

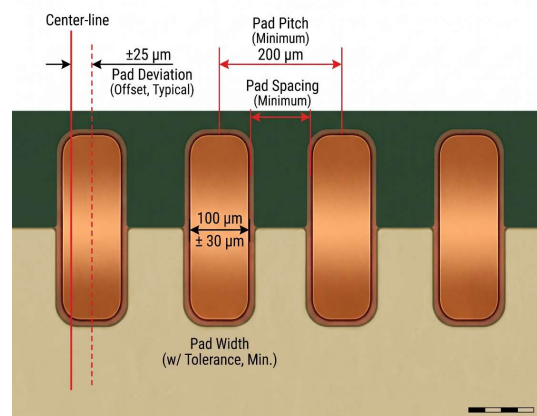


PCB多層板製程能力表 Multilayer Board Capability

編號 NO.	分類 Division	項目 Item	能力 Capability	註記 Note
1	板材 Laminate Materials	類型 Type	FR-4、High-Tg、Halogen-free Low loss (1G-5G): NPG-170D、TU872、ISOLA FR408HR Very low loss(6G-20G): TU-883、Megtron6、Megtron7、NPG-186 Ultra low loss(20G-50G):Tachyon 100G、TU883SP Polyimide、Rogers、MCPCB CTI ≥600V	
		品牌 Brand	生益Shengyi、南亞Nanya、台光EMC、聯茂ITEQ、台耀TUC、松下Panasonic、建滔KB、宏仁Grace、德聯高ISOLA、羅傑斯ROGERS、騰輝Ventec	
2	生產層數 Layer Count		1L ~ 60L	
3	板子尺寸 Board Size	最大成品尺寸 Finished Dimensions(Maximum)	950mm	width <600mm
		最小成品尺寸 Finished Dimensions(Minimum)	10mm	
		CNC成型公差 CNC Router Tolerance	±4mils	
4	成品板厚 Finished Board Thickness	雙面板 Double-sided (Maximum)	0.2mm-8.0mm	
		多層板 Multilayer (Minimum)	0.3mm-8.0mm	
		成品板厚公差	Board thickness≤1.0mm, tolerance ± 0.1mm	
		Tolerance of Finished Board Thickness	Board thickness>1.0mm, tolerance ±10%	
5	內層 Inner Layers	孔緣到內層線路邊最小安全距離 Minimum space from drilling to inner pattern	3.5mil	
		最小基板厚度 Minimum core thickness	0.05mm	2L
		最小孔環(盲孔) Minimum Blind/buried Annular ring	1mil	
		最小線寬 / 間距 Minimum trace width / space	2/2mil	
6	內層蝕刻 Inner Layer etch	最小線寬/間距(1oz)底銅 Min. Trace Width/Gap 1oz	3/3mil	
		最小線寬/間距(2oz) 底銅 Min. Trace Width/Gap 2oz	5/5mil	
		最小線寬/間距(3oz) 底銅 Min. Trace Width/Gap 3oz	7/8mil	
		最小線寬/間距(4oz) 底銅 Min. Trace Width/Gap 4oz	8/10mil	
		最小線寬/間距(5oz) 底銅 Min. Trace Width/Gap 5oz	12/12mil	
		最小線寬/間距(6oz) 底銅 Min. Trace Width/Gap 6oz	14/14mil	
		層間對位 Layer Registration	5mils	
		最小線寬 / 間距 Minimum trace width / space	2/2mil	銅厚0.5oz以下 copper thickness ≤ 0.5 oz
8	外層蝕刻 Outer Layer etch	最小線寬/間距(1oz)面銅 Min. Trace Width/Gap 1oz	3/3mils	
		最小線寬/間距(2oz)面銅 Min. Trace Width/Gap 2oz	5/5mils	
		最小線寬/間距(3oz)面銅 Min. Trace Width/Gap 3oz	8/9mils	
		最小線寬/間距(4oz) 底銅 Min. Trace Width/Gap 4oz	10/10mils	
		最小線寬/間距(5oz) 底銅 Min. Trace Width/Gap 5oz	12/12mils	
		最小線寬/間距(6oz) 底銅 Min. Trace Width/Gap 6oz	14/14mils	
		最小孔徑 Minimum Drill Size	0.1mm	
		孔徑公差 hole tolerance (PTH & NPTH)	NPTH±2mil PTH±3mil	
9	鑽孔 Drilling	孔位精度 Drill Deviation (True position size)	±2mil	
		通孔電鍍縱橫比 Through via Aspect ratio	>25	
10	成品銅厚 Finished Copper thickness	最大內層銅厚 Max. Inner Layer	8oz	
		最小內層銅厚 Min. Inner Layer	0.5oz	
		最大外層銅厚 Max. Outer Layer	10oz	
		最小外層銅厚 Min. Outer Layer	1oz	
		通孔孔壁銅厚 Min. Copper thickness	≥15um	
11	防焊 Solder Mask	厚度 Thickness	線路或基材表面 Wire or substrate surface: 10 ~ 50um ; 線路轉角 Line corner: 5 ~ 15 um	
		最小NPTH孔防焊開窗 Min. NPTH Solder Mask Annular Ring	>2mil	
		顏色 Color	綠(green),淺綠(light green),霧面綠(matte green),白(white),超白(extreme white), 黑(black),霧面黑(matte black),紅(red),藍(blue), 黃(yellow), 透明(clear)	
		最小防焊下墨間距(綠、黃、紅、藍) Min. Solder Dam (Green/yellow/Red/Blue)	綠 Green: 3mil, 其他顏色 Other color: 4mil	
12	表面處理 Surface treatment(Unit um)	噴錫 HASL	1 ~ 40um	
		OSP (Entek)	0. 15(min) ~ 0.5um(max)	
		化銀厚度 Chemical silver	0. 15(min) ~ 0.3um(max)	
		化金 Immersion Gold(thickness)	0.025(min) ~ 0.125um(max)	
		鍍金手指厚度 Gold fingers	0.025(min) ~ 1.25um(max)	
		電鍍硬金(厚度) Hard Gold Plating (thickness)	0.025(min) ~ 1.25um(max)	
		選鍍 Optional Plating	Yes	
13	文字 Silk Screen	鍍鈮金(ENEPIG)	鍍 Ni 100~200u', 鈮 Pd 2~4u', 金 Au 2~4u'	
		最小線寬 / 距離 Minimum trace width	3mil	文字噴塗 Inkjet Printing
		文字寬度 Minimum size	25mil	
		最小下墨線寬 Min. Trace Width	6mil	
14	V-CUT	顏色 Color	白(white), 黑(black), 黃(yellow), 紅(red), 藍(blue), 綠(green)	
		殘厚公差 Residual Tolerance	±4mils	
		角度 Angle	30 degrees, 45 degrees, 60 degrees	
		偏移度 Position Tolerance	±4mils	

15	電測 Electrical Test	二線或四線 Second line or fourth line	Yes				
		測試治具 Fixture	Yes				
16	阻抗 Impedance	公差 Impedance tolerance	±5~10%				
17	板彎板翹控制 Bow and Twist	公差 tolerance	Standard ≤7/1000, Advanced ≤ 2/1000				
18	防火等級 Fire rating	防火等級 Fire rating	94V-0				
19	塞孔 Plug hole	綠漆塞孔最大孔徑 Maximum diameter of green liquid plug hole	0.45mm				
		樹脂塞孔最大孔徑 Maximum diameter of resin plug hole	0.5mm				
		綠漆塞孔最小孔徑 Minimum diameter of green liquid plug hole	0.15mm				
		樹脂塞孔最小孔徑 Minimum pore size of resin plug hole	0.1mm				
		電鍍填孔最小孔徑	0.1mm				
		銅膏塞孔最小孔徑	0.2mm				
		塞孔材料 Via Filling	油墨塞孔(Solder Mask Plugging)、樹脂塞孔(Resin Plugging)、電鍍填孔(Copper Filling)、銅膏塞孔(Copper Paste Plugging)				
20	SMD PAD	PAD 偏移量(精準度) PAD Deviation	±25um				註1 Note1
		Pad Size (Minimum)	100um				
		Pad Size tolerance (Minimum)	±30um				
		Pad Pitch (Minimum)	200um				
		Pad Spacing (Minimum)	100um				
21	BGA PAD	Ball Pitch	14mil				BGA間不走線 no trace between BGA pad
		Ball spacing	4mil				
22	背鑽 Back Drilling	H3 理論深度 Required Depth	H3≤0.25mm	0.25<H3≤1.6mm	1.6<H3≤2.5mm	H3>2.5mm	註2 Note2
		H2 Stub	2~8mil	2~10mil	2~12mil	2~14mil	
		d 最小PTH孔徑 PTH hole size	0.2mm Min.				
		D 背鑽孔徑 Backdrill hole size	0.35mm Min.				
		T 板厚 Thickness	≤3.2mm				
		B 背鑽精度 Backdrill Registration	<0.1mm				
		H3 深度公差 Depth Tolerance	±0.05mm				
		B 背鑽孔到線距離 Backdrill to Conductor	Standard 175um (7mil), Advanced 125um (5mil)				
23	其他 Other 特殊製程 Special Process	HDI	Yes, 6+N+6				
		可剝膠製程 Peelable	Yes				
		填孔電鍍 Copper Fill Plating	Yes				
		碳墨 Carbon ink	Yes				
		側邊鍍銅 Edge plating	Yes				
		盲撈 Blind routing	Yes				

註1



PCB Manufacturing Specifications:			
• Pad Deviation (Typical):	±25 μm	• Pad Pitch (Minimum):	200 μm
• Pad Size (Width, Minimum):	100 μm	• Pad Spacing (Minimum):	100 μm
• Pad Size Tolerance (Minimum):	±30 μm		



註2 Note2

