Sensors and Materials, Vol. 23, No. 2 (2011) 101–110
MYU Tokyo

S & M 0830

Interconnection Characteristics of Rivet Packaging for Radio Frequency Microelectromechanical Systems Applications

Sungchan Kang, Eunsung Lee[1], Hyeon Cheol Kim[2],
Byeungleul Lee[3] and Kukjin Chun[*]

ISRC, School of Electrical Engineering and Computer Sciences, Seoul National University,
San 56-1, Shinlim-dong, Kwanak-gu , Seoul 151-742, Korea
[1]Department of Packaging Center, Samsung Advanced Institute of Technology,
Mt. 14-1, Nongseo-dong, Giheung-gu, Yongin-si Gyeonggi-do 446-712, Korea
[2]School of Electrical Engineering, University of Ulsan,
Mugeo 2-dong, Nam-gu, Ulsan 680-749, Korea
[3]School of Mechatronics Engineering, Korea University of Technology and Education,
1800 Chungjeollo, Byeongcheon-myeon, Cheonan-si Chungnam 330-708, Korea

(Received December 15, 2009; accepted April 21, 2010)

Key words: rivet packaging, wafer-level package, RF MEMS, through-via

In this paper, we present an alternative method of rivet packaging for radio frequency microelectromechanical system (RF MEMS) devices and evaluate its electrical characteristics. The rivet packaging enables not only encapsulation but also through-via interconnection at the same time. Moreover, it is possible to achieve a wafer-level process. The electrical performance was evaluated using Cu hollow-filled through-via interconnection. The overall insertion loss of the through-via interconnection from the bottom CPW to the top CPW decreased from 0.04 to 0.11 dB at 2 GHz and from 0.06 to 0.23 dB at 5 GHz.

[*]Corresponding author: e-mail: kchun@snu.ac.kr