

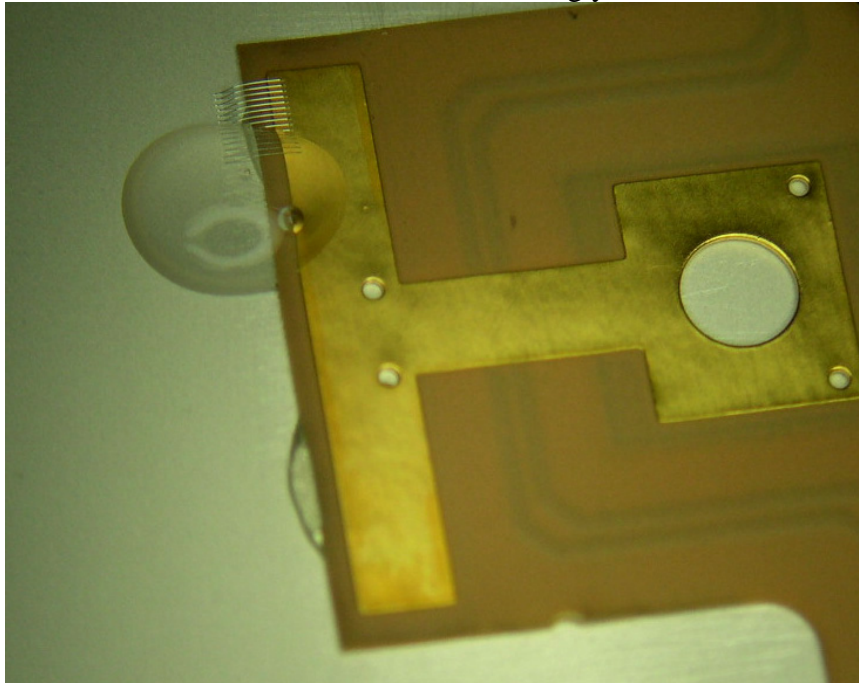
Encapsulation Procedures

Glue preparation

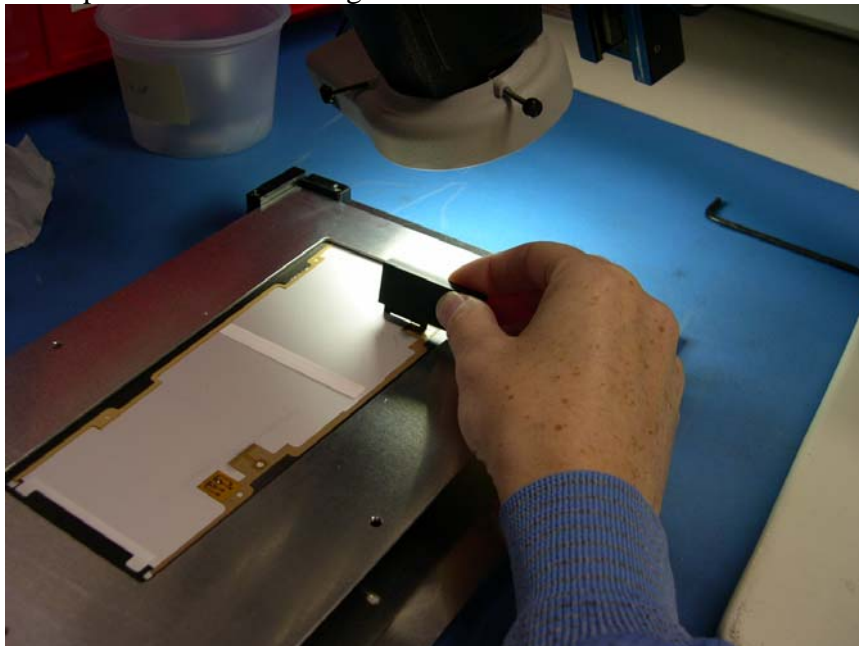
1. Get Sylgard 186 from fridge
2. Wear gloves, cover bench with Kimwipe
3. Mix in small aluminum mixing cup by weight:
 - 10 parts elastomer base
 - 1 part hardenerfor about 40 modules use 5g of elastomer
4. Stir for about 1 minute
5. Turn on the vacuum pump in the core by flipping the switch on the power strip on the core facing wall
6. Degas the encapsulant in the vacuum chamber for 30 minutes
7. Remove the encapsulant from the vacuum chamber and turn off the pump
8. Prepare a 3cc syringe with a pink dispensing tip and a plunger
9. Fill the syringe with encapsulant
10. Insert the white plunger into the syringe and push it into the syringe until all air has been pushed out
11. Connect the syringe to the pneumatic dispenser
12. Check that the foot pedal (cable "A") is connected to the pneumatic dispenser
13. Turn the pressure on the dispenser to 15 psi
14. Set the dispense time to 1 second
15. Turn on the back pressure until the syringe stops dripping (about 1 turn), but not so much that the dispensing tip gets filled with air, this takes some adjusting, make sure to dispense a small amount of glue every time you adjust the backpressure. Small drips are ok, but air in the syringe is not.
16. Use mixed encapsulant within about 1.5 hours of mixing

TEC Backside Bias Bond Encapsulation

1. Place a box of 20 modules on the counter
2. Remove the bottom most module and place it upside down on the encapsulation base plate, hybrid end towards you
3. Note the placement of the 15 bias bonds on each bond pad
4. With the dispense time set to 1 second, dispense a short line of encapsulant across the width of the wirebonds on the side facing you at both bond sites



5. Position the trowel in front of the line of encapsulant, placing one leg on top on the kapton and the other leg on the surface of the silicon



6. With a single motion, slide the trowel across the wirebonds, distributing the encapsulant over all bonds
7. Once the trowel is past the wirebonds, lift it up and clean off the residue of encapsulant from the trowel with a dry kimwipe
8. Repeat steps 5 to 7 for the second bond site
9. Check that all the wirebonds are fully covered with encapsulant, if necessary apply an additional line of encapsulant and repeat the troweling
10. Replace the module back into the box with the module facing down
11. Repeat this procedure for all 20 modules, working your way up in the box
12. When finished encapsulating, clean the trowel with isopropanol to remove all buildup of encapsulant
13. Close the box and cure for 24 hours
14. Before shipping, the modules need to be turned right side up again