Introduction

Plasma Enhanced Chemical Vapor Deposition (PECVD) is commonly used in MEMS manufacturing for depositing thin dielectric films, typically at 350°C – 450°C. However, many MEMS contain materials such as polymers, magnetic layers or bonding adhesives, whose properties are degraded by high temperatures.

Examples include:
- Magnetic sensor passivation for magnetometers
- Anti-reflective coatings on polymer based micro-optics
- Via-last TSV dielectric isolation layers for MEMS wafer level packaging
- Bow compensation layers for thinned silicon

In such cases, the manufacturing process must be tailored to maintain a thermal threshold typically <200°C to avoid degrading device performance and lowering yield.

Low Temperature PECVD

By re-engineering system hardware and processes, uniform and stable SiN and SiO films have been produced at deposition temperatures as low as 100°C.

SiN and SiO films can also be deposited sequentially in the same process chamber.

This low temperature PECVD capability is available on SPTS’s Delta®, LP, c2L and LPX wafer handling platforms.
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