University of Maryland NSF-MRSEC Highlight:

Flexible RF Inductors by Transfer Printing

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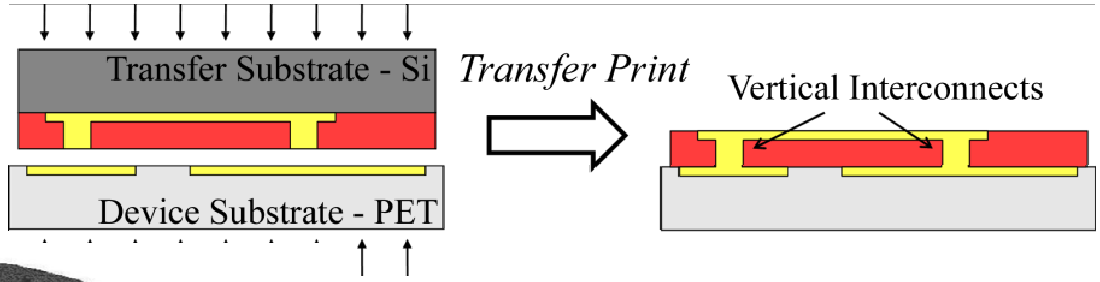
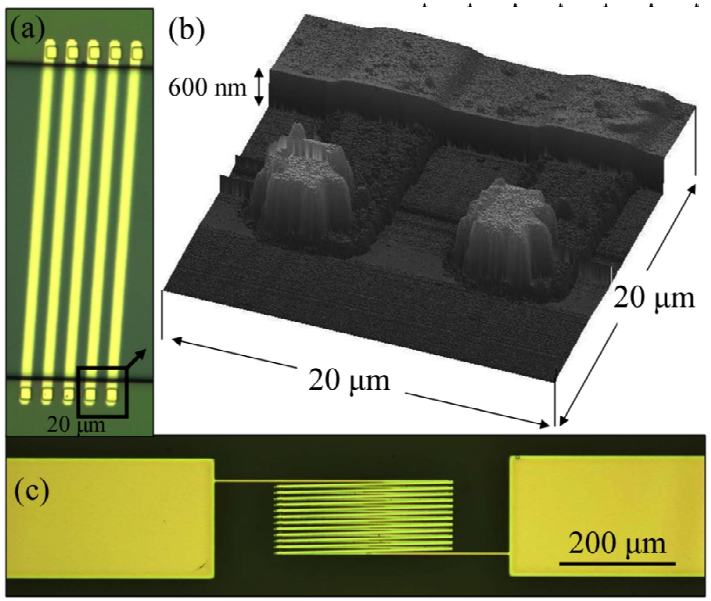
Large area electronics fabricated on flexible substrates, generally plastic sheets, are attractive for potential low manufacturing costs, the possibility of incorporating disparate types of materials, and applications such as large area displays and electronic paper. Complex integration approaches, especially multilayer structures, can be difficult as many tools are not compatible with the plastics. **Maryland MRSEC** researchers collaborating with Federal Laboratory (LPS) researchers have developed a transfer printing approach, where lithography is done on a sacrificial wafer, for fabricating multilayer structures with high performance.





100 Micron Size Inductors

Left Top: Optical image and Force microscope image of the vertical interconnects (vias) and dielectric before transfer printing.

Left Bottom: Optical image of the completed horizontal inductor with 24 vias of resistance < 0.5Ω apiece. Flexible inductors were tested to 5GHz, with textbook inductance behavior and quality factors that scale to industry standards for RF-CMOS.

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