



THE POWER OF EI

Driclad[®] Laminate

EI's Driclad[®] Laminate is a CAF free, high Tg, FR-4 epoxy resin used as a prepreg or laminate in printed circuit board construction. This time tested material has proven its reliability and performance in the field in a variety of high end applications. Driclad[®] is available in a wide range of glass cloth styles and resin contents.



Driclad[®] in a 28 layer high reliability server board

Features & Benefits

- Superior Moisture Resistance Low moisture absorption improves dimensional stability of the finished printed circuit board and enhances its resistance to the environmental effects of processing, shipping and storage
- Performance at High Temperature Compatible with MSA and lead free assembly
- Low Melt Viscosity Excellent rheological behavior assures void free formation of thick, complex, multi-layer printed circuit boards
- High Reliability Good performance in thermal cycling and insulation resistance produces optimum product reliability
- Assembly Friendly Excellent solderability and complete wetting
- IPC 4101B/24, 26, & 124 Meets industry standard requirements

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Driclad[®] Laminate Properties

Property Tested		Test Method
Electrical		
Permittivity (Dielectric Constant @1 MHz)	4.1	ASTM-D-150-98
Loss Tangent (Loss Factor @ 1 MHz)	.011	ASTM-D-150-98
Electrical Strength (kV/mm)	93 kV/mm	IPC-TM-650/2.5.6.2
Dielectric Breakdown (kV)	>45 kV	IPC-TM-650/2.5.6
Arc Resistance (Seconds)	99	IPC-TM-650/2.5.1
Volume Resistivity (megohm-cm)		IPC-TM-650/2.5.17.1
After Moisture	8.5x10 ⁸	
At Elevated Temperature	1.2x10 ⁷	
Surface Resistivity (megohm)		IPC-TM-650/2.5.17.1
After Moisture	9.9x10 ⁷	
At Elevated Temperature	3.1x10 ⁶	
Thermal		
Glass Transition Temperature (°C)	180	IPC-TM-650/2.4.25
Decomposition Temperature (°C) (5%)	344	IPC-TM-650/2.4.24.6
Time to Delamination (Minimum@260C)	>120	IPC-TM-650/2.4.24.1A
Flammability	Pass *	UL94-V0
Out Gassing- Total Mass Lost, (TML)%	0.16	ASTM E595-93
Physical		
Resin Type	Multifunctional	
Pressure Vessel Test (8hr.)	Pass	IPC-TM-650/2.6.16
Moisture, % Gain (24 hr/RT)	0.17	IPC-TM-650/2.6.2.1
Peel Strength (lb/in)	6.0	IPC-TM-650/2.4.8.2
Resin Flexural Modulus@ RT (Kpsi)	330	EI
Tensile Modulus Warp (Mpsi)	2.92	ASTM D 638-82
Tensile Modulus Fill (Mpsi)	2.51	ASTM D 638-82
Flexural Modulus Warp (Mpsi)	2.7	ASTM D 790-81
Flexural Modulus Fill (Mpsi)	2.18	ASTM D 790-81
Flexural Strength (psi)		IPC-TM-650/2.4.4
Length Direction	75850	
Cross Direction	69400	
Chemical Resistance, Methylene Chloride, (%)	0.52	IPC-TM-650/2.3.4.3
X CTE Below Tg (ppm/C)	18.4	IPC-TM-650/2.4.41
Y CTE Below Tg (ppm/C)	14.7	IPC-TM-650/2.4.41
Z CTE Below Tg (ppm/C)	55	IPC-TM-650/2.4.41
X CTE Above Tg (ppm/C)	8.7	IPC-TM-650/2.4.41
Y CTE Above Tg (ppm/C)	7.4	IPC-TM-650/2.4.41
Z CTE Above Tg (ppm/C)	360	IPC-TM-650/2.4.41

* The flame retardant in EI Pramid is TBBPA (RoHS compliant)