

**METHOD OF FORMING A SILICIDE LAYER USING METALLIC
IMPURITIES AND PRE-AMORPHIZATION**

ABSTRACT

An embodiment of the instant invention is a method of making a transistor having a silicided gate structure insulatively disposed over a semiconductor substrate, the method comprising the steps of: forming a conductive structure insulatively disposed over the semiconductor substrate (step 302 of FIGURE 3); introducing a silicide enhancing substance into the conductive structure (step 304 of FIGURE 3); amorphizing a portion of the conductive structure; forming a metal layer on the conductive structure (step 310 of FIGURE 3); and wherein the metal layer interacts with the silicide enhancing substance in the amorphized portion of the conductive structure so as to form a lower resistivity silicide on the conductive structure. The conductive structure is, preferably, comprised of: doped polysilicon, undoped polysilicon, epitaxial silicon, or any combination thereof. Preferably, the silicide enhancing substance is comprised of: molybdenum, Co, W, Ta, Nb, Ru, Cr, any refractory metal, and any combination thereof. The metal layer is, preferably, comprised of: titanium, Co, W, Mo, nickel, platinum, palladium, and any combination thereof.

Figure 3

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED