ABSRACT

A METHOD TO FORM UNIFORM SILICIDE FEATURES

A method for forming uniform ultrathin silicide features in the fabrication of an integrated circuit is described. A metal layer is deposited over the surface of a silicon semiconductor substrate. An array of heated metallic tips contact the metal layer whereby the metal layer is transformed to a metal silicide where it is contacted by the metallic tips and wherein the metal layer not contacted by the metallic tips is unreacted. The unreacted metal layer is removed leaving the metal silicide as uniform ultrathin silicide features. Alternatively, a metal acetate layer is spin-coated over the surface of a silicon semiconductor substrate. An array of heated metallic tips contacts the metal acetate layer whereby the metal acetate layer is transformed to a metal silicide where the metallic tips contact the metal acetate layer and wherein the metal acetate layer not contacted by the metallic tips is unreacted. Or the metal acetate layer is heat treated at localized regions using a multi-array of tips aligned in a specific layout. Or the metal acetate layer is contacted by heated metallic tips under vacuum so that the metal does not oxidize. The unreacted metal acetate layer is removed leaving the metal silicide as the uniform ultrathin silicide features.

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)