



global solutions :
local support™

The T-lam™ System

Thermally Conductive Circuit Board Materials

It all starts with an idea...

The idea to make devices faster, sleeker, more compact & powerful...yet the challenge is doing so without over-heating.

T-lam™ thermally conductive printed circuit boards use T-preg™ dielectric sheets in conjunction with copper foil and an integral metal base plate to provide a circuit board laminate with superior thermal management capabilities compared to conventional FR4-based PCB's.

T-preg™, a free-standing thermally conductive dielectric sheet, facilitates single layer and multi-layer and FR4-hybrid construction.

T-preg™ is the only high thermal conductivity free-standing pre-preg available.

Our engineers work with OEM's and PCB fabricators to design circuit boards using the T-lam™ System. Prototypes are available. Large volume production is manufactured through PCB fabricators, using T-preg™, IMPCB and DSL.

T-preg™

Features and Benefits:

- Excellent electrical isolation and low dielectric constant
- High thermal conductivity of 3 W/mK
- Integral aluminum or copper base plate for heat dissipation
- Thicknesses from 0.004 to 0.012 inches (0.1mm to 0.3mm)
- Uses standard low cost PCB fabrication techniques and processes

Applications:

- Automotive ECM, ABS brakes, and power steering modules
- LED lighting modules
- Motor controls
- Power conversion devices
- Servers and desktop computers

For sales information:

In the USA please telephone +1-888-246-9050

In Europe please telephone +44-(0)-1342-315044

In Asia please telephone +86-755-2714-1166

or visit: www.lairdtech.com

T-PREG™ 1KA PERFORMANCE PROPERTES

Typical Cured Properties (no fiberglass)	T-preg™ 1KA*
Thermal Conductivity, W/m C†	3
Dielectric Strength, Volts/mil	800
Dielectric Constant	4.2
Lap Shear, Al/Al,psi	1,400
Peel Strength, Cu foil, pli	4-6
Hardness, Shore D	76
Flexural Strength, mPa	50
Elongation,%	0.51
Volume Resistivity, ohm-cm	1.2 x 10 ¹⁴
Surface Resistivity, ohms	1.0 x 10 ¹⁰
Comparative Tracking Index	600
Water Absorption, Δweight %	0.10††
Cure Schedule, °C/hours	170/0.75
Continuous Use Temperature, °C	110-130
Intermittent Use Temperature, °C	250
Shelf Life, °C/Months (uncured pre-preg)	20/6
Color	Green

*UL recognized 94-V-O file E165095

† Bulk Value †† After 168 hours

Copper Foil Properties - HTE Copper - 1½ oz. to 6 oz.

Metal Base-Plate Properties

Base-Plate Material	Thermal Expansion Coefficient ppm/°C	Thermal Conductivity Z axis /watts/m°C	Thermal Resistance At 63 mils °C-in ² /watt
Aluminum	24	173	0.0143
Copper	18	260	0.0095

Metal Base-Plate Thickness 0.031 - 0.250 inches

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