

Scanning Acoustic Microscopy Imaging Inspection Equipment

Non-destructive testing of semiconductor and specialty material components in the microelectronics industry.

C-SAM

Features

1-4CH | 5-400MHz

Multi-Channel High
Bandwidth Pulser Receiver

High-Resolution Video
Output: 80~200 MHz

Advantages

Testing time is reduced
from 90 minutes to 9
minutes while scanning
standard 12 inch wafer
samples

Mass Inspection Feature

Reduced takt time by 20
times

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Applications of Scanning Acoustic Microscopes

Beyond Semiconductor

Most semiconductor and microelectronics parts suppliers are moving towards a widespread implementation of advanced failure detection systems. Scanning Acoustic Microscopy (SAM) technologies will play an essential role in quality control of advanced microelectronics because of its precision, reliability, and time-saving advantages.

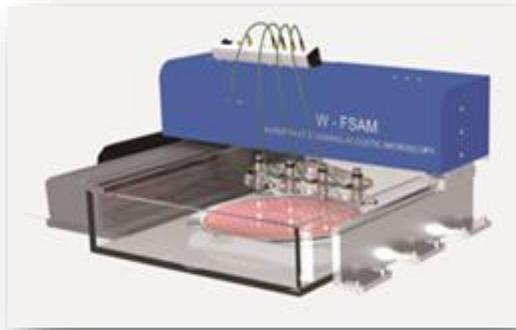
SAM (Scanning Acoustic Microscopy) technology can be used beyond semiconductor applications to provide advanced failure assessment in various materials and components. SAM can be used to detect and locate defects, such as cracks, delamination, and voids, in materials such as metals, composites, ceramics, and polymers. It can also be used for NDT testing of electronic components, such as printed circuit boards and solder joints.

Using SAM technology beyond semiconductor applications will allow an advanced failure assessment for the electronics, military, telecommunications, and consumer applications.

Some of the main advantages of the Scanning Acoustic Imaging technology include:

- Deep penetration into the material
- Capability to inspect unique shapes and sizes
- High imaging quality
- High inspection time

Scanning Acoustic Microscopy provides a highly detailed and accurate method for characterizing and analyzing the internal structure of advanced materials, which is essential for the development and manufacture of high-quality, reliable microelectronics and semiconductor products.



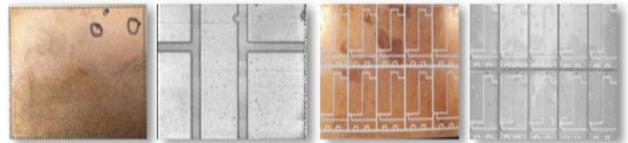
Advantages

Our engineering team developed SAM equipment to eliminate the current limitations of SAM technologies, such as slow processing time, high sensitivity to delamination, high costs, and high failure rate, making it applicable to be used in scientific R&D studies, as well as in mass parts production applications requiring high throughput.

- Decreased inspection time with high imaging quality
- Accurate micro-level measurements, ability to pick up sub-micron features and to distinguish carbon-fiber from other materials
- An option to incorporate 4CH&300 MHz multi-channel and high bandwidth pulser receiver that allows fast processing time and high-resolution video output: 80~200 MHz
- Ability to measure the depth of internal layers to check direct bonds for delamination
- Applicable to be used in scientific R&D studies and analysis, as well as corporate use
- Fast Scanning Acoustic Microscopes (FSAM) reduce takt time by up to 20 times by incorporating a self-developed high-speed scanning module through efficient equipment design
- A-scans, B-scans, C-scans, and through SAM analysis modes are available
- Different types of testing modes can be used, including C-scan which produces 2D sliced images of target layers at a specific depth of the sample

Future of Scanning Acoustic Imaging Inspection Technology

Developed by a S. Korean manufacturer IMT FA, FSAM (Fast Scanning Acoustic Microscopy) equipment supports transducer frequencies ranging from 80 to 300MHz. It delivers fast and advanced analysis making use of the proprietary inspection software by detecting defects in multilayered structures with various thicknesses.



**Semiconductor board imaging*

Fast Scanning Acoustic Microscopes significantly reduce processing time by incorporating an innovative high-speed scanning module with smart equipment design for enhanced process and efficiency. Scanner module is equipped with four channels: four ultrasonic sensors are mounted on the high-speed scanning module to ensure a short tact time.

In mass production, our SAM systems are designed to be highly automated and fast, allowing for the efficient inspection of large numbers of samples in a relatively short period of time. SAM systems are typically integrated into a larger production line, where they are used to perform routine inspections of materials. The results of these inspections are used to monitor and improve the quality of the production process, as well as to identify and isolate any defective components.

Overall, SAM equipment is an essential tool for the semiconductor and microelectronics industries, providing fast and reliable information about the internal structure and quality of materials, which is essential for ensuring the quality and reliability of mass-produced products.