Flex-rigid PCB Manufacturing capability					
Process	**Item**	**Content**	**Unit**	**2022**	**2023**
Drilling	Hole position tolerance	Center point tolerance	um	±0.07mm (Mech) ±0.015mm (Laser)	±0.05mm (Mech) ±0.015mm (Laser)
	Hole size tolerance	Hole Bottom size：Hole Top*100%	%	≥75	≥75
	Hole shape	Round rate	%	≥90	≥90
Plating	Surface copper plating	Plating uniformity	%	≥90	≥93
	COV	COV	%	≤4	≤3.5
	Etching copper	Original copper eatching	um	0.5-1.0um	0.5-1.0um
	Copper plating tolerance	Related center tolerance	%	±3um (plating20um)	±3um (plating20um)
	Min. copper thick for TH	Min. hole copper thickness	um	≥25	≥30
	DIMP for blind vias	DIMP	um	≤4	≤3.5
	Aspect Ratio	Hole thickness/hole size:	-	8:1	9:1
Copper reducing	Copper reducing thickness	Recommend	um	8	8
	Min.copper thickness	Min.Cu thickness after reducing	um	7	6
	uniformity	Reducing Cu thickness tolerance	um	±3um	±2.5um
Conductor	Line width	Min. Line width	um	50	45
	Line space	Min. Line space	um	50	45
	Conductor tolerance	Conductor tolerance	%	±20	±15
	Conductor tolerance	Limit tolerance	%	±12	±10
	Line position	Regular tolerance	um	±50	±45
	Layer line position tolerance	Interlayer line position tolerance	um	±50	±45
	Etching factor	18umCopper etching factor	-	≥4	≥4.5
Coverlay	Square hole	Min. soldermask opening for square hol	mm	0.5X0.5	0.45X0.45
	Square hole	Max ratio for length/width	-	≥2	≥2
	Square hole	Chamfer dimension	mm	≥0.2	≥0.2
	Round hole	Hole size	mm	≥0.5	≥0.4
	Hole distance	Distance between hole and hole	mm	≥0.2	≥0.18
	Hole to outline	distance between hole and outline	mm	0.15	0.15
	Accuracy	Accuracy	mm	±0.05	±0.05
	Excessive glue	Excessive glue (size)	mm	≤0.05	≤0.05
Soldermask	Square hole	Min. soldermask opening	mm	0.2	0.18
	Solder bridge	Min.solder bridge	mm	0.075	0.065
	Round hole	Hole size	mm	0.2	0.2
	Hole to outline	distance between hole and outline	mm	0.15	0.18
	Thickness	Soldermask thickness	um	10-40	10-35
	Thickness tolerance	Soldermask Thickness tolerance	um	±10	±10
	Accuracy	Soldermask postion Accuracy	um	±50(CCD)/±10 (DI)	±30(CCD)/±10 (DI)
	ENIG/ENEPIG	Ni. Thickness	um	2~6	2~6
		Gold thickness	um	Thin Au 0.03~0.07 Thick Au 0.07~0.15	Thin Au 0.03~0.07 Thick Au 0.07~0.15
		Pd thickness	um	0.05-0.1	0.05-0.1
		thickness tolerance	%	±20%	±20%
	Plating Gold/Ni	Ni. Thickness	um	3~8	3~8
		Gold plating thickness	um	Thin Au 0.03~0.15 Thick Au 0.15~2	Thin Au 0.03~0.15 Thick Au 0.15~2
		thickness tolerance	%	30%	25%
	OSP	thickness	um	0.2~0.4	0.18~0.45
		Thickness Tolerance	%	20%	20%
Stifferner	FR4	Min. thickness	mm	0.05	0.05
		Max.thickness	mm	1	1.2
		laminate tolerance	mm	±0.15	±0.1
	SUS	Min. thickness	mm	0.05	0.05
		Max thickness	mm	0.6	0.8
		laminate tolerance	mm	±0.1	±0.075
Conductor	4 Lines	If available to test 4 lines	-	YES	YES
Profile	Size	R angle (Min.)	mm	0.4mm (Routing)	0.4mm
		Round hole size (Min.)	mm	1.0mm (Routing)	1.0mm (Routing)
		Square hole size	mm	Width 1.0mm ， no limit for length	Width 1.0mm ， no limit for length
		U shape slot (Min.width)	mm	1.0mm (Routing)	1.0mm (Routing)
		U shape slot (Length/width)	-	Width 1.0mm ， no limit for length	Width 1.0mm ， no limit for length
		Min. hole distance	mm	0.25mm (Hole edge to edge) (Routing)	0.25mm (Hole edge to edge) (Routing)
		Min. distance between hole and outline	mm	0.20mm (Hole edge to outline) (Routing)	0.20mm (Hole edge to outline) (Routing)
		Min.distance between outline to outline	mm	1.0mm (Routing)	0.9mm (Routing)
	Tolerance (Punching by same moudle)	Hole to outline	mm	±0.05	±0.05
		Hole to hole	mm	±0.05	±0.05
		Outline to outline	mm	±0.05	±0.05
		Hole size tolerance	mm	±0.05	±0.05
	Tolerance (Punching by different moudle)	Hole to outline	mm	±0.1	±0.1
		Hole to hole	mm	±0.1	±0.1
		Outline to outline	mm	±0.1	±0.1
		Hole size tolerance	mm	±0.05	±0.05
Harmomegathus	size stability	capability for size harmomegathus	%	±5	±4
Connector	Width	width	mm	≥1mm	≥1mm
	shrink distance	shrink distance for stifferner	mm	0.15mm	0.15mm
others	Excessive glue	Excessive glue	mm	≤0.8	≤0.5
	impedence	Tolerance	%	±10	±8