

Effect of aging time towards intermetallic compound (IMC) growth kinetics formation for Sn-0.7Cu-Si₃N₄ composite solder on copper substrate

Abstract

The effect of excessive intermetallic growth to the reliability of solder joints become major problem in electronic assemblies industry. In this investigation, we used Sn-0.7Cu/1.0-Si₃N₄ composite solder to analyze its interfacial joint on Cu substrate. Various isothermal of aging times were carried in this study by using 24hrs, 240hrs, 480hrs, 600hrs and 720hrs at 150°C of aging temperature. The Cu-Sn IMC thickness was increase with increasing aging time and the diffusion coefficient of this composite solder is $1.16 \times 10^{-16} \text{m}^2/\text{s}$.

Keywords — Composite, growth kinetics, intermetallic,