ROGERS CORPORATION

Fabrication Notes

SpeedWave™ 300P Prepreg Processing Guidelines for Hybrid MLB

SpeedWave™ Prepreg is a glass reinforced ultra-low loss resin system that can be used to bond a variety of Rogers' laminates including XtremeSpeed™ RO1200™, CLTE-MW™, and RO4000® series. These guidelines were developed to provide fabricators basic information on processing core and foil bonded multi-layered hybrid printed wiring boards (PWB's) using the SpeedWave Prepreg System. First-time users should contact a Rogers' Technical Service Engineer for a processing overview.

STORAGE:

Upon receipt, all prepreg should be immediately moved from the receiving area into a controlled environment. Proper storage conditions would include <23°C (73°F) and <55% Relative Humidity. Open material should be packaged in a moisture barrier bag to avoid water absorption. Avoid high humidity environments as it causes deterioration of the material properties. Prepreg shelf life is 3 months from shipment date when above storage conditions are followed. A "first-in, first-out" inventory system is recommended.

TOOLING:

SpeedWave Prepreg is compatible with most typical MLB tooling applications. Tooling holes can be punched, drilled, or cut.

OXIDE TREATMENT:

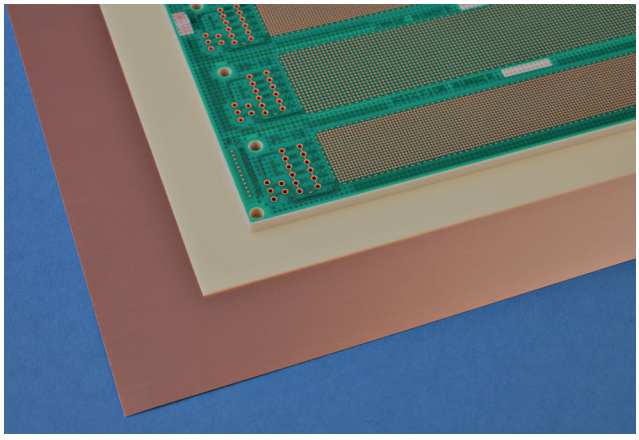
Innerlayer metal surfaces should use a chemical treatment to enhance copper to resin bond strength. Alternative oxide is recommended over traditional brown or black oxides.

LAMINATION:

The lamination parameters below are recommended for one lamination cycle. If the design calls for multiple lamination cycles consult with a Technical Service Engineer.

Low profile copper foils are fine for inner layers. A higher profile copper foil is recommended for OL where adhesion is critical.

Press Type	Hydraulic Vacuum Press
Curing Temp	Material Temperature should be kept at 200°C (400°F) for 120 minutes.
Rate of Rise	4.0 +/- 0.5°C/min 8.5 +/- 1.0°F/min
Pressure	Kiss pressure: 80psi Full Pressure: 375 – 450psi Apply full pressure at 110-130°C (230°F-265°F) material temp.
Cooling Rate	<2°C/min from 190°C(375°F) to RT
Vacuum	28 mmHg



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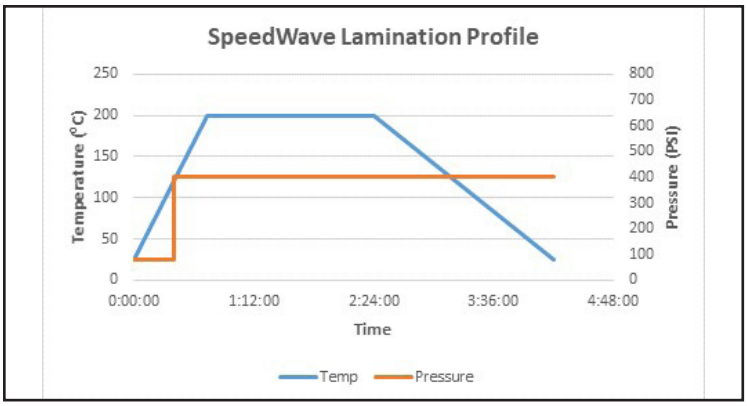

DRILLING:

Core materials should dictate drilling parameters when drilling hybrid MLB's that are bonded using SpeedWave Prepreg. Refer to the Processing Guidelines of the specific core material used in the hybrid build. Reach out to a Technical Service Engineer to discuss specific applications.

PTH and OUTER-LAYER PROCESSING:

Deburr can be administered after drill. High pressure air or water spray should be used to remove loose debris from holes walls. Plasma is the preferred method for desmear. When plasma is used, chemical desmear should be skipped. If chemical desmear is chosen over a plasma process, a modified cycle may be required. Please consult with a Technical Service Engineer for cycle recommendations.

If hybrid MLB construction uses PTFE based materials the desmear process should be followed by a plasma treatment prior to copper deposition.

Segment Number	Gas Percentages				Operating Pressure	Power Level	Final Temp	Process Time
	CF_4	O_2	N_2	Flow	mTorr	Kw	˚C	min
	v%	v%	v%	SLM				
1	0	80	20	2.5	250	8	85	99
2	10	80	10	2.5	250	4.5	85	30
3	0	100	0	2.5	250	8	85	10

FINAL FINISHES: SpeedWave materials are compatible with all industry standard final finishes.

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