### Accepted Manuscript

Title: Effect of Ag<sub>3</sub>Sn nanoparticles and temperature on Cu<sub>6</sub>Sn<sub>5</sub> IMC growth in Sn-xAg/Cu solder joints

Authors: Bingfeng Guo, Anil Kunwar, Ning Zhao, Jun Chen,

Yunpeng Wang, Haitao Ma

PII: S0025-5408(17)33343-3

DOI: https://doi.org/10.1016/j.materresbull.2017.11.022

Reference: MRB 9680

To appear in: *MRB* 

Received date: 21-8-2017 Revised date: 8-11-2017 Accepted date: 9-11-2017

Please cite this article as: Bingfeng Guo, Anil Kunwar, Ning Zhao, Jun Chen, Yunpeng Wang, Haitao Ma, Effect of Ag3Sn nanoparticles and temperature on Cu6Sn5 IMC growth in Sn-xAg/Cu solder joints, Materials Research Bulletin https://doi.org/10.1016/j.materresbull.2017.11.022

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



## ACCEPTED MANUSCRIPT

# Effect of Ag<sub>3</sub>Sn nanoparticles and temperature on Cu<sub>6</sub>Sn<sub>5</sub> IMC growth in Sn-xAg/Cu solder joints

Bingfeng Guo<sup>a</sup>, Anil Kunwar<sup>b</sup>, Ning Zhao<sup>a,\*</sup>, Jun Chen<sup>a</sup>, Yunpeng Wang<sup>a</sup>, Haitao Ma<sup>a,\*</sup>

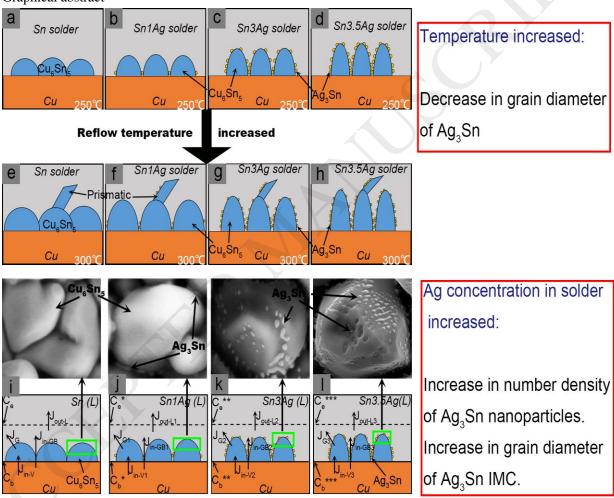
<sup>a</sup>School of Materials Science and Engineering, Dalian University of Technology, Dalian 116024, China;

<sup>b</sup>School of Mechanical Engineering, Dalian University of Technology, Dalian 116024, China;

\*Corresponding author: Tel:+86 0411 -8470736

E-mail: zhaoning@dlut.edu.cn(Ning Zhao); htma@dlut.edu.cn(Haitao Ma)

#### Graphical abstract



#### Highlights

- The number density of Ag3Sn grains precipitated upon Cu6Sn5, increases with Ag content and reflow temperature.
- An increase of Ag content in solder whereas a decrease in reflow temperature causes the increase of the grain diameter of Ag3Sn nanoparticles.
- The blockading effect of Ag3Sn particles on Cu6Sn5 IMC growth is more severe in Sn-3Ag and Sn-3.5Ag alloys.

#### Download English Version:

## https://daneshyari.com/en/article/7904956

Download Persian Version:

https://daneshyari.com/article/7904956

<u>Daneshyari.com</u>