

Abstracts

Novel BiCMOS compatible, short channel LDMOS technology for medium voltage RF & power applications (2002 [RFIC])

A. Litwin, O. Bengtsson and J. Olsson. "Novel BiCMOS compatible, short channel LDMOS technology for medium voltage RF & power applications (2002 [RFIC])." 2002 Radio Frequency Integrated Circuits (RFIC) Symposium 02. (2002 [RFIC]): 289-292.

We describe a very short channel, 0.15 μ m, LDMOS transistor, with a breakdown voltage of up to 45 V, manufactured in a standard 0.35 μ m BiCMOS process. At 1900 MHz and a 12 V supply voltage the 0.4 mm gate width device gives 100 mW output power P_{sub 1 dB} at a drain efficiency of 43%. It has a transducer power gain of more than 20 dB and a current gain cutoff frequency, f_T, of 13 GHz. The maximum available gain cutoff frequency, f_{MAX}, is 27 GHz. The LDMOS process module does not affect the performance or models of other devices. We present for the first time a simple way to create high voltage, high performance LDMOS transistors for RF power amplifier use even in a very downscaled silicon technology.

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