World Academy of Science, Engineering and Technology
International Journal of Electronics and Communication Engineering
Vol:12, No:06, 2018

Multi-Level Pulse Width Modulation to Boost the Power Efficiency of Switching Amplifiers for Analog Signals with Very High Crest Factor

Authors : Jan Doutreloigne

Abstract : The main goal of this paper is to develop a switching amplifier with optimized power efficiency for analog signals with a very high crest factor such as audio or DSL signals. Theoretical calculations show that a switching amplifier architecture based on multi-level pulse width modulation outperforms all other types of linear or switching amplifiers in that respect. Simulations on a 2 W multi-level switching audio amplifier, designed in a 50 V 0.35 mm IC technology, confirm its superior performance in terms of power efficiency. A real silicon implementation of this audio amplifier design is currently underway to provide experimental validation.

Keywords : audio amplifier, multi-level switching amplifier, power efficiency, pulse width modulation, PWM, self-oscillating amplifier
Conference Title : ICAEBC 2018 : International Conference on Analog Electronics and Basic Circuits
Conference Location : San Francisco, United States
Conference Dates : June 06-07, 2018