



### HIGH PERFORMANCE THERMAL INTERFACE PRODUCTS

T-gard™ TNC-3 is a thermally conductive, electrically insulative, and heat curable adhesive material. It is comprised of PEN film coated with an uncured thermally conductive epoxy/ceramic composite on both sides. The T-gard TNC-3 material eliminates the mechanical attachment of clips and or screws for mounting the TO- power components to their heat sink.

The T-gard TNC-3 permanently bonds the TO- components to the heat sink with a simple tack and cure process. The T-gard TNC-3 flows to completely wet out the component and heat sink surfaces during the elevated temperature and pressure tacking process. Once the tacking process is completed the assembly is cured to provide the permanent bond.

### FEATURES AND BENEFITS

- Eliminates mechanical component costs
- Eliminates dielectric failure potential with screw mounted assemblies
- Reduces the area required around the device
- Allows for tighter component locations with the power supply
- Provides more consistent thermal performance
- Non-silicone based

### APPLICATIONS

- Bond TO- power components to heat sink

**global solutions: local support.™**

Americas: +1.800.843.4556

Europe: +49.8031.2460.0

Asia: +86.755.2714.1166

CLV-customerservice@lairdtech.com

[www.lairdtech.com/thermal](http://www.lairdtech.com/thermal)

ELECTRICAL PROPERTIES	TEST METHOD	TYPICAL VALUES
Dielectric Breakdown Voltage*	ASTM D149	>6000 VAC
Volume Resistivity, Ohm-cm	ASTM D257	5.5E10 <sup>15</sup>
Dielectric Constant @ 1 MHz	ASTM D257	3.8

THERMAL PROPERTIES	TEST METHOD	TYPICAL VALUES
Post-cured thermal Impedance, °C-in <sup>2</sup> /W	ASTM D5470 Modified	<0.40 °C-in <sup>2</sup> /watt (2.56 °C-cm <sup>2</sup> /watt)

MECHANICAL PROPERTIES	TEST METHOD	TYPICAL VALUES
Total Thickness	LT Method	0.005 inch (0.127 mm)
Dielectric Film Thickness	LT Method	0.001 inch (0.0254 mm)
Tensile Strength	ASTM D412	7.6 Kpsi (52.4 mPa)
Elongation	ASTM D412	85%
Post-cured Lap Shear	ASTM D3163 Modified	>0.600 Kpsi (>4.14 mPa)
Color	Visual	White
UL Flammability	ASTM D635	94V-0

\*Material cure in oven and not laminated into an assembly.

### APPLICATION PROCEDURE

1. Make sure both surfaces are clean.
2. Peel off one liner, and apply material to the heat-sink surface.  
Apply 100 psi for 10 seconds.
3. Peel off the other liner, and place warm power component (60 °C) on the top of material. Apply 75 psi for 10 seconds.
4. Cure the assembly at 160 °C for 6 minutes.

### SHELF LIFE

Six months at room temperature ( ≤ 25 °C).

THR-DS-T-GARD-TNC-3 0509

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