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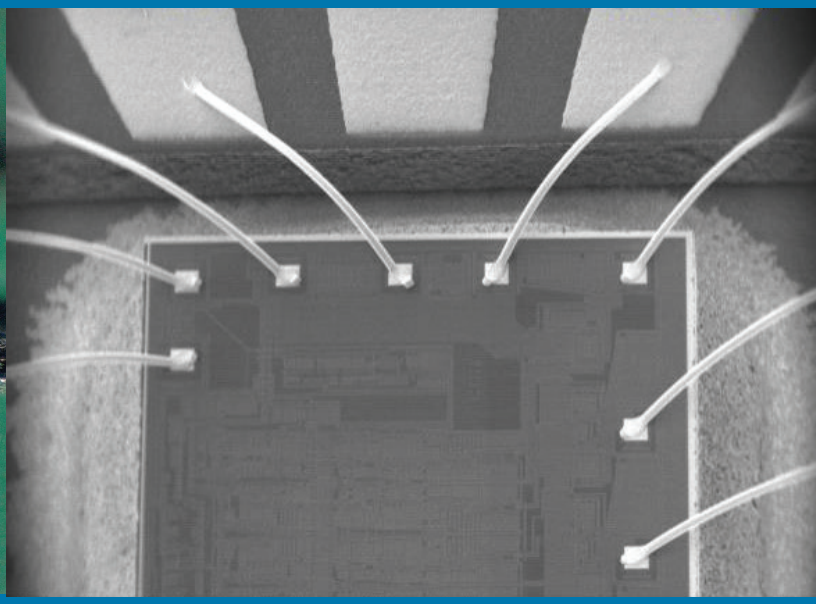
Advanced IC Failure Anaylsis

Service Overview



When reliability matters, you need more than standard failure analysis. Advanced IC FA delivers precise diagnostics, rapid fault isolation, and definitive root cause confirmation—empowering stronger engineering and production decisions.

DEPENDABLE ADV. FAILURE ANALYSIS

Reveal Hidden Defects Early

High-resolution optical inspection, C-SAM/T-SAM, and advanced X-Ray analysis uncover internal package and die-level issues before they escalate.

Detect Electrical Abnormalities Fast

All-pins I-V curve tracing separates simple failures from true FA candidates–speeding triage and reducing downtime.

Decapsulation that Preserves Functionality

Precision chemical and mechanical decapsulation ensures the device remains operational for fault isolation.

Pinpoint Failure Mechanisms with Powered-State Tools

XIVA, PEM, and IR imaging isolate the exact failure point–identifying the true root cause, not just the symptoms.

Confirm Root Cause Through Structured Delayering

Layer-by-layer metal and poly silicon removal reveals failure mechanisms with certainty.

MICROSS BENEFITS

- Faster Problem Resolution
- Higher Product Reliability
- Fewer Field Returns
- Defensible, Data-Driven Analysis
- Greater Confidence in Every Engineering Decision

FAILURE ANALYSIS EQUIPMENT

Scanning Acoustic Microscopy
VUE 400-P NEXGEN

X-Ray & CT Technology
Nikon XT V 160

Chemical / Mechanical Decapsulation
SCRIBE - DeLid - X Sectioning

Advanced Failure Analysis for Improved Semiconductor Performance

ADVANCED FA PROCESS FLOW

Incoming Optical Inspection
- High-magnification examination of package surface, leads, terminals, lids, and exposed interfaces
- Identify physical defects and process anomalies
- Detection of counterfeit indicators, including: blacktopping, sanding, remarking, reballing, lead refinishing and reconstruction

Scanning Acoustic Microscopy
- Package to die interface
- Die to die attach
- Die paddle to die / die attach (crucial for power devices)
- Underfill and bump die interface (flip chips)

X-Ray Analysis
- Detailed internal packaging evaluation
- Stitch bond pads formation, wire loop & aluminum bond wires are not visible

I-V Curve Tracing & Bench Testing
- Measure current response across a range of applied voltages
- Non-destructive, ideal for incoming inspection, failure isolation and counterfeit detection

Customer Failure Modes Verification

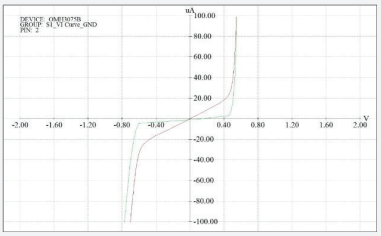
Chemical & Mechanical Decapsulation
- Chemical for PEM devices maintains device functionality
- Mechanical for hermetic and non-hermetic metal cased devices maintains device functionality for the next steps

Internal Inspection
- Our experienced technician and engineers are able to find anomalies, insuring no complications in the final steps

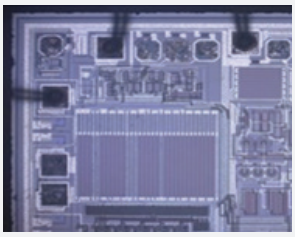
Fault Isolation Analysis
- Once powered up in the device's failing state, XIVA, PEM and / or IR are used to localize the failure mechanism

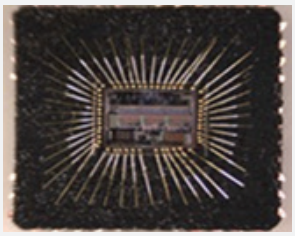
Layer by Layer Delayering
- The final step of FA includes systematically removing die metal layers one at a time followed by optical and / or SEM inspection

Detailed Device Condition - Optical Inspection & Documentation

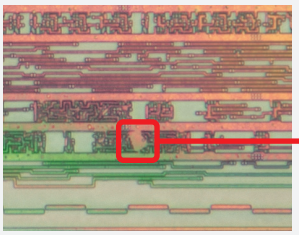


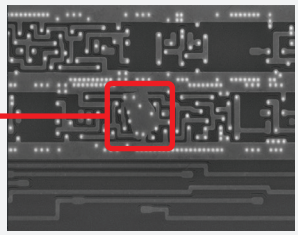
Green I-V Curves are Good 1 Unit - I-V Curves & Bench Testing





Decapsulation





Layer by Layer Delayering

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