

Study on the Fabrication of Copper Microcolumn Array Structure by Localized Electrochemical Deposition

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ABSTRACT

Usually for the structure which is fabricated by micro-forming process, the mechanical structure and material property are easily affected by the fabrication method used. In this study, we improved the localized electrochemical deposition by employing horizontally aligned anode to fabricate a cantilever copper beam which is in the dimensions of micrometers. A 25- μ m Pt thread embedded directly inside a borosilicate glass tube was fabricated as the anode. The effects of various control parameters of the deposition process, e.g. potential and electrode gap were also studied. Several quantified measures were employed to correlate the effects of the control parameters and the appearance of the deposited copper microstructure. Based on the optimal control parameters, an array microstructure were fabricated to validate the effort in improving the efficiency of the manufacturing process.

Keywords : Localized electrochemical deposition、Cantilever beam、Horizontal deposition、Array deposition

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