

High DK, low loss glass reinforced prepreg

Benefits

- High 7.45 DK organic prepreg
- Low 420 °F (215 °C) lamination enables conventional PWB fabrication
- Lower cost/reduced weight alternative to LTCC
- Lower cost alternative to fusion bonding
- Enables miniaturization & densification of high DK RF stripline structures
- Compatible with Ticer/ Ohmega resistor foils

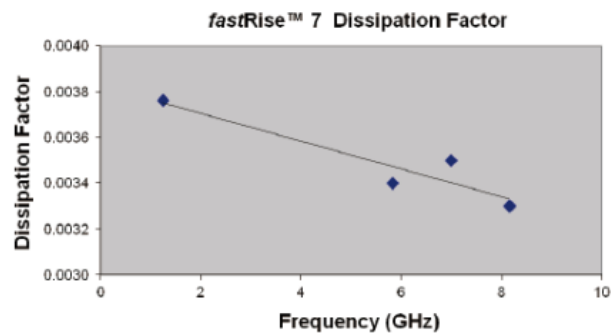
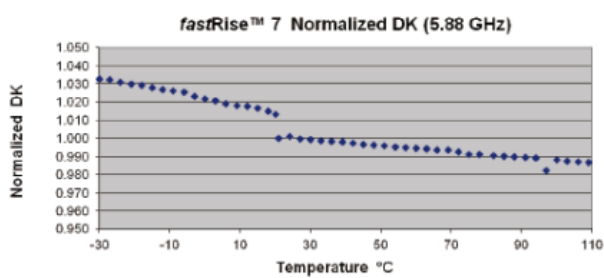
Applications

- Avionics & aerospace (weight reduction)
- Radar Manifolds, Antennas, Fire Control
- Filters, Couplers, Power Amplifiers
- Phase Matching Networks

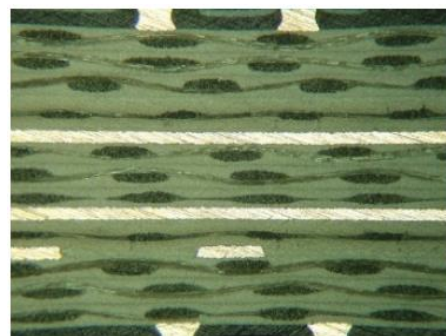
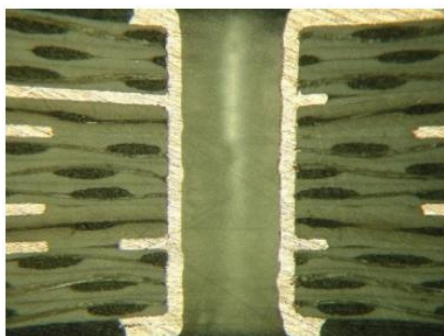


fastRise™ 7 is a thermally stable, high DK (7.45 at 10 GHz), low loss prepreg designed to enable the manufacturing of high dielectric constant stripline structures at low temperatures. fastRise™ 7 prepreg enables stripline manufacturing at 420 °F (215 °C), well below the fabrication temperatures of Low Temperature Co-fired Ceramics (LTCC).

Organic high dielectric constant copper clad laminates such as RF-60TC have previously had no available prepregs with compatible high dielectric constant. Therefore RF stripline designers have been forced to use either LTCC or the fusion bonding of PTFE-based organic substrates.



Microsection of 6 copper layer multilayer containing RF-60TC-0100 and fastRise™ 7 prepreg (PWBs courtesy of Delta Circuits, Fairfield, NJ)



Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 10 GHz	7.45		IPC 2.5.5.5.1 (modified)
Dissipation Factor	@ 10 GHz	0.0034		IPC 2.5.5.5.1 (modified)
Volume Resistivity		5.93 x 10 ⁵	Mohms/cm	IPC-650 2.5.17.1 (after temp./humidity)
Surface Resistivity		4.97 x 10 ⁵	Mohms	
Thermal Properties				
Thermal Conductivity		0.43	W/m-K	ASTM F 433
CTE (-55 to 125°C)	X	10	ppm/°C	IPC-650 2.4.41/TMA
	Y	17	ppm/°C	
	Z	62	ppm/°C	
TcK (-30 to 110 °C)		-326	ppm/°C	IPC-650 2.5.5.5.1 (modified)
Mechanical Properties				
Flex Strength	MD	99.97 (14,500)	N/mm ² (psi)	ASTM D 790 (02)
	CD	52.74 (7,650)	N/mm ² (psi)	
Dimensional Stability	MD	-0.5	mm/M (mil/in)	IPC-650 2.4.39 (After Bake)
	CD	-0.6	mm/M (mil/in)	
	MD	-1.0	mm/M (mil/in)	IPC-650 2.4.39 (Thermal Stress)
	CD	-1.4	mm/M (mil/in)	
Chemical / Physical Properties				
Moisture Absorption		0.1	%	IPC-650 2.6.2.1
Dielectric Breakdown		40.0	Kv	ASTM D 149/IPC-650 2.5.6
Density	Specific Gravity	2.24	g/cm ³	ASTM D 792
Resin Flow		4.9	%	IPC-650 2.3.17

* 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.

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

