

**“Behavior of a common source traveling wave amplifier versus temperature in SOI technology”, pp. 288 - 292**

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**Abstract** – In this paper, the design and the results of a CMOS Silicon-on-Insulator (SOI) traveling wave amplifier (TWA) versus temperature are presented. The four stage TWA is designed with a single common source n-MOSFET in each stage using a 130 nm SOI CMOS technology requiring a chip area of 0.75 mm<sup>2</sup>. A gain of 4.5 dB and a unity gain bandwidth of 30 GHz are measured at 1.4 V supply voltage for a power consumption of 66 mW. The designed circuit has been characterized over a temperature range from 25 to 300°C. The performance degradation on the gain of the TWA, the SOI transistors as well as the microstrip lines used for the matching network are analyzed.