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(54) **SEMICONDUCTOR DEVICE WHICH MINIMIZES PACKAGE-SHIFT EFFECTS IN INTEGRATED CIRCUITS BY USING A THICK METALLIC OVERCOAT**

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(52) **U.S. Cl.** **257/787; 257/678; 257/795**

(58) **Field of Search** 438/112, 124, 438/126, 127, 106; 257/678, 729, 787, 788, 789, 795, 796

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(57) **ABSTRACT**

A structure and method of minimizing package-shift effects in integrated circuits is implemented by using a thick metallic overcoat applied after the deposition and patterning of the conventional insulating protective overcoat. The metallic overcoat most preferably comprises a layer of electrolytically deposited copper approximately 15 μm thick that is patterned to provide for electrically independent regions; but an unbroken area of the metallic overcoat is left over any sensitive analog circuitry, such as a bandgap reference circuit. The thick metallic coating, in addition to minimizing package-shift effects, is also useful as a low-resistance routing layer. The metallic overcoat is sufficiently thin to allow low-profile packaging. The method employs a conductive overcoat that is significantly thin compared to conventional insulating conformal overcoats.

5 Claims, 3 Drawing Sheets



