

fastRise™ 7

High DK, low loss glass reinforced prepreg

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).

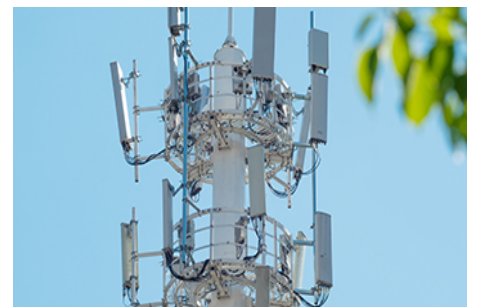
Organic high dielectric constant copper clad laminates such as RF60A have previously had no available prepregs with compatible high dielectric constant. Therefore RF stripline designers have been forced to use either LTCC or the fusion bonding of PTFE-based organic substrates.

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

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



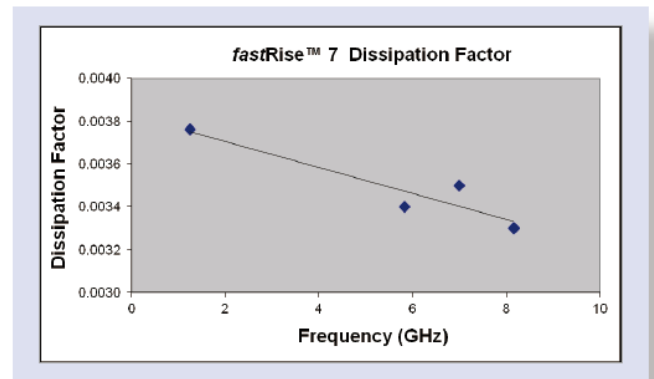
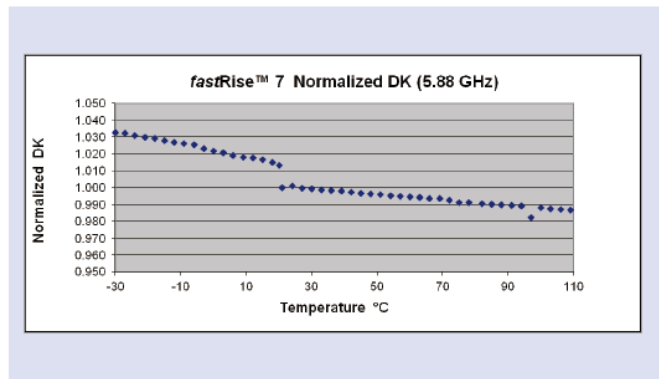
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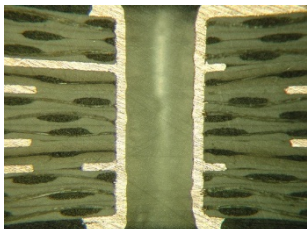
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fastRise™7 TYPICAL VALUES					
Property	Test Method	Unit	Value	Unit	Value
Pressed Thickness Between Ground Planes		mils	5.5	mils	5.5
Dk @ 10 GHz	IPC 2.5.5.5.1 (modified)		7.45		7.45
Df @ 10 GHz	IPC 2.5.5.5.1 (modified)		0.0030		0.0030
Moisture Absorption	IPC-650 2.6.2.1	%	0.1	%	0.1
Dielectric Breakdown	ASTM D 149/IPC-650 2.5.6	kV	40.0	kV	40.0
Volume Resistivity	IPC-650 2.5.17.1 (after temp./humidity)	Mohms/cm	5.93×10^5	Mohms/cm	5.93×10^5
Surface Resistivity	IPC-650 2.5.17.1 (after temp./humidity)	Mohms	4.97×10^5	Mohms	4.97×10^5
Flex Strength (MD)	ASTM D 790 (02)	psi	14,500	N/mm ²	99.97
Flex Strength (CD)	ASTM D 790 (02)	psi	7,650	N/mm ²	52.74
Thermal Conductivity	ASTM F 433	W/m-K	.43	W/m-K	.43
T _c K (-30 to 110° C)	IPC-650 2.5.5.5.1 (modified)	ppm/°C	-326	ppm/°C	-326
Dimensional Stability (MD)	IPC-650 2.4.39 (After Bake)	mil/in.	-0.5	mm/M	-0.5
Dimensional Stability (CD)	IPC-650 2.4.39 (After Bake)	mil/in.	-0.6	mm/M	-0.6
Dimensional Stability (MD)	IPC-650 2.4.39 (Thermal Stress)	mil/in.	-1.0	mm/M	-1.0
Dimensional Stability (CD)	IPC-650 2.4.39 (Thermal Stress)	mil/in.	-1.4	mm/M	-1.4
CTE (X axis) (25 -125° C)	IPC-650 2.4.41/TMA	ppm/°C	10	ppm/°C	10
CTE (Y axis) (25 -125° C)	IPC-650 2.4.41/TMA	ppm/°C	17	ppm/°C	17
CTE (Z axis) (25 -125° C)	IPC-650 2.4.41/TMA	ppm/°C	62	ppm/°C	62
Density (Specific Gravity)	ASTM D 792	g/cm ³	2.24	g/cm ³	2.24
Resin Flow	IPC-650 2.3.17	%	4.9	%	4.9



Remark : All reported values are typical and should not be used for specification purposes. In all instances, the user shall determine suitability in any given application.



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

