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IPC/JEDEC J-STD-035

Acoustic Microscopy for Non-Hermetic Encapsulated Electronic Components

A joint standard developed by the EIA/JEDEC JC-14.1 Committee on Reliability Test Methods for Packaged Devices and the B-10a Plastic Chip Carrier Cracking Task Group of IPC

Users of this standard are encouraged to participate in the development of future revisions.

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Acoustic Microscopy for Non-Hermetic Encapsulated Electronic Components

1 SCOPE

This test method defines the procedures for performing acoustic microscopy on non-hermetic encapsulated electronic components. This method provides users with an acoustic microscopy process flow for detecting defects non-destructively in plastic packages while achieving reproducibility.

2 DEFINITIONS

2.1 A-mode Acoustic data collected at the smallest X-Y-Z region defined by the limitations of the given acoustic microscope. An A-mode display contains amplitude and phase/polarity information as a function of time of flight at a single point in the X-Y plane. See Figure 1 - Example of A-mode Display.

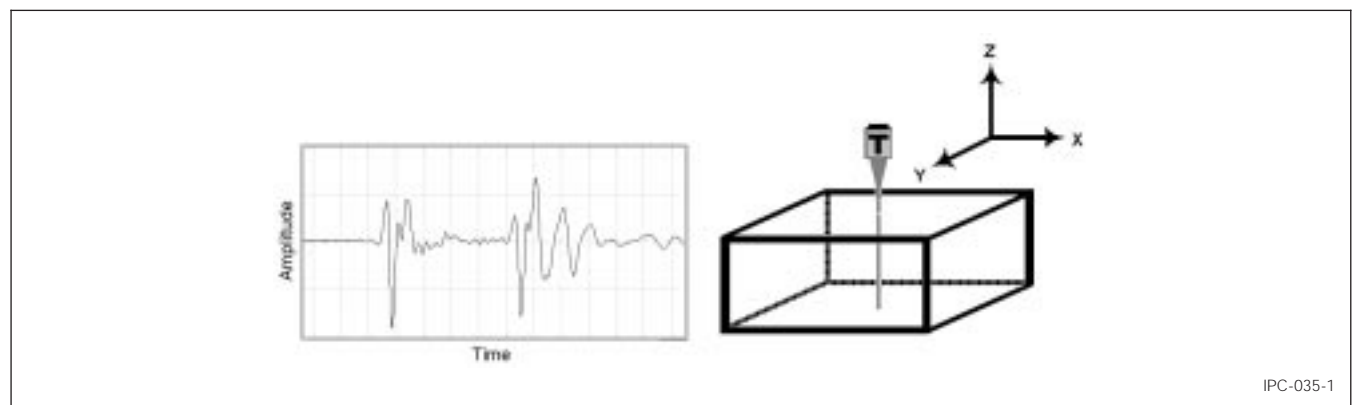


Figure 1 Example of A-mode Display

2.2 B-mode Acoustic data collected along an X-Z or Y-Z plane versus depth using a reflective acoustic microscope. A B-mode scan contains amplitude and phase/polarity information as a function of time of flight at each point along the scan line. A B-mode scan furnishes a two-dimensional (cross-sectional) description along a scan line (X or Y). See Figure 2 - Example of B-mode Display.

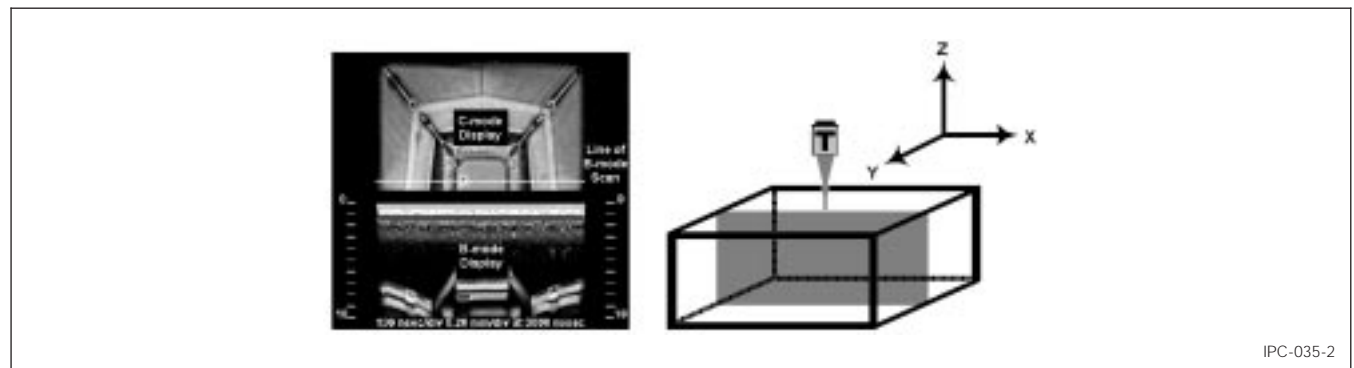


Figure 2 Example of B-mode Display (bottom half of picture on left)

2.3 Back-Side Substrate View Area (Refer to Appendix A, Type IV) The interface between the encapsulant and the back of the substrate within the outer edges of the substrate surface.

2.4 C-mode Acoustic data collected in an X-Y plane at depth (Z) using a reflective acoustic microscope. A C-mode scan contains amplitude and phase/polarity information at each point in the scan plane. A C-mode scan furnishes a two-dimensional (area) image of echoes arising from reflections at a particular depth (Z). See Figure 3 - Example of C-mode Display.