
	Gold Finger chamfer angle	20°、30°、45°、60°	20°、30°、45°、60°
	Gold Finger chamfer angle tolerance	±5°	±5°
	Gold finger minimum TAB distance	6mm	7mm
	Gold finger minimum distance between	8mil	10mil
	Depth controlling slot tolerance (NPTH)	±0.1mm	±0.1mm
	Outline size tolerance	±4mil	±4mil
	Slot hole minimum tolerance (PTH)	±0.13mm	±0.13mm
	Slot hole minimum tolerance (NPTH)	±0.10mm	±0.10mm
	Minimum tolerance of slot hole (PTH)	Slot width direction±0.075mm,The slot length/width<2:The slot length +/- 0.1mm	Slot width direction±0.075mm,The slot length/width<2:The slot length +/- 0.1mm;The slot length/width≥2: The slot length +/-0.075mm
	Minimum tolerance of slot hole (NPTH)	Slot width direction±0.05mm,The slot length/width<2:The slot length +/- 0.075mm	Slot width direction±0.05mm,The slot length/width<2:The slot length +/- 0.075mm;The slot length/width≥2: The slot length +/-0.05mm
<b>Local mixed pressure</b>	Mechanical drilling to the minimum diameter	12(local10) Mil	12(local10) Mil
	The minimum distance from the local r	10mil	10mil
	layers	aliumium ,copper ,1-8 layers ,cold pcb ,buried gold pcb ,2-24layers ,Ceramics pcb	aliumium ,copper ,1-8 layers ,cold pcb ,buried gold pcb ,2-24layers ,Ceramics pcb 1-2layers
	Finished dimentions	Max:610mm*610mm min;5mm*5mm	Max:610mm*610mm min;5mm*5mm
	The largest produciton dimention (Cera	100mm*100mm	100mm*100mm
	finished copper thickness	0.5-10oz	0.5-10oz
	metal pcb thickness	0.5mm-4.5mm	0.5mm-4.5mm
	metal materil	AL:1100/1050/2124/5052/6061:Copperpure iron	AL:1100/1050/2124/5052/6061:Copperpure iron
	Minimum finished pore size and tolerance	NPTH:05±0.05mm PTH (aliumium pcb,cooper pcb );1.0mm±0.1mm PTH(Cold pcb,sintered plate ,buried gold pcb );0.2±0.1mm	NPTH:05±0.05mm PTH (aliumium pcb,cooper pcb );1.0mm±0.1mm PTH(Cold pcb,sintered plate ,buried gold pcb );0.2±0.1mm

<b>Metal pcb</b>	Machining precision of shape	±0.03mm	
	PCB Surface finishing	HASL,OSP ,ENIG(soft /hard gold),leaded tin spray/Electroplating tin	HASL,OSP ,ENIG(soft /hard gold),leaded tin spray/Electroplating tin
	Metal base material	All treasure aluminum substrate(T-110,T111)Tenghui aluminum substrate(VT-4A1,VT4A2,VT4A3), Laird aluminum substrate(1KA04,AKA06)Beggsmetal substrate(MP06503,ht04503)TACONICmetal pcb (TLY-5TLY-5F)	All treasure aluminum substrate(T-110,T111)Tenghui aluminum substrate(VT-4A1,VT4A2,VT4A3), Laird aluminum substrate(1KA04,AKA06)Beggsmetal substrate(MP06503,ht04503)TACONICmetal pcb (TLY-5TLY-5F)
	Thickness of thermal conductive adhesive	75-150um	75-150um
	Size of buried copper block	3mm*3mm-70mm*80mm	3mm*3mm-70mm*80mm
	Smoothness of buried copper block (dr)	±40um	±40um
	The distance between the buried copper	≥12mil	≥12mil
	Buried copper flatness (drop accuracy)	+/-40um	+/-40um
	Buried copper to hole wall distance	≥12mil	≥12mil
	Thermal Conductivity	0.3-3W/m.K (aluminum pcb, mc pcb, cold pcb); 8.33W/m.k(sintered plate); 0.35-30W/m.k(buried metal pcb); 24-180W/m.k(ceramic pcb)	0.3-3W/m.K (aluminum pcb, mc pcb, cold pcb); 8.33W/m.k(sintered plate); 0.35-30W/m.k(buried metal pcb); 24-180W/m.k(ceramic pcb)
<b>Others</b>	Max. finish copper thickness	Inner: 10oz Outer:11 oz	Inner:4 oz Outer:5 oz
	Finish copper thickness for outlayer	12, 18um basic copper:≥35.8 (reference:35.8-42.5) :≥40.4(reference:40.4-48.5)	12, 18um basic copper:≥35.8 (reference:35.8-42.5) :≥40.4(reference:40.4-
		35,50,70um basic copper : ≥55.9:≥70: ≥86.7	35,50,70um basic copper : ≥55.9:≥70: ≥86.7
		105,140um basic copper: ≥117.6: ≥148.5	105,140um basic copper: ≥117.6: ≥148.5
	PCB Layer	1-40 Layer	1-20 Layer
	Finish pcb thickness	0.20-7.0mm(no solder mask):0.40-7.0mm(has solder mask)	0.3-5.0mm(no solder mask):0.40-5.0mm(has solder mask)
	Pcb thickness tolerance(standard)	pcb thickness±10% (>1.0mm) :±0.1mm(≤1.0mm)	pcb thickness±10% (>1.0mm) :±0.1mm(≤1.0mm)
	Pcb thickness tolerance(special)	pcb thickness±0.1mm (≤2.0mm) :±0.15mm(2.1-3.0mm)	pcb thickness±0.1mm (≤2.0mm) :±0.15mm(2.1-3.0mm)
	Min. pcb size	10*10mm(no panel design requests: one panel pcb less than 50*50)	50*100mm
	Max. pcb size	23*35inch(double layer):22.5*33.5inch(four layer):22.5*30(≥6 layer)	20*30inch(double layer):22.5*30inch(four layer):16.5*22.5inch(≥6 layer)
	Ionic pollution	≤1ug/cm2	≤1ug/cm2
	Warping limit ability	0.1%(This ability requires the same type of laminate,strict symmetry laminated,symmetric layer residual copper rate of less than 10%, wiring uniformity,can not be concentrated in a large number of copper or substrate,laminated without veneer or light panel,panel size ≤21 inch)	0.75%
	Impedance tolerance	±5Ω (<50Ω) , ±10% (≥50Ω)	±5Ω (<50Ω) , ±10% (≥50Ω)
	Electroplated hole laser blind hole diam	4-5mil (4mil in priority)	4-5mil (4mil in priority)
Electroplated blind hole blind hole diam	1:1 (with copper deep)	1:1 (with copper deep)	