



PROCESSING GUIDELINES

Laminate: AeroWave 300

5G & High Frequency Multilayer Material



This processing guidelines follows the IPC-4103 standard and is to provide necessary guidance for customer reference, based on AeroWave300 material features.

1. Storage condition

1.1 Laminate

1.1.1 Storage method

- Keep laminates as received packaging onto a flat floor or a proper pallet. Avoid heavy pressure in case of distortion occurring due to incorrect storage method.

1.1.2 Storage condition

- Keep laminates at ventilated, dry and ambient condition. Avoid direct exposure to sunlight, rain and chemical gas.
- The shelf life of laminate maintains two years for double sided and one year for single sided at above proper storage conditions. All internal properties within shelf life meet IPC 4103 specification sheet.

1.1.3 Handling

- Handle laminates carefully wearing clean gloves. Collision and slippage will damage the cladding copper. Naked hand operation will contaminate the surface of cladding copper. All above defects may bring bad effects during production.

2. PCB Processing

2.1 Panel cutting

- Sawing and shearing method is recommended. Be careful of potential edge cracks when using roller cutter or caused by improper gap or cutter blade abrasion.

2.2 Thin core baking

- Thin core baking depends on actual need. If bake after cutting, it's recommended to rinse cutting panels first, which is able to remove resin powder brought by cutting and avoid etching problem.
- Baking condition: 150°C/1-3h, be sure to avoid contact directly with heat supply.

2.3 Inner layer brown oxide

- Recommend to use brown oxide for inner layer treatment. To avoid absorption of moisture, it is advised to bake on the shelf after brown oxide process. Baking condition: 120°C/1h. After baking, pressing process should be done within 4 hours.

2.4 Lay-up

- Ensure prepreg direction of warp and fill at lay-up process. Avoid prepreg reversal or overturn in case of multilayer board distortion after press.



2.5 Pressing process

- Pressing process depends on the type of the bonding sheet.

2.6 Drilling

- For good hole quality, it is recommend to use new drill bit and reduce the hole limit. The stack up is recommend 1 pieces per stack (thick board). In addition, slow down the feed base on traditional FR-4 material. The below parameter of drilling is for reference.

Diameter		Spindle Speed	Infeed	Chipload	Retract Rate	hit count
(inch)	(mm)	(krpm)	(ipm)	(mil/rev)	(ipm)	
0.0100	0.25	95	45	0.47	500	500
0.0210	0.50	85	95	1.12	1000	500
0.0260	0.65	70	96	1.37	1000	500
0.0330	0.80	57	92	1.61	1000	500
0.0335	0.85	53	90	1.70	1000	500
0.0374	0.95	48	84	1.75	1000	500
0.0394	1.00	46	80	1.74	1000	500
0.0413	1.05	44	78	1.77	1000	500
0.0433	1.10	42	75	1.79	1000	500
0.0512	1.30	38	73	1.92	1000	500
0.0551	1.40	36	73	2.03	1000	500
0.1201	3.05	20	33	1.65	1000	500
0.1260	3.20	20	32	1.60	1000	500

- For dense hole or diameter of the hole is less than 0.6mm, it is recommend to use LE aluminum sheet for cover plate.

2.7 Baking after drilling

- Baking depends on actual need
- Recommended baking condition: 150°C/1~3h, be sure to avoid contact directly with heat supply.

2.8 Desmear

- AeroWave300 is harder to desmear compared to traditional FR-4 material. Using Plasma plus potassium permanganate method for desmear is suitable but the specified parameter should accord to the PCB structure and design.



- The below parameter of Plasma for reference

Parameter	Gas Flow Rate (L/min)			Mode	Watts	Time (min)	Temp	Flow Rate	Pressure	Plasma
	O2	N2	CF4					(SLM)	mTorr	Mode
Seg 1	2.25	0.25	0.00	V	9000	45.0	80.0	2.50	250	Conductance
Seg 2	2.46	0.24	0.30	P	6500	10.0	105.0	3.00	220	Conductance
Seg 3	2.50	0.00	0.00	P	5000	5.0	100.0	2.50	250	Conductance

- Plasma & Desmear for reference

Process	Weight loss (mg/cm ²)
Plasma×1	0.2~0.4
Plasma×1 + Desmear×1	0.2~0.4

2.9 HASL

- Suitable for lead free HASL process.

2.10 Punching/Routing

- Not suitable for punching process.
- Routing speed and distance is recommended reducing to some extent as fillers will cause abrasion on rout bit.

2.11 Packaging

- To prevent moisture effect on the heat resistance of base material, suggest baking finished boards at 125-135°C/1-3h before packaging.
- It's advised to warp by aluminum pack.

3. PCB Soldering

3.1 Shelf life of PWB

- 3 months with aluminum packaging protection.
- Bake at 125°C/1-3h before assembly is recommended.

3.2 Reflow

- Suitable for lead free reflow process

This process guide is for reference only! Should you have any questions, please feel free to contact us. Shengyi will support you with prompt and effective service.