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THE INFLUENCE OF PEEL STRENGTH BETWEEN UBM LAYERS AND POLYIMIDE ON THE SHEAR STRENGTH OF SOLDER BUMPS, S. J. Heo and Y. -H. Kim (Dept. of Mat. Eng., Hanyang Univ., Seoul, 133-791, Korea), B. J. Han and J. H. Yoon (Anam Semiconductor Co Ltd., Seoul, 133-120, Korea)

Underbump metallurgy (UBM) which provides a good soderable surface for flip chip solder bump should have strong adhesion to the underlying passivation layer. The ball shear strength of solder bump is affected by the adhesion of UBM to the passivation layer. We measured the peel strength of UBM layers to polyimide and tried to correlated the peel strength with the ball shear strength of solder bump. Au/Cu/Cr thin films were deposited onto polyimide/Si by using DC magnetron sputtering machine. Solder bumps were formed by screen printing of Pb/Sn solder pastes and reflow process. Adhesion of UBM metals were measured by peel tests. The shear strength of solder bumps was low when the peel strength of UBM onto polyimide was poor. The peel strength of UBM is strongly affected by the pretreatment condition of polyimide surface prior to metal deposition.

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