

PROTECTING ANODES FROM PASSIVATION IN ALLOY PLATING SYSTEMS

ABSTRACT OF THE DISCLOSURE

5 An apparatus for continuous simultaneous electroplating of two metals having substantially different standard electrodeposition potentials (e.g., for deposition of Sn-Ag alloys) comprises an anode chamber for containing an anolyte comprising ions of a first, less noble metal, (e.g., tin), but not of a second, more noble, metal (e.g., silver) and an active anode; a cathode chamber for containing catholyte including ions of a first metal (e.g., tin),
10 ions of a second, more noble, metal (e.g., silver), and the substrate; a separation structure positioned between the anode chamber and the cathode chamber, where the separation structure substantially prevents transfer of more noble metal from catholyte to the anolyte; and fluidic features and an associated controller coupled to the apparatus and configured to perform continuous electroplating, while maintaining substantially constant concentrations of
15 plating bath components for extended periods of use.

Fig. 3