

MEMS Switch as High Speed Sample and Hold Circuit

Mazhar B.Tayel*, Ahmed Kh. Mahmoud**

Faculty of Engineering, Alexandria University, Alexandria, Egypt
 profbasyouni@gmail.com*, ahmedkhairy2@gmail.com**

Abstract- This paper introduces a use of special design MEMS used as low insertion loss sample and hold (S/H) circuit, replacing the GaAsFET switch with MEMS switch. The use of electrostatic MEMS switches is attractive because of its advantages, such as very low power consumption, low insertion loss and high isolation. The introduced MEMS switch is capable to perform at high speed, since it does not include transistor in its structure. Insertion loss in the case of GaAsFET switch is -10.506 dB while its value in the case of MEMS switch is -.086 dB at 20GHz, the proposed circuit have insertion loss reduction 99.2%

Keywords— MEMS, Sample and Hold Circuit, GaAs FET switch, MEMS switch

BIOGRAPHIES



Mazhar B. Tayel was born in Alexandria, Egypt on Nov. 20th, 1939. He was graduated from Alexandria University Faculty of Engineering Electrical and Electronics department class 1963. He published many papers and books in electronics, biomedical, and measurements. Prof. Dr. Mazhar Basyouni Tayel had his B.Sc. with honor degree in 1963, and then he had his Ph.D. Electro-physics degree in 1970. He had this Prof. degree of elect. and communication and Biomedical Engineering and systems in 1980. Now he is Emeritus Professor since 1999. From 1987 to 1991 he worked as a chairman, communication engineering section, EED BAU-Lebanon and from 1991 to 1995 he worked as Chairman, Communication Engineering Section, EED Alexandria. University, Alexandria Egypt, and from 1995 to 1996 he worked as a chairman, EED, Faculty of Engineering, BAU-Lebanon, and from 1996 to 1997 he worked as the dean, Faculty of Engineering, BAU - Lebanon, and from 1999 to 2009 he worked as a senior prof., Faculty of Engineering, Alexandria. University, Alexandria Egypt, finally from 2009 to now he worked as Emeritus Professor, Faculty of Engineering, Alexandria University, Alexandria Egypt. Prof. Dr. Tayel worked as a general consultant in many companies and factories also he is Member in supreme consul of Egypt. E.Prof. Mazhar Basyouni Tayel.



Ahmed Khairy Mahmoud is a Post Graduate Student (Ph.D.), Alexandria University, Alexandria, Egypt and became a Member of IEEE in 2012. He was born in **Sohag**, Egypt in 1974. He holds B.Sc. in Electronics and Communications from Faculty of Engineering, Alexandria University, M.Sc. in Electrical Engineering from Faculty of Engineering, Alexandria University. He received many technical courses in electronic engineering design and Implementation.