Tgard TNC-4 Application Note

Introduction

Tgard TNC-4 is an electrically insulating, thermally conductive, heat curable adhesive insulator. It consists of a thin electrically insulating film coated on both sides with a thermally conductive polymer composite material. It can be used to permanently attach IC or other electronic packages to heatsink.

Application

Tgard TNC-4 can be easily applied and the application procedure can be adjusted according to customer's requirement. It is typically used to bond power components to heat sinks.

Procedures

Two procedures are recommended according to the actual requirement of customer's applications.

- ***Pre-cure-under-pressure process***

Parts are assembled at room temperature without pressure, then cured under pressure at high temperature.

- Advantages

  Precure-under- pressure process can tolerant more component surface concave and accommodate the assembly of TO components on both sides of heat sink,reduce air bubbles generated during assembly.

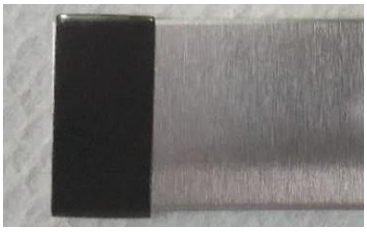
Pre-cure-under-pressure process

1. Clean bonding surface with alcohol or other solvents and make it clean (Fig. 1).
2. Remove one liner from Tgard TNC4, Place the TNC-4 on heatsink surface.Remove the other liner of Tgard TNC4(Fig. 2),then put the parts in 100°C environment chamber for 5minutes.
3. The parts were taken out of the oven, place the TO component on TNC exposed side after the parts temperature cool down, At the same time avoiding contamination of the TNC surface(Fig. 3).

4. Cure the assembly which with 25 psi—35psi pressures for 6 minutes after the TNC surface reach 150C, using pressure pads/foams to apply pressure uniformly on both sides (Fig. 4).
5. The entire assembly process is best completed in 12 hours.

Fig.1

Fig.2



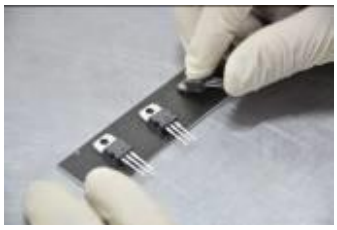
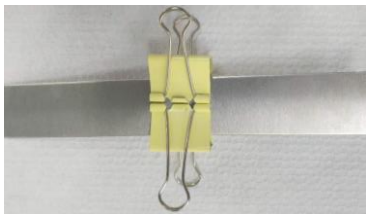


Fig.3

Fig.4



6. After the TNC surface reach 150C, curing can be finished in 6 minutes, however, due to different heatsink size the TNC will take different period to be heated upto 150C, so the curing conditions would be slightly different according to actual products and heat oven conditions. During curing process, the assembly should be on a horizontal and flat surface and IC parts should be up towards (Fig. 5). And the Assembly could not be slanting during the curing process and before being cooled down.

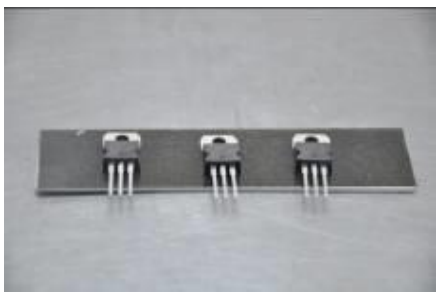


Fig 5

Storage & Delivery

The temperature of storage and transport environment should be controlled below 25 ℃.
If controlled temperature by ice bag when transport and stored below 15 ℃, material should be stored in 20 ℃ to 30 ℃ condition at least half hour before used.

Shelf life
Six months at room temperature (<25 ℃)