ABSTRACT

A METHOD OF FORMING AN INDUCTOR WITH CONTINUOUS METAL DEPOSITION

A method is described to fabricate RF inductor devices on a silicon substrate. Low-k or other dielectric material is deposited and patterned to form inductor lower plate trenches. Trenches are lined with barrier film such as TaN, filled with copper, and excess metal planarized using chemical mechanical polishing (CMP). Second layer of a dielectric material is deposited and patterned to form via-hole/trenches. Via-hole/trench patterns are filled with barrier material, and the dielectric film in between the via-hole/trenches is etched to form a second set of trenches. These trenches are filled with copper and planarized. A third layer of a dielectric film is deposited and patterned to form via-hole/trenches. Via-hole/trenches are then filled with barrier material, and the dielectric film between via-hole/trench patterns etched to form a third set of trenches. These trenches are filled with copper metal and excess metal removed by CMP to form said RF inductor.

FIGURE 10