



Synthane-Taylor Laminates

FB-650K High Performance Copper Clad FR-4 Laminates Multifunctional High Tg Epoxy

A high reliability laminate, FB-650K is designed for use in multilayer and rigid boards. Performance characteristics include:

- Glass transition temperature (Tg) 170°C
- Fluorescent response for Automatic Optical Inspection (AOI)
- UV blocking for liquid photoimageable applications (LPI)
- Exceptional cross-link density
- Outstanding chemical and moisture resistance
- Superior thermal shock resistance
- Average thermal expansion less than standard FR-4
- Process using standard FR-4 parameters
- Provides for excellent drill characteristics with minimal smear, which allows for consistent etchback (Desmear)

FB-650K is UL rated 94-VO and meets and/or exceeds all requirements of IPC-4101. Our material is manufactured to Class "A" surface quality and Class B/L thickness tolerance as standard. Special requirements are available upon request.

Properties Tested	Values Obtained	
	Under 0.030"	Over 0.030"
Peel Strength, lbs/inch width 1 oz/ft ² copper		
As received	8.0	8.5
After thermal stress	8.0	8.0
Volume Resistivity		
Minimum in megohm-centimeter		
After moisture resistance	1 x 10 ⁶	1 x 10 ⁶
At elevated temperature	1 x 10 ³	1 x 10 ³
Surface Resistivity		
Minimum in megohm-centimeter		
After moisture resistance	1 x 10 ⁴	1 x 10 ⁴
At elevated temperature	1 x 10 ³	1 x 10 ³
Permittivity at 1 MHz max (Dielectric Constant)	4.6	4.8
Loss Tangent at 1 MHz max (Dissipation Factor)	0.018	0.020
Dimensional Stability, max. chg. in/in	+/- 0.0005	-
Glass Transition Temperature (Tg), D.S.C. Method	170°C	170°C

FB-650M Copper Clad FR-4 Laminates Multifunctional Epoxy

A high reliability laminate, FB-650M is designed for use in multilayer and rigid boards. Performance characteristics include:

- Glass transition temperature (Tg) 145°C
- Fluorescent response for Automatic Optical Inspection (AOI)
- UV blocking for liquid photoimageable applications (LPI)
- High cross-link density
- Improved chemical and moisture resistance
- Improved thermal shock resistance
- Average thermal expansion less than standard FR-4
- Provides for excellent drill characteristics with minimal smear, which allows for consistent etchback (Desmear)

FB-650M is UL rated 94-VO and meets and/or exceeds all requirements of IPC-4101. Our material is manufactured to Class "A" surface quality and Class B/L thickness tolerance as standard. Special requirements are available upon request.

Properties Tested	Values Obtained	
	Under 0.030"	Over 0.030"
Peel Strength, lbs/inch width 1 oz/ft ² copper		
As received	8.0	8.5
After thermal stress	8.0	8.0
Volume Resistivity		
Minimum in megohm-centimeter		
After moisture resistance	1 x 10 ⁶	1 x 10 ⁶
At elevated temperature	1 x 10 ³	1 x 10 ³
Surface Resistivity		
Minimum in megohm-centimeter		
After moisture resistance	1 x 10 ⁴	1 x 10 ⁴
At elevated temperature	1 x 10 ³	1 x 10 ³
Permittivity at 1 MHz max (Dielectric Constant)	4.6	4.8
Loss Tangent at 1 MHz max (Dissipation Factor)	0.018	0.020
Dimensional Stability, max. chg. in/in	+/- 0.0005	-
Glass Transition Temperature (Tg), D.S.C. Method	145°C	145°C

EF-650K High Performance Prepregs Multifunctional High Tg Epoxy

EF-650K prepregs are UL rated 94-VO and meet and/or exceed all requirements of IPC-4101. EF-650K is available in a full range of modulus content, resin flow, and reactivity. This translates to predictable viscosity curves during multilayer lamination. Special requirements are available upon request.

EF-650K (FR-4) Prepreg (170°C tg)						
Glass Style	Part Number	Resin Content % Range	Resin Flow % Range	Gel Time (Seconds*)	Scaled Flow Pressed Thickness (Mils)	Estimated Pressed Thickness**
106	EF650K 106	65-71	40-50	140-165	1.4 +/- 0.2	1.5-1.8
1080	EF650K 1080	62-68	38-46	140-165	2.4 +/- 0.3	3.1-3.4
1080	EF650K 1080L	54-60	32-38	140-165	2.2 +/- 0.3	2.5-2.8
2113	EF650K 2113	54-60	34-40	140-165	3.5 +/- 0.3	4.0-4.4
2113	EF650K 2113L	50-56	29-33	140-165	3.2 +/- 0.3	3.8-4.2
2116	EF650K 2116	51-57	29-35	120-145	4.1 +/- 0.4	4.7-5.1
7628	EF650K 7628	40-43	18-26	120-145	6.4 +/- 0.3	7.0-7.4
7628	EF650K 7628HR	45-51	27-33	120-145	7.9 +/- 0.5	7.8-8.8

EF-650M Prepregs Multifunctional Epoxy

EF-650M prepregs are UL rated 94-VO and meet and/or exceed all requirements of IPC-4101. EF-650M is available in a full range of modulus content, resin flow, and reactivity. This translates to predictable viscosity curves during multilayer lamination. Special requirements are available upon request.

EF-650M (FR-4) Prepreg (140°C tg)						
Glass Style	Part Number	Resin Content % Range	Resin Flow % Range	Gel Time (Seconds*)	Scaled Flow Pressed Thickness (Mils)	Estimated Pressed Thickness**
106	EF650M 106	65-71	40-50	140-165	1.4 +/- 0.2	1.5-1.8
1080	EF650M 1080	62-68	38-46	140-165	2.4 +/- 0.3	3.1-3.4
1080	EF650M 1080L	54-60	32-38	140-165	2.2 +/- 0.3	2.5-2.8
2113	EF650M 2113	54-60	34-40	140-165	3.5 +/- 0.3	4.0-4.4
2113	EF650M 2113L	50-56	29-33	140-165	3.2 +/- 0.3	3.8-4.2
2116	EF650M 2116	51-57	29-35	120-145	4.1 +/- 0.4	4.7-5.1
7628	EF650M 7628	40-43	18-26	120-145	6.4 +/- 0.3	7.0-7.4
7628	EF650M 7628HR	45-51	27-33	120-145	7.9 +/- 0.5	7.8-8.8

*Gel Time tested using a 25mg sample at 171°C.

**Values for reference only, actual prepreg thickness yield depends on inner layer copper weight and image density as well as customer press cycle parameters.

UL File Number QMTS2.E121087



Taconic Synthane-Taylor • 1400 Arrow Highway • LaVerne, CA 91750
Tel: 518-658-3202/800-833-1805 • Fax: 518-658-3988