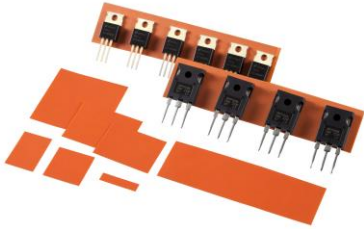


## Thermal Conductive Heat Curable Insulator (Preliminary)



### Product Description

Tgard<sup>™</sup> TNC-5 is a thermally conductive, electrically insulative, and heat curable adhesive material. It is comprised of thermally conductive polymer composite coated on electrically insulating film to offer thermal, dielectric and mechanical properties.

Tgard<sup>™</sup> TNC-5 is specifically designed with simplicity in mind where it tacks the power transistor to the heatsink with a low lamination pressure while it flows to completely wet out between both surfaces during cure process to provide robust adhesion.

Tgard<sup>™</sup> TNC-5 is a novel material solution not only to eliminate mechanical attachment of clips and or screws for mounting power transistor on heatsink but also to simplify the entire application process and optimize total cost of ownership (TCO).

### FEATURES AND BENEFITS

- Eliminates mechanical fasteners
- Eliminates dielectric failure potential with screw mounted assemblies
- Provides more consistent thermal performance
- Ease of application
- No need fixture when curing
- Allows for tighter component location with power supply
- Non-silicone based
- Converted parts and sheet (9" x 18") available

### APPLICATIONS

- Bond power transistors to heatsink

### SPECIFICATIONS

PROPERTIES	TEST METHOD	TYPICAL VALUES
<b>ELECTRICAL PROPERTIES</b>		
Post-Cured Breakdown Voltage	ASTM D149	6,000 volts AC
Volume resistivity	ASTM D257	5.5E10 <sup>15</sup> ohm-cm
Dielectric constant @ 1MHz	ASTM D257	3.8
<b>THERMAL PROPERTIES</b>		
Post-Cured Thermal Resistance	ASTM D5470 (Modified)	0.3 °C-in <sup>2</sup> /W
<b>MECHANICAL PROPERTIES</b>		
Thickness		0.005inch (0.127mm)
Color	Visual	Brown
Post-Cured Lap Shear	ASTM D3163 (Modified)	>300 psi
Torque Resistance*	ASTM D2063	>2 N.m
UL flammability	UL 94	V0- Pending

\*T0-220 (10psi for 10 seconds Post-Cured)

**Thermal Conductive Heat Curable Insulator  
(Preliminary)**

**APPLICATION PROCEDURE**

1. Clean bonding surface with alcohol or other solvent and make it clean (Fig. 1).
2. Peel off one liner from Tgard<sup>™</sup> TNC-5 (Fig. 2).
3. Place the Tgard<sup>™</sup> TNC-5 on heatsink surface, then press Tgard<sup>™</sup> TNC-5 back and forth several times to make sure it can be wetted well with heatsink (Fig. 3). If assembled double side, apply pressure uniformly on both sides with finger or a 5kg roller to make sure wetted well with heatsink.



Fig. 1



Fig. 2



Fig. 3

4. Peel off the other liner (Fig. 4), then place power transistor on top of Tgard<sup>™</sup> TNC-5/heatsink assembly (Fig. 5).
5. Apply 10psi over 5 seconds by finger or pressure equipment on power transistors (Fig. 6).



Fig. 4

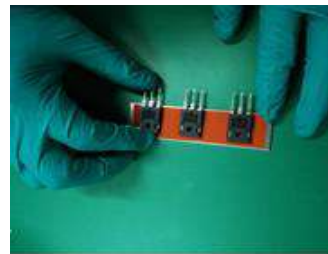


Fig. 5

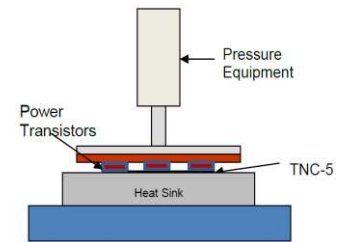


Fig. 6

5. Place assembled heatsink assembly in oven freely. Without fixture, power transistors cannot move from material even vertically placed. Cure the assembly at 150°C for 6 minutes or more minutes.

Note: Tgard<sup>™</sup> TNC-5 should be stored in 25~35°C at least 4 hours before application.

**SHELF LIFE**

Recommended storage temperature should be controlled below 25°C to maintain optimum characteristics for a 4 months shelf life. 5 months of shelf life for storage temperature below 15°C.