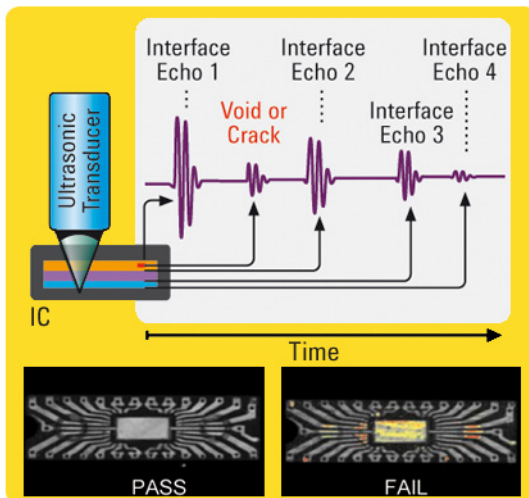




Application Overview

Semiconductor testers using Scanning Acoustic Microscopy (SAM) for Non-Destructive Testing (failure analysis) within Microelectronic packages, detecting voids cracks and de-laminations in the material.

Applications includes: SAM is based on the principles of focusing High Frequency Ultrasound on a material to investigate, measure or image an object (DUT). The Time-of-Flight, velocity and magnitude of the ultrasound (200 MHz) is captured using a 1 GS/s high speed digitizer. Accuracy and measurement throughput is a high priority.



Testing of Semiconductor Devices for Defects

High-Speed Digitizers used in Failure Analysis within IC Packages Detecting Voids, Cracks and De-Laminations

Solution Description

- U1071A, 8-bit, single channel, 500 MHz, 1 GS/s sampling rate, with 128 Mpts acquisition memory, PCI digitizer.

Key Features and Added Value

- Digitizer technology is able to capture the reflection of the ultrasound precisely at speed.
- Data is passed to the host processor quickly for processing in software.
- Low power and small size.
- Fast time-to-market.
- Software re-use for future developments.
- Low risk.



Key Requirements

- Measuring accurately of sub 7.5 mm is extremely important to determine location and potential cause of failure.
- Measurement throughput is extremely important for reducing test time i.e. higher production throughput which means lower production costs.

Resources

- U1071A, 8-bit PCI digitizer brochure: <http://cp.literature.agilent.com/litweb/pdf/5989-7100EN.pdf>
- Article "Semiconductor Testing Package Inspection by Acoustic Tomography": <http://cp.literature.agilent.com/litweb/pdf/5989-8088EN.pdf>
- Data Converter product selection guide: <http://cp.literature.agilent.com/litweb/pdf/5989-8038EN.pdf>
- Digitizers website: www.agilent.com/find/embedded-digitizers

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