PCB Technical Capacity (2012.10 Updated)

No.	Item		Capacity for sample	Capacity for small & medium production
1	Material type	FR4(General)	Brand: Shengyi, Guoji, KB, ITEQ	Brand: Shengyi, Guoji, KB, ITEQ
2		Halogen Free	S1155(General TG), S1165(High TG)	S1155(General TG), S1165(High TG)
3		FR4(High TG)	S1171,S1000-2, FR408, FR408HR, IT180A, N4000-13, PCL-370HR	S1171, S1000-2, IT180A, N4000-13, PCL-370HR
4		Ceramic substrate	Rogers4350, Rogers4003, 25FN, 25N	Rogers4350, Rogers4003, 25FN, 25N
5		PTFE	Rogers series, Taconic series, Arlon series, Nelco series, F4B series	T TLX,TLY Series of Taconic , Diclad, AD Series of Arlon
6		Metal base	Aluminum base, Copper base, Iron base(1-4L)	Aluminum base(1-4L)
7		Mulriple Material Lamination	FR4 and Aluminum base mixed lamination, FR4 and Rogers mixed lamination, Aluminum base and Rogers mixed lamination	FR4 and Aluminum base mixed lamination, FR4 and Rogers mixed lamination, Aluminum base and Rogers mixed lamination
8	**Parameter**	Number of Layers	1-30 Layers	1-20 Layers
9		Finished board thickness	Board with HASL:0.4—3.2 MM, Others:0.13—7.0 MM Min. thickness for 4L: 0.6mm, for 6L: 0.7mm,for 8L: 1.0mm, for 10L: 1.6mm	Board with HASL :0.4—3.2 MM, Others:0.2—6.0 MM Min. thickness for 4L: 0.6mm, for 6L: 0.7mm,for 8L: 1.0mm, for 10L: 1.6mm
10		Max. production sizes	Board with HASL:350mm*300mm(0.4mm≤Thickness≤0.8mm) 420mm*350mm(0.8mm≤Thickness≤1.2mm)	Board with HASL:350mm*300mm(0.4mm≤Thickness≤0.8mm) 420mm*350mm(0.8mm≤Thickness≤1.2mm)
11			RoHS compliant board and HASL board thickness＞1.2mm: 1L-2L:550mm*1200mm, 4L:550mm*900mm, 6L and above: 500mm*600mm	RoHs compliant board and HASL board thickness＞1.2mm: 1L-2L:550mm*1200mm, 4L:550mm*900mm, 6L and above: 500mm*600mm
12		Profile	CNC milling ,V-CUT, Break tab, Stamp holes, Punching	CNC milling ,V-CUT, Break tab, Stamp holes, Punching
13		Distance from V-cut center line to	T≤1.0mm: 0.3mm（20º）, 0.33mm(30º), 0.37mm(45º), 0.42mm(60º)	T≤1.0mm: 0.3mm（20º）, 0.33mm(30º)，0.37mm(45º)，0.42mm(60º)

14		circuits of Inner & outer layer	1.0mm＜T≤1.6mm: 0.36mm（20º）,0.4mm(30º),0.5mm(45º),0.6mm(60 º)	1.0mm＜T≤1.6mm:0.36mm（20º）,0.4mm(30º),0.5mm(45º),0.6mm(60º)
15			1.6mm＜T≤2.4mm::0.42mm（20º）,0.5mm(30º),0.6mm(45º),0.8mm(60º)	1.6mm＜T≤2.4mm:0.42mm（20º）,0.5mm(30º),0.6mm(45º),0.8mm(60º)
16			2.4mm＜T≤3.0mm: 0.47mm（20º）,0.6mm(30º),0.8mm(45º),1.0mm(60º)	2.4mm＜T≤3.0mm: 0.47mm（20º）,0.6mm(30º),0.8mm(45º),1.0mm(60º)
17	Drilling Hole	Mechanical hole(Finished)	0.1mm≤Hole Dia.≤6.2mm (Driller size:0.15mm—6.3mm)	0.15mm≤Hole Dia.≤6.2mm (Drilling size:0.2mm—6.3mm)
18			Min. finished hole for PTFE and Mulriple Material Lamination:0.35MM (Driller size:0.45mm)	Min. finished hole for PTFE and Mulriple Material Lamination:0.35MM (Driller size:0.45mm)
19			Mechanical blind/buried hole Dia.≤0.3mm (Driller size≤0.4mm)	Mechanical blind/buried hole Dia.≤0.3mm (Driller size≤0.4mm)
20	Drilling Hole	Mechanical hole(Finished)	Min. Width for Slot: 0.5mm (Min. Router size :0.6mm)	Min. Width for Slot: 0.5mm (Min. Router size :0.6mm)
21			Min. Jointed hole Dia.: 0.35mm (Driller size:0.45mm)	Min. Jointed hole Dia.: 0.35mm (Driller size:0.45mm)
22			Dia. For Hole plugged with solder mask≤0.3mm (Driller size≤0.4mm）	Dia. For Hole plugged with solder mask≤0.3mm (Driller size≤0.4mm）
23			0.1mm≤Finished Dia. for hole plugged with resin≤0.4mm	0.1mm≤Finished Dia. for hole plugged with resin≤0.4mm
24		Laser drilling hole(Finished)	Minimum Finished laser drilling hole Diameter: 0.1mm(Depth≤65um) 0.13mm(Depth≤100um)	/
25			0.075mm≤Finished Dia. For blind hole plugged with resin≤0.15mm	/
26			0.075mm≤Finished Dia. For blind hole plugged with plated copper≤0.127mm	/
27		Back drilling hole	0.5mm≤Back drilling hole Dia.≤6.5mm	0.5mm≤Back drilling hole Dia.≤6.5mm
28		Countersink hole, Step hole	Standard drilling:130°（Driller Dia.≤3.175mm）,165°（3.175mm≤Driller Dia.≤6.3mm）	Standard drilling:130°（ Driller Dia.≤3.175mm ）,165°（ 3.175mm≤Driller Dia.≤6.3mm）
29			Special drilling:82°,90°,120°（0.3mm≤Countersink hole drilling Dia.≤10mm）	Special drilling:82°,90°,120°（0.3mm≤Countersink hole drilling Dia.≤10mm）
30		Min hole & Aspect Ratio	0.1mm (T≤0.6mm) 0.15mm (T≤1.2mm)	0.1mm (T≤0.6mm) 0.15mm (T≤1.2mm)
31			Max. Aspect Ratio: 16:1（Min. drilling＞0.2mm）	Max. Aspect Ratio: 16:1（Min. drilling＞0.2mm）
32	Circuit graphic	Copper weight	Inner layer: 1/3 OZ – 4 OZ, Out layer: 1/2 OZ – 4 OZ 2L: Max. 6oz	Inner lay: 1/3 OZ – 3 OZ, Outer layer: 1/2 OZ – 3 OZ 2L: Max. 6oz
33		Capacity for Inner layer Etching	1/3 OZ，1/2 OZ 3 / 3 mil	1/3 OZ，1/2 OZ 3 / 3 mil
34			1 OZ 3 / 4 mil	1 OZ 3 / 4 mil

35			2 OZ 4 / 5 mil	2 OZ 4 / 5 mil
36			3 OZ 6 / 7 mil	3 OZ 7 / 9 mil
37			4 OZ 8 / 11 mil	4 OZ 9 / 12 mil
38		Capacity for Outer layer Etching	1/3 OZ 3 / 3 mil	1/3 OZ 3.5 / 4.5 mil
39			1/2 OZ 3 / 4 mil	1/2 OZ 4 / 4.5 mil
40			1 OZ 4.5 / 5 mil	1 OZ 5 / 5.5 mil
41			2 OZ 6 / 8 mil	2 OZ 6.5 / 8 mil
42			3 OZ 8/ 12 mil	3 OZ 8/ 13 mil
43			4 OZ 9/ 15 mil	4 OZ 10/ 16 mil
44			5 OZ 11/ 16 mil	5 OZ 12/ 18 mil
45	Circuit graphic	Capacity for Outer layer Etching	6 OZ 13/ 18 mil	6 OZ 14/ 20 mil
46		Min. Distance from drilling hole to copper（for blind hole）	8 mil (First stack up)，9 mil (Second stack up)，10mil (Third Stack up)	9 mil (First Stack up)，10 mil (Second stack up)
47		Min. Distance from drilling hole to copper（without blind hole）	6 mil(＜8L), 7 mil (8L≤Layer≤12L), 8 mil (L＞12L)	7 mil (＜8L), 8 mil (8L≤L≤12L)
48		Min. Distance from laser drilling hole to copper（HDI board）	6 mil	7 mil
49		Min. distance from Outline to Inner/Outer circuit graphic	8 mil	8 mil
50		Min. space for inner layer isolated area	8 mil	8 mil
51		Min. space for inner layer copper from board edge to avoid exposure.	8 mil	8 mil
52		Min. Distance from gold finger	8 mil	10 mil

		Chamfer to circuit graphic		
53		Min. space between wall of hole on different network	8 mil	10 mil
54		Min. Distance between pads with Immersion gold	4 mil	5 mil
55		Min. Distance between pads with HASL(No solder mask)	6 mil (Isolation 10mil for pads on copper)	7 mil (Isolation 10mil for pads on copper)
56		Min. Annular ring for Vias	14 mil (8 mil Hole Dia. , H/1 OZ base copper), 20 mil (8 mil Hole Dia. , 2 OZ base copper)	18 mil (8 mil Hole Dia., H/1 OZ base copper), 24 mil (8 mil Hole Dia., 2 OZ base copper)
57		Min. Annular ring for DIP holes	20 mil (8 mil Hole Dia., H/1 OZ base copper), 24 mil (8 mil Hole Dia.,2 OZ base copper)	22 mil (8 mil Hole Dia., H/1 OZ base copper), 26 mil (8 mil Hole Dia.,2 OZ base copper)
58		Min. pads for BGA(Finished)	Immersion gold, Immersion silver, Immersion Tin, OSP≥7 mil	Immersion gold, Immersion silver, Immersion Tin, OSP:≥10 mil
59			HASL: Isolated circuit ≥8 mil, Solder mask opening on copper≥14 mil	HAL: Isolated circuit≥10 mil, Solder mask opening on copper≥16 mil
60		Min. width/ space for grid	7/7 mil	7/7 mil
61		Min. space between gold fingers	6 mil	7 mil
62		Colors for solder mask inks	Green, Yellow, Red, White, Blue, Black, Matt Black, Matt Green	Green, Yellow, Red, White, Blue, Black, Matt Black, Matt Green
63	Silkscreen	Colors for Silkscreen	White, Yellow, Black, Grey, Orange	White, Yellow, Black, Grey, Orange
64		Min. Width for solder mask bridge	Base copper≤1 OZ,4 mil（Green）,5mil (Other colors)	Base copper≤1 OZ,4 mil（Green）,5mil (Other colors)
65			Base copper:2-4 OZ, 6mil.	Base copper: 2-4 OZ, 6mil.
66		Min. single width for solder mask opening	2 mil (Partial 1.5 mil)	2.5 mil (Partial 2 mil)
67		Min. Width & Height for silkscreen	Min. Width:5 mil, Min. height: 28 mil	Min. Width:5 mil, Min. height: 28 mil
68		Type for silkscreen(only for white color)	Serial number, Bar code, Two-dimension code	Serial number, Bar code, Two-dimension code

69		Min. space from peel able solder mask to pad	14 mil	16 mil
70		Min. space from silkscreen to pad	6 mil	8 mil
71		Min. space from Carbon to pad	10 mil	12 mil
72		Min. space from carbon to carbon	13 mil	16 mil
73 74 75	Surface finishing	RoHs compliant	HASL(Lead free),Immersion gold, Immersion Tin, Immersion Silver, OSP, Hard Gold, Immersion gold + OSP, Immersion gold + Plated gold fingers, Gold plated + Plated gold fingers, Immersion Silver + Plated gold fingers, Immersion Tin + Plated gold fingers, ENEPIG, Pattern plated（Base copper≤2 OZ）	HASL(Lead free),Immersion gold, Immersion Tin, Immersion Silver, OSP, Immersion gold + Plated gold fingers, Gold plated + Plated gold fingers, Immersion Silver + Plated gold fingers, Immersion Tin + Plated gold fingers, ENEPIG , Pattern plated（Base copper ≤2 OZ）
76		No RoHs compliant	HASL	HASL
77	Surface plating and Coating thickness	HASL	2-40 um (0.4um Large Tin area)	2-40 um (0.4um Large Tin area)
78		Pattern plated	Nickel:3um-5um, Gold :0.025um-0.1 um	Nickel:3um-5um, Gold :0.025um-0.1 um
79		Immersion gold	Nickel:3um-5um, Gold :0.05um-0.1 um	Nickel:3um-5um, Gold :0.05um-0.1 um
80		Immersion Tin	≥1.0 um	≥1.0 um
81		Immersion silver	0.1 um-0.3 um	0.1 um-0.3 um
82		OSP	0.2 um-0.3 um	0.2 um-0.3 um
83		Plated hard gold	≤3 um (2.0 um or more need to review)	≤3 um (0.8 um or more need to review)
84 85		Chemical Nickel& Pd Gold	Soldering: Nickel:3 um-5 um, Pd: 05 um-0.1 um, Gold: 0.03 um-0.05 um Bonding: Nickel:3 um-5 um, Pd: 0.1 um-0.15 um, Gold: 0.07 um-0.15 um	Soldering: Nickel:3 um-5 um, Pd: 0.05 um-0.1 um, Gold:0.03 um-0.05 um Bonding: Nickel:3 um-5 um, Pd: 0.1 um-0.15 um, Gold: 0.07 um-0.15 um
86		Solder mask	15 um-25 um(solder mask on copper), 8 um-12 um(solder mask on via and the edge of circuit) (Once)	15 um-25 um(solder mask on copper),8 um-12 um(solder mask on via and the edge of circuit) (Once)
87		KEY CARBONIZED	0.1 um-0.35 um	0.1 um-0.35 um
88		Peelable mask	0.2 um-0.5 um	0.2 um-0.5 um

89		PTH	+ / - 0.076 um	+ / - 0.076 um
90		NPTH	+ / - 0.05 um	+ / - 0.05 um
91		Press-fit	+ / - 0.05 um	+ / - 0.05 um
92		Precision of hole location	+ / - 0.076 um	+ / - 0.076 um
93		Angle of counter-boring	+ / - 10º	+ / - 10º
94		Orifice of counter-boring	+ / - 0.2 mm	+ / - 0.2 mm
95		Depth of counter-boring	+ / - 0.2 mm	+ / - 0.2 mm
96		Precision of rear drill depth	+ / - 0.1mm	+ / - 0.1mm
97		Irregular hole(Milling)	+ / - 0.15 mm	+ / - 0.15 mm
98		Blind slot precision（NPTH）	+ / - 0.1 mm	/
99		Trace width	Trace width≤10 mil:+ / - 1 mil, Trace width＞10 mil:+ / - 1.5 mil	Trace width≤10 mil:+ / - 1.5 mil, Trace width＞10 mil:+ / - 2 mil
100		Pad	+ / - 1.5 mil (Pad≤10 mil),+ / - 10%（Pad＞10 mil）	+ / - 1.5 mil (Pad≤10 mil),+ / - 10%（Pad＞10 mil）
101	Tolerance	alignment accuracy between inner layers	≤ 5 mil	≤ 5 mil
102		Board thickness tolerance	Thickness≤1.0 mm：+ / -0.1mm，1.0mm＜Thickness〈1.6mm：+ / - 8%，Thickness≥1.6mm：+ / - 10%	Thickness≤1.0 mm：+ / -0.1mm，1.0mm＜Thickness<1.6mm：+ / - 8%，Thickness≥1.6mm：+ / - 10%
103				
104		Outline tolerance	+ / - 0.1mm	+ / - 0.13mm
105		Outline location tolerance	+ / - 0.1mm	+ / - 0.1mm
106		V-CUT angle tolerance	+ / - 5º	+ / - 5º
107		V-CUT symmetry tolerance	+ / - 0.1mm	+ / - 0.1mm
108		V-CUT balance tolerance	+ / - 0.1mm	+ / - 0.1mm
109		Chamfer angle tolerance for gold finger	+ / - 5º	+ / - 5º
110		Chamfer angle balance tolerance for	+ / - 0.13mm	+ / - 0.13mm

		gold finger		
111		Impedance tolerance	+ / - 5 Ohm（＜50 Ohm）, + / - 10% （≥50 Ohm）	+ / - 5 Ohm （＜50 Ohm）, + / - 10%（≥50 Ohm）
112	Others	Special technic	Via on pad, Plug with resin, Gold finger without leading wire, Plated hard gold without leading wire partial, Metallized edge, Impedance, Half hole, Back board, HDI, Multilayer blind& buried via, Buried resistance capacitance board, Power supply heavy copper board, Drill from rear.	Via on pad, Plug with resin, Gold finger without leading wire, Plated hard gold without leading wire partial, Metallized edge, Impedance, Half hole, Back board, HDI, Multilayer blind& buried via.
113		Mechanical blind& buried via	Pressing on same side≤3 times	Pressing on same side≤3 times
114		HDI board（LDPP）	1+n+1, 1+1+n+1+1, 2+n+2(n for buried via≤0.3mm). Laser buried via can be plugged by resin and copper.	/
115		Coefficient of Thermal Conductivity for metal material	1-4 W/mK	1-4 W/mK
116		Minimum thickness for inner layer	0.05mm(Non blind& buried via) ,0.13mm(blind& buried via)	0.075mm(Non blind& buried via), 0.13mm(blind& buried via)
117		Minimum thickness for insulating layer	2 mil (H OZ)	3 mil (H OZ)
118		Warp	Standard: + / - 0.5%, blind& buried via or asymmetric pressing:: + / -1.0%	Standard: + / - 0.5%, blind& buried via or asymmetric pressing:: + / -1.0%
119		Minimum Radius for inner angle	0.3 mm	0.3 mm
120		Maximum voltage	500 V	500 V
121		Maximum current	200 mA	200 mA
122		Solder mask hardness	＞6 H	＞6 H
123		Thermal Stress	260 ºC,0 s	260 ºC,20 s
124		Peelable strength	1.4 N/mm	1.4 N/mm