

Low Loss Thermoset Bondply

Benefits

- Stable multilayer performance
- Low loss ceramic filled thermoset resin system
- Tightly controlled DK tolerance
- Bonds well to most laminates
- Single layer can cover wider circuitry pattern thickness
- Utilizes standard FR-4 process
- Excellent dimensional and thermal stability
- Excellent price/performance ratio

Applications

- RF/multilayer components
- Avionics & aerospace
- Multilayer power modules
- High speed digital
- Aerospace components



HB-360 prepregs are designed to have reduced electrical loss and improved ease of fabrication for multilayer packages with high performance and high reliability. This thermosetting prepreg is based on a ceramic filled hydrocarbon resin system constructed with a woven matrix of fiberglass fabric. HB-360 is engineered to provide a cost effective bond-ply with low dielectric loss for RF and high speed multilayer boards with well controlled electrical and mechanical properties. Lower dielectric loss along with sufficient thermal conductivity can reduce heat dissipation in high power RF applications.

Storage

1. After receipt, all bond-ply should be immediately moved into a controlled environment.
2. Store the HB-series material flat in a cool dry area away from catalytic conditions such as high radiation, UV light, and direct sunlight, avoiding material contamination. HB-360 shall be certified to meet all the requirements specified when stored as per condition 2 for not less than 90 days after receipt of the shipment by user. For extended storage, products can be stored as per condition 1. Continuous refrigeration is always a good practice for storing prepregs.

- Condition 1 ; $< 4^{\circ}\text{C}$
- Condition 2 ; $21 \pm 2^{\circ}\text{C}$, Relative Humidity 30~50%

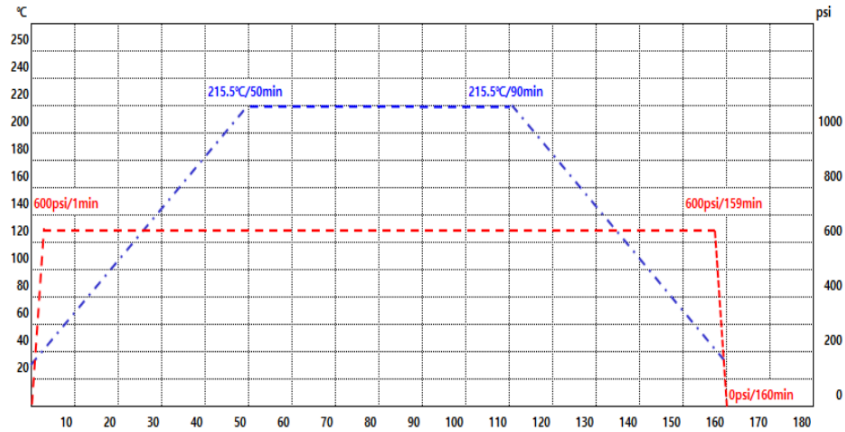
Handling

We recommend using care for the following:

- (1) Do not mechanically scrub the surface.
- (2) Do not pick up a panel horizontally by one end or edge.
- (3) Do not stack panels directly on top of each other.
- (4) Care should always be taken to avoid contamination.
- (5) Cavities and tooling holes can be punched, drilled or cut.
- (6) Thin entry and a backer board may be needed to support the bond-ply.

Recommended Bonding cycle

- ✓ Vacuum lamination recommended
- ✓ Heat rise $+3.5\sim 6.5^{\circ}\text{C}/\text{min}$ to 215°C
- ✓ Maintain pressure up to 600 psi through whole cycle
- ✓ Hold at 215°C for 60 minutes
- ✓ Cool package under full pressure with $-3^{\circ}\text{C}/\text{min}$ rate



Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 10 GHz	3.65 ± 0.05		IPC-TM 650 2.5.5.5.1 Mod
Dissipation Factor	@ 10 GHz	0.0032		IPC-TM 650 2.5.5.5.1 Mod
Volume Resistivity		6.0 × 10 ⁸	Mohm/cm	IPC-TM 650 2.5.17.1
Surface Resistivity		1.0 × 10 ⁷	Mohm	IPC-TM 650 2.5.17.1
Thermal Properties				
Thermal Conductivity	Unclad	0.60	W/m/K	IPC-TM-650 2.4.50
CTE (50 to 150 °C)	X	15	ppm/°C	IPC-TM 650 2.4.41
	Y	20		
T _d	5% wt. loss	370	°C	IPC-TM 650 2.4.24.6 (TGA)
T _g		> 250	°C	IPC-TM 650 2.4.24 (TMA)
Mechanical Properties				
Peel Strength	1oz. RTF copper	7.0	lbs. / inch	IPC-TM 650 2.4.8 (Solder)
Tensile Strength	MD	9,400	psi	IPC-TM-650 2.4.19
	TD	7,000	psi	
Chemical / Physical Properties				
Density		1.80	g/cm ³	IPC-650 2.3.5
Specific Heat		0.90	J/g°C	IPC-TM-650 2.4.50
Flammability		Non-FR		Internal
Color		Ivory		
Lead-Free Process Compatible		Yes		

* All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a company representative directly.

* HB-360-0050-12" x 18" (HB-360-0050-304mm x 457mm)

* Please contact AGC for availability of additional thicknesses, other sizes

