

MANUFACTURE OF LOW COST SAW DEVICES FOR CHEMICAL SENSING

Angela BARACU¹, Valentin BUICULESCU¹, Monica NEDELICU²,
Adrian DINESCU¹, Raluca MÜLLER¹, Gheorghe BREZEANU³

Abstract. *This paper presents the fabrication of a low cost SH-SAW sensor used for chemical sensing. The structure is based on a standard delay line configuration, using a 36° rotated Y-cut X-propagating LiTaO₃ regular substrate with both piezoelectric and pyroelectric effects. The packaging process and device characterization provided by analyzing the transmission parameters (amplitude and phase) of the surface acoustic wave are also discussed. In the end, there is presented the characterization method of the SAW chemical sensor using the vector network analyser.*

Keywords: SAW devices, Chemical Sensors, LiTaO₃ (36°YX), piezoelectric substrate

¹National Institute for Research and Development in Microtechnologies - IMT Bucharest, Simulation, Modelling and Computer-Aided Design Laboratory, 126A, Erou Iancu Nicolae Street, 077190, Bucharest Romania (e-mail Angela BARACU: angela.baracu@imt.ro).

²ROM-QUARTZ S.A. 126 A, Erou Iancu Nicolae Street, 077190, Bucharest Romania.

³“Politehnica” University of Bucharest, Department of Electronic Devices, Circuits and Architectures, Splaiul Independentei Street, No. 313, 060042, Bucharest Romania.