Spraycoat Lithography onto Silicon Carbide-Aluminum Nitride Wafers

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Abstract:

Boston MicroSystems, Inc., used CNF to develop a photoresist spray-coating process used to pattern electrode and packaging metal layers for fabricating piezoelectric microelectromechanical resonators built from silicon carbide substrates and aluminum nitride piezoelectric films.

Summary of Research:

The spray-coated resist was exposed using CNF’s Karl Suss MA6 aligner and developed, to prepare the wafers for metal deposition and liftoff. Key process parameters were studied and optimized, including resist dilution, resist flow rate, number of passes, exposure time, softbake temperature, softbake time and develop time. The spray-coat process parameters and patterned liftoff resist were qualified by subsequent metal deposition and liftoff (both performed outside of CNF), which was successful and resulted in properly functioning devices and high manufacturing yield.