

Continuous inkjet drop generators fabricated from plastic substrates

Fabrication of a functional continuous inkjet drop generator from plastic substrates by exclusively using micro-electromechanical systems (MEMS) processing steps is reported. Polyimide and poly(ethylene naphthalate) sheets that are laminated to a silicon carrier wafer are investigated as the drop generator substrate, and the MEMS processing methods used and associated challenges are discussed in detail. Successful generation of drops in a 600-nozzles-per-inch array that are as small as 2.4 pL in volume (16.5 μm in diameter) at drop velocities of 15.5 m/s is realized with these devices.