

Benefits

- Excellent Electrical Performance
- Stable electrical properties over extreme ranges of environmental conditions
- Tight thickness and resin content control
- Long Shelf life – does not require refrigeration

Applications

- 5G Antennae
- Hybrid RF/Digital Constructions
- RF/Microwave Applications
- Multilayer PTFE & RF Designs



M-Ply™ prepreg is designed for RF/Digital constructions including PTFE to digital printed circuit boards. It can be used wherever bonding between RF structures or hybrids of RF and digital structures require high bond strength, excellent and consistent signal integrity, good fill and flow prepreg characteristics and excellent thermal and environmental reliability. Like all the Meteorwave products, M-Ply will facilitate high temperature lead-free assembly, provides CAF resistance, and has a low Z-axis expansion.

Excellent Electrical Properties

- Very low loss in a thermosetting prepreg
- Stable electrical properties when tested over various environmental conditions

Thermal and Mechanical Properties

- Very low Z-axis expansion for high reliability
- Excellent bonding to PTFE substrates
- T-300 > 120 minutes
- Highly reliable sequential lamination performance
- Tight thickness and resin content controls
- Very low outgassing (meets NASA requirements)

Process Properties

- Prepreg stability – long shelf life
- Flow characteristics allow for filling of features and good adhesion
- Resin formulation and use of spread good glass results in excellent hole wall quality
- Compatible with PTFE drill parameters

Available Prepreg					
Glass Style	Resin Content	10 GHz Dk	10 GHz Df	Thickness (inches)	Thickness (um)
106	80	3.26	0.0020	0.0027	67.4
1067	77	3.28	0.0020	0.0028	71.0
1035	77	3.28	0.0020	0.0027	69.3
1078	75	3.29	0.0021	0.0040	100.5
1080	75	3.29	0.0021	0.0040	100.5

Meets UL 94V-0 and IPC4101 /102 specifications

UL file number: E36295

Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 2 GHz	3.4		IPC-TM-650.2.5.5.5
	@ 10 GHz	3.3		
Dissipation Factor	@ 2 GHz	0.0018		
	@ 10 GHz	0.0021		
Volume Resistivity	C - 96 / 35 / 90	4.70 x 10 ⁶	MΩ - cm	IPC-TM-650.2.5.17.1
	E - 24 / 125	5.20X 10 ⁸		
Surface Resistivity	C - 96 / 35 / 90	1.30 X 10 ⁶	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	7.40 x 10 ⁷		
Electric Strength		4.6x10 ⁴ (1800)	V/mm (V/mil)	IPC-TM-650.2.5.6.2
Thermal Properties				
*Glass Transition Temperature (Tg)	DMA(°C) (Tan d Peak)	200	°C	IPC-TM-650.2.4.24.3
Degradation Temperature (TGA)	Degradation Temp (TGA) (5% wt. loss)	390	°C	IPC-TM-650.2.3.40
T-300	Time to delamination @ 300°C	>120	minutes	IPC-TM-650.2.4.24.1
Thermal Conductivity		0.45	W/mK	ASTM E1461
Mechanical Properties				
Peel Strength	1 oz (35μ) Cu	1.02 (5.8)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
	After Solder Float	1.00 (5.5)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
X / Y CTE	-40°C to + 125°C	10 / 14	ppm/°C	IPC-TM-650.2.4.41
Z Axis CTE Alpha 1 / Alpha 2 (55% RC)	50°C to Tg / Tg to 260°C	55 / 260	ppm/°C	IPC-TM-650.2.4.24
Z Axis Expansion (43% RC)	50°C to 260°C	2.1	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)		18.6 / 17.9 (3.9/3.5)	GN/m ² (psi x 10 ⁶)	ASTM D3039
Poisson's Ratios (X / Y)		0.170 / 0.163		
Chemical / Physical Properties				
Moisture Absorption		0.12	wt. %	IPC-TM-650.2.6.2.1

* DMA is the preferred method for measuring Tg - other methods may be less accurate.

- 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
- M-Ply is available in most common panel sizes.
- Please contact AGC for availability of any other constructions or glass styles

