

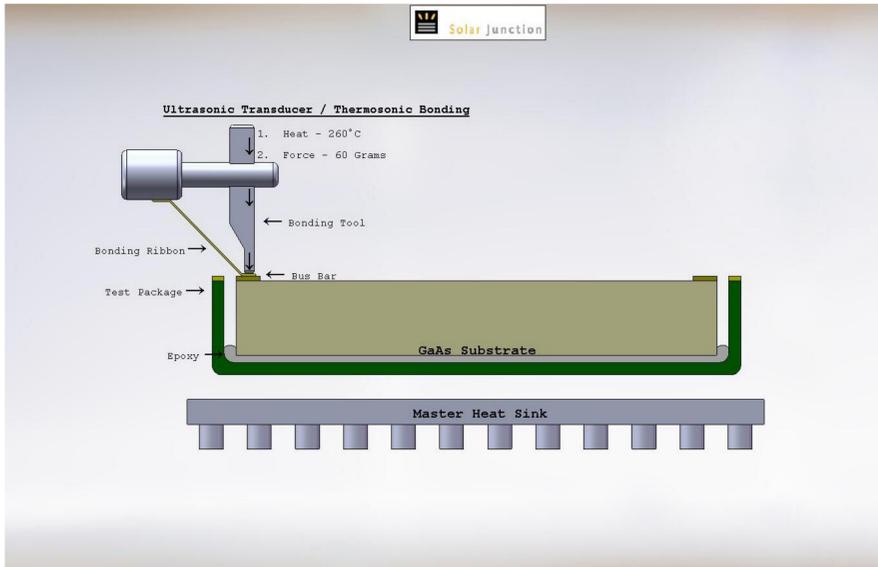
Solar Junction

Mechanically Induced Microfractures

It is critical when doing high volume interconnects to Semiconductors that the process be defined, controlled, repeatable, scalable and most importantly **RELIABLE**.

One method to define the upper and lower limits of the bond cycle is to monitor the critical parameters: Force, Temperature, Ultrasonic energy. Changing one variable at a time and doing large sampling sizes evaluate the impact of each change by doing ribbon bond pulls, visual inspections, thermal resistance measurements, temperature cycling, snap on/ snap off tests and under-bias testing.

By doing failure analysis and corrective action it is possible to arrive at optimum parameters for your bond cycle that supports high volume throughput as assures a good and reasonable level of reliability.



Latent failures / Reliability issues

Failure oven temp due to bond separation

Failure after snap on / snap off

Low or poor pull test

Under bonded

10 Grams

Good bond

.....Optimum bond parameters

Little if no microfractures

100 Grams

Overbonded

Microfractures

Localized heating

Catastrophic failures

Latent failures / Reliability issues

- After completion of optimization implement "Process Signature Technology"

