



ABSTRACT

Thin-films are fabricated onto a substrate for use in supporting a high-speed, high-frequency electronic device. In one embodiment, the inventive process includes coating a polytetrafluoroethylene (PTFE) layer, that acts as a thin-film dielectric layer, onto the substrate. Portions of the PTFE coated surface are then selectively radiated to cross-link the chemical chains of the PTFE and to form a chemically inert surface on the exposed portions. The coated and radiated surface is subsequently etched to increase friction of the coated surface but leaving the chemically inert irradiated portions smooth and unetched. A patterned mask layer is subsequently formed on the radiated portions of the surface for depositing a thin-film metal conductor layer between the openings in the patterned mask layer. Once deposited, the metal conductor layer adheres to the etched coated surface due to the increased frictional properties of the etched surface.