

Structuring of Multilayer Aluminum Nickel by Lift-off Process Using Cheap Negative Resist

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Abstract : The lift-off technique of the photoresist for metal patterning in integrated circuit (IC) packaging has been widely utilized in the field of microelectromechanical systems and semiconductor component manufacturing. The main advantage lies in cost-saving, reduction in complexity, and maturity of the process. The selection of photoresist depends upon many factors such as cost, the thickness of the resist, comfortable and valuable parameters extraction. In the present study, an extremely cheap dry film photoresist E8015 of thickness 38-micrometer is processed for the first time for edge profiling, according to the author's best knowledge. Successful extraction of the helpful parameter range for resist processing is performed. An undercut angle of 66 to 73 degrees is realized by parameter variation like exposure energy and development time. Finally, 10-micrometer thick metallic multilayer aluminum nickel is lifted off on the plain silicon wafer. Possible applications lie in controlled self-propagating reactions within structured metallic multilayer that may be utilized for IC packaging in the future.

Keywords : lift-off, IC packaging, photoresist, multilayer

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