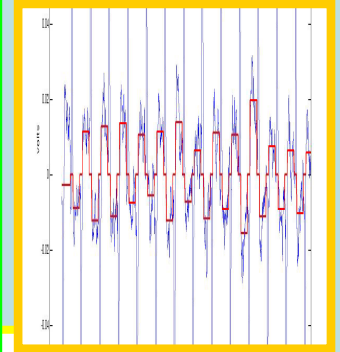
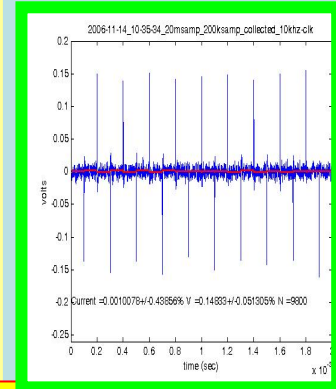
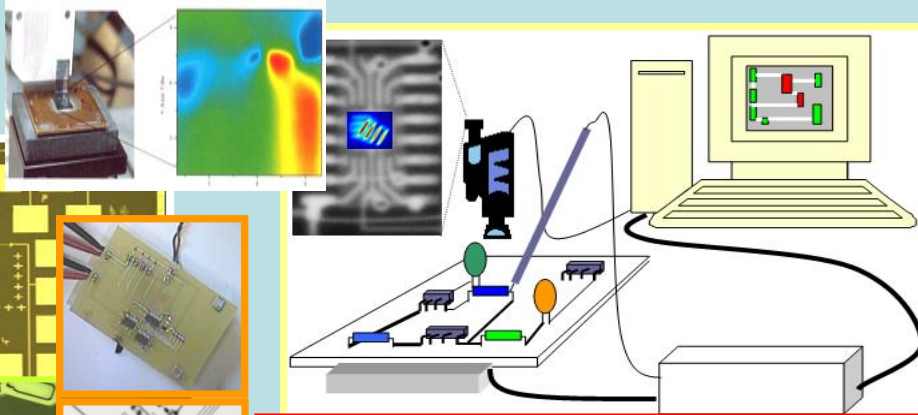




Damage Detection and Characterization for ICs and Circuit Cards



Existing Printed Circuit Board (PCB) and IC Inspection Technology

- Cannot pinpoint the faulty component
- Provides a list of suspect PCB components to replace
- Cannot diagnose intermittent failures
- Cannot estimate remaining lifetime of components
- Cannot identify or locate incipient micro-structural damage

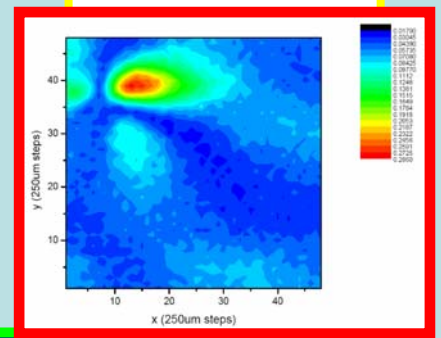
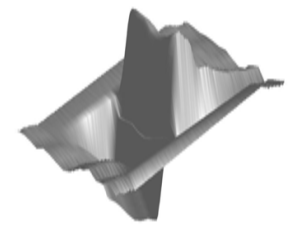
Dynamic testers (TETS)

- Expensive
- Requires custom interface
- Produces "ambiguity list" of suspect components

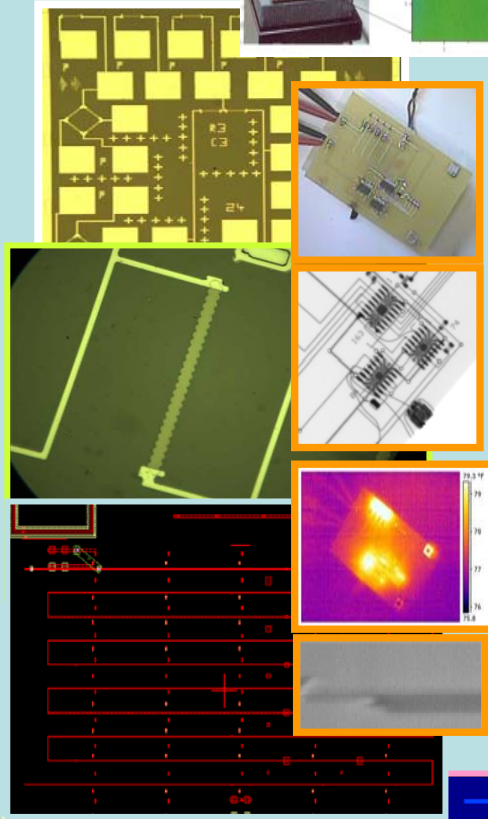
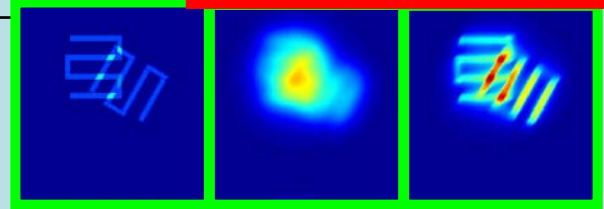
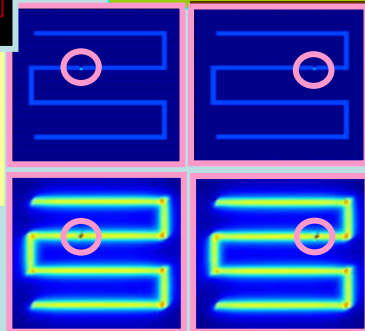
Curve tracers

- Need to scrape through conformal coatings
- Requires expert to analyze result
- Cannot perform functional test after repair

Cannot detect microscopic causes of intermittent PCB failures



0.134 microns	4 microns
3.35 microns	100 microns
33.5 microns	1000 microns



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