Reducing Board Surface Area and Improving RF Performance by Embedding Ultra-Thin Capacitors

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Board space limitations are pushing for smaller components and greater component density, while maintaining or improving broadband performance. The industry has tried to accommodate board limitations by embedding components within the board material itself. Even though many passive components are designed to have a minimal part height, traditional capacitors are thicker components, which makes them undesirable for embedded solutions. This presentation presents options and limitations for RF and Digital end-use.

The RF portion outlines Metal Oxide Silicon (MOS) Capacitor technology and how these capacitors are ideal for embeddable applications. This ultimately leads to the improvement of high-frequency performance.

The Digital portion covers ultra-thin MLCC and MLCC alternatives. It will also cover practical size and height limitations, along with a brief recap of the technology employed to achieve these components.