

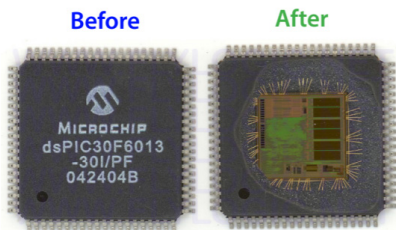
TECHNIQUE NOTE

Decapsulation: One-Stop De-Cap & Die Removal Solution

OVERVIEW

- Packages IN - Dies OUT
- Controlled Acid Etching
- Laser Milling
- Selective Area De-Cap
- Package Types: QFP, QFN, BGA, MEMS
- Flip-Chips, Multi-Chip Modules
- Stacked Die

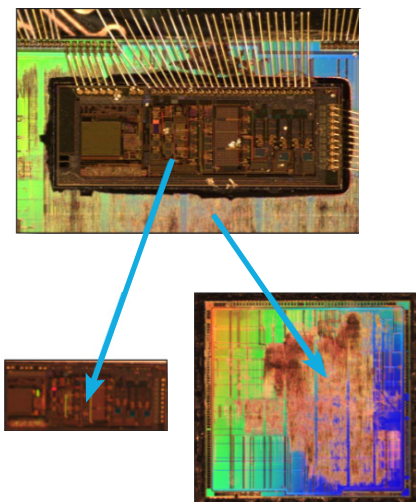
Decapsulation



STRENGTHS / ADVANTAGES

- Expose die keeping device electrically intact
- Expose whole die or just sections
- Apply to devices with copper or gold wires
- Clean die ready for inspection or removal
- Precavitation allows thick encapsulant (SOC) to be safely decapped

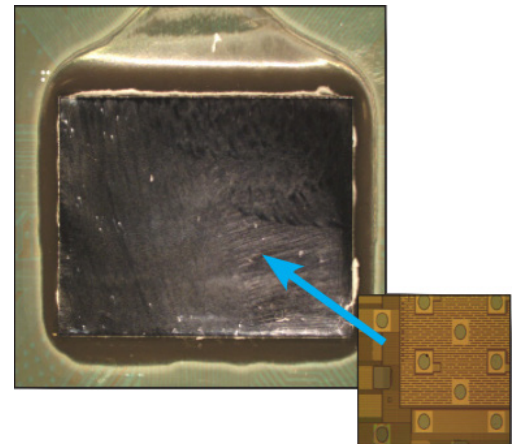
Stacked-Die De-Cap And Die Separation



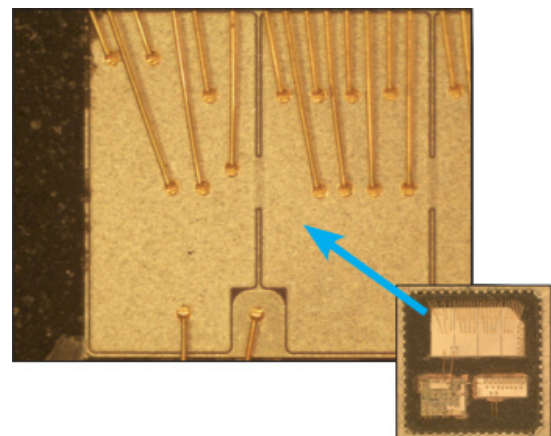
NanoLab's State-Of-The-Art 'Decap System'



Flip-Chip After Separation



Multi-Chip Module - QFN Decapsulation



Decapsulation: One-Stop De-Cap & Die Removal Solution

GLOBAL USES

- Failure analysis
- Problem solving
- Quality control
- Yield enhancement
- Design debug
- Reverse engineering
- Qualification failures

APPLICATIONS

- Preparation for:
 - FIB-SEM
 - Cross-sectioning
 - Parallel lap
 - Wire bond pull test
 - Die shear check
 - ESD induced failures
- Latch-up failures
- Visual inspection of die
- Bond wire checks
- Sample re-work
- Component verification
- A versus B
- Good versus bad
- Many more - let's talk.

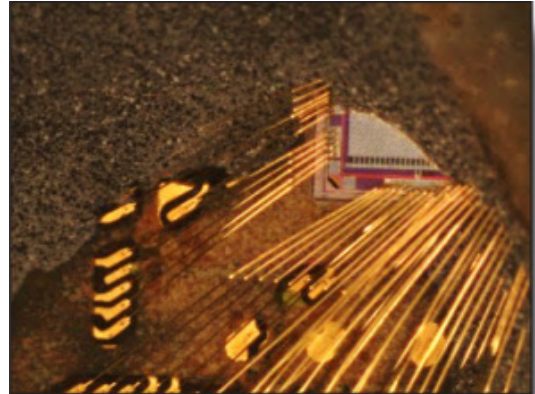
IMAGES PRODUCED

- Images of die measurements
- Images of bond wires
- Images of bond pads
- Images of stitch bonds, SMDs
- Specialty imaging - call us.

SAMPLE TREATMENTS

- As-received
- Specialty work? Call us!
- Advanced treatments - let us help with your special needs.

Selective De-Cap Of Corner



Copper Wires & Pads Intact - After De-Cap

